Enabling poor rural people
to overcome poverty

Republic of Kenya

Kenya Cereal Enhancement Programme (KCEP)

Programme Design Report

Main report and appendices

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Contents

Appendices

Currency equivalents

Currency Unit	=	
US$1.0	=	

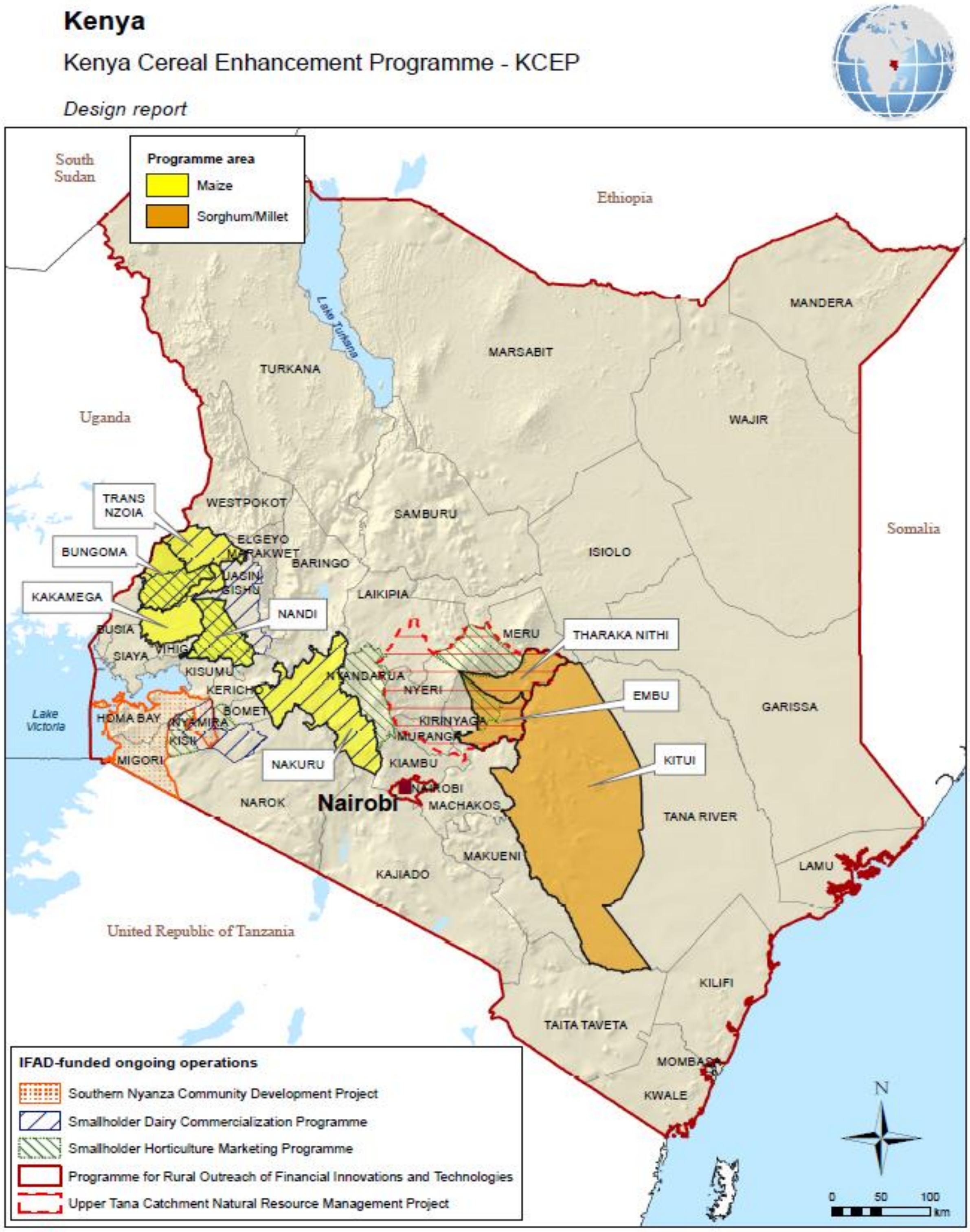
Weights and measures

1 kilogram	=	1000 g
1 000 kg	=	2.204 lb.
1 kilometre (km)	=	0.62 mile
1 metre	=	1.09 yards
1 square metre	=	10.76 square feet
1 acre	=	0.405 hectare
1 hectare	=	2.47 acres

Abbreviations and acronyms

AEZ	Agro-Ecological Zone
ASAL	Arid and Semi-Arid Lands
ASDS	Agriculture Sector Development Strategy
AWPB	Annual Work Plan and Budget
CGA	Cereal Growers' Association
COSOP	Country Strategic Opportunities Programme
EAGC	Eastern Africa Grain Council
EU	European Union
FAO	Food and Agricultural Organisation
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
GO	Government of Kenya
KARI	Kenya Agriculture Research Institute
KCEP	Kenya Cereal Enhancement Programme
KENFAP	Kenya National Federation of Agricultural Producers
KFSSG	Kenya Food Security Steering Group
KIHBS	Kenya Integrated Household Budget Survey
KM	Knowledge Management
KMDP	Kenya Maize Development Programme
KS	Kenyan Shilling
IPNI	International Plant Nutrition Institute
IT	Information Technologies
LLC	Limited Liability Companies
M&E	Monitoring and Evaluation
MHP	Medium High Potential
MIS	Management Information System
Moa	Ministry of Agriculture
Mou	Memorandum of Understanding
NAAIAP	National Accelerated Agricultural Input Access Program
NALEP	National Agricultural and Livestock Extension Programme
NASEP	National Agriculture Extension Strategy
NGO	Non Governmental Organization
OPV	Open Pollinated Varieties
POS	Point of Service
PROFIT	Programme for Rural Outreach of Financial Innovations and Technologies
PIU	Project Implementation Unit
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
RIMS	Results and Impact Management System
SHOMAP	Smallholder Horticulture Marketing Programme
Tegemeo	Tegemeo Institute for Agricultural Policy and Development
USAID	United States Agency for International Development

Map of the KCEP area



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The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 18-07-2013

Executive Summary[1]

1. **Country Strategy**:Kenya Vision 2030 identifies agriculture as one of the key economic sectors expected to drive the economy. Kenya‘s agriculture is predominantly rain-fed. High on the agenda is access to agricultural inputs and irrigation. Other challenges include climate change affecting more severely the arid and semi-arid lands (ASAL) which also have some of the highest levels of poverty incidence and population pressure leading to further land degradation. Priorities of Agricultural Sector Development Strategy (ASDS) 2010-2020 are in line with Vision 2030. Assuming a conducive environment, the agricultural sector has set the following targets by 2015: (i) reduced number of people living below absolute poverty lines to less than 25 percent, to achieve the first MDG; (ii) reduced food insecurity by 30 percent to surpass the MDGs; (iii) increased contribution of agriculture to GDP by more than KES 80 billion per year as set out in Vision 2030; (iv) divest from all state corporations handling production, processing and marketing that can be better done by the private sector; and (v) reformed and streamlined agricultural services such as in research, extension, training and regulatory institutions to make them effective and efficient.

2. **Rural Poverty**: Nearly half (48%) of Kenya’s rural population is living below the poverty line or unable to meet its nutritional requirements. High levels of rural poverty persist because of the high population growth rate, small landholdings, frequent droughts, large rural income disparities, and strong linkages between poverty and environmental degradation particularly poor water management, soil erosion and declining fertility. The majority of the poor live in the medium-high potential areas that cover about 16% of the country. The Arid and Semi-Arid Lands have the lowest development indicators and the highest incidence of poverty. Food security continues to be a major concern with an estimated 3.8 million people in rural areas either highly or extremely food insecure. The agriculture sector remains the backbone of the economy, although its share in the GDP has declined from nearly 40% in the 1970s, to about 28% in 2011. About 80% of people working in agriculture are smallholders, who use low quantities of modern inputs, ignore appropriate practices to revert soil degradation, have limited access to technical and financial services, have significant post-harvest losses, selling mostly at farm gate at low prices. Women contribute 80% of all labour in food production and 50% in cash crop production, it is estimated that over 40% of smallholder farms are managed by women as men increasingly migrate for non-agricultural labour. Female-headed households have lower income and higher poverty incidences. Youth form 30% of the population and 60% of the total labour force. The majority is unemployed and lack resources to start their own business.

3. **Food security and nutrition**. An estimated 47% of the rural population have insufficient food to meet their daily energy requirements. Official data indicate that there is a 33% rate of stunting among children of up to five years of age, and that 20% of all children are underweight. Very little progress has been made in combating chronic malnutrition.

4. **Policy and Institutional Framework:** Kenya has a comprehensive set of policies and strategies covering agriculture, rural development, social equity and environmental management under the umbrella of a new constitution which was promulgated in 2010. The new constitution brings about fundamental changes to the way Kenya is governed, in particular through devolution of administrative responsibilities to the counties, and through consolidation of the fragmented institutional architecture into a much smaller number of ministries and institutions.

5. **Project Rationale:**Kenya is a food deficit country even in a bumper harvest year importing up to 20 per cent of its annual cereal requirements. Poverty is inextricably related to food insecurity. Countrywide, an estimated 47% of the rural population has insufficient food to meet their daily energy

[1]Mission composition: The mission was composed of Nadine Gbossa, IFAD Country Director and Head of Regional Office, Joseph Nganga, Country Programme Officer, Carlo Bravi, IFAD CPM and Team Leader, Jonathan Agwe, IFAD Lead Technical Adviser and Rural Finance Specialist, Agnès Deshormes, Rural Institutions Specialist, Yamina Cherrou, Agronomist (FAO/Investment Center), Robert Delve, Agronomist (IFAD/PTA), Thierry Mahieux, Rural Finance Expert, Muli Musinga, Value Chain Analysis and Market Access Specialist and MuneneKiura, Sociologist. In the Rift Valley, the team was joined by Ms. StellahNyaga and in the Eastern Region by Ms. Daphne Muchai, both from KENFAP Agribusiness Department. Mr. Gianluca Capaldo, Financial Management Specialist, and Mr. Lawrence Bartolomucci, Economist, completed the mission in Rome.

requirements. Improvement in the main cereal commodities - maize, sorghum, and millet- is constrained by limited adoption of crop technologies including improved seed varieties, adequate fertilizer use, soil and water management, conservation agriculture, processing and storage. KCEP will target three main rain-fed cereals of the country -maize, sorghum and millet- and pulses which are both traditional staple food and hold important marketing potential. This unmet potential has significant scope for enhancing food security and improving income for smallholders. Building on lessons learned from the National Accelerated Agricultural Inputs Access Programme (NAAIAP) and capitalizing on the unsatisfied demand for maize, sorghum and millet, the KCEP will support smallholders in graduating from subsistence agriculture to commercial farming along a value-addition approach. The programme will be based on a public/private partnership between the Government of Kenya, the European Union, IFAD, and Equity Bank that will set up an electronic voucher scheme for smallholders' access to agricultural inputs and inclusive banking services. KCEP is a direct contribution to the achievement of the Kenya Agricultural Sector Development Strategy. It is in line with the objectives of the Kenya Rural Development Programme (KRDP), and expected results of the Kenya COSOP (2013-18)which supports key objectives in the agricultural sector: intensification, value addition and market access, as well as sustainable natural resource management in the ASAL with a core target group of poor smallholder farmers and agro-pastoralists.The Kenya COSOP is scheduled for presentation to IFAD Executive Board of September 2013.

6. **Project Area.** The programme area will cover 8 of the 47 counties of which five are in the maize production zones - Bungoma, Kakamega, Nakuru, Nandi and Trans Nzoia - and three in the semi-arid areas growing sorghum and millet - Embu, Kitui and Tharaka. Counties were selected using 5 key criteria: (i) agro-ecological and economic potential; (ii) poverty incidence; (iii) population density; (iv) target commodity contributing to household income/food security and representing the best option the poor have for market participation; (v) geographical concentration to maximise impact. Within these counties 16 sub-counties will be selected jointly with the Ministry of Agriculture (MoA) for KCEP support at project start-up using the same criteria.

7. **Target Group.** KCEP will target100,000 smallholders whose livelihoods revolve around maize, sorghum and millet including (i) 40,000 subsistence farmers who will be supported in graduating to commercial agriculture - of which 20,000 are producers of maize, 15,000 of sorghum, and 5,000 of millet; and (ii) 60,000 small farmers who are already engaged in developing farming as a business based on appropriate use of agricultural inputs and improved agricultural practices. Special focus will be on women-headed households and youth given the specific constraints they face in accessing agricultural services and inputs. A secondary target group will be stakeholders in the three value chains who will facilitate smallholders' access to enhanced agricultural services, namely agro-dealers, private extension services, buyers, processors, and leading farmers providing support services to smallholders. A Gender and Social Inclusion (GESI) Target Strategy will be designed at project onset to ensure GESI mainstreaming throughout project activities based implementation plans annually revised and updated with project stakeholders.

8. **Programme Objectives and main outputs.**As part of its goal, KCEP will contribute to improved living conditions of beneficiary households through (i) extraction of at least 66,000 of them from poverty; (ii) improvement in assets ownership index (productive assets, bikes, radios, improved housing, tin roofs); and (iii) percentage reduction in the prevalence of child malnutrition (baseline: 33% rate of stunting). The overall development objectives of the KCEP are to(i) contribute to national food security by increasing production of cereal staples (maize, sorghum, millet, and associated pulses), and increase income of smallholders in medium and high potential production areas of targeted crops (ii) support smallholder farmers in graduating from subsistence to commercial agriculture. Key indicators are: (i) 100,000 households directly reached by KCEP of which 40,000 are subsistence smallholders and 60,000 more advanced smallholders; (ii) 32,000 subsistence households graduating to commercial agriculture; (iii) 80,000 households bulking their production and improving their share of the final price; (iv) national grain deficit reduced by 41,000 tons (equivalent 10% of total).

9. **Components.** KCEP is structured around three technical components:

- **Component 1 – Cereal Productivity Enhancement** will support subsistence farmers in increasing grain and pulses production. Activities will support the development of effective support services to farmers -including appropriate technical packages, advisory services and input supply- to increase the quantity and quality of production (Sub-component 1), and the strengthening of farmers' organisations (Sub-component 2).

- **Component 2 - Post-Harvest Management and Market Linkages** aims at capitalizing productivity gains arising from investments made under Component 1, by promoting improved on-farm grain handling and management, access to storage and warehouse receipt systems, increasing smallholders' access to markets, and building up their capacities to sell their produce at more favourable terms and prices.
- **Component 3 – Financial Inclusion** is designed to facilitate smallholders' access to (i) agricultural inputs through an electronic voucher system;(ii) financial services to upgrade from subsistence to commercial farming; and (iii) value adding facilities, either as owners or as users, so that they can increase their income through higher returns on production and processing.

10. **Programme Implementation.** MoA will be the implementing agency with responsibility for overall management, coordination and oversight of the programme assisted by a project Implementation Unit. County Agriculture Offices will facilitate project implementation at the decentralized level. Equity Bank will be a partner to KCEP for setting up and operating the e-voucher system and providing access to financial services to producers and other value chain stakeholders. Implementing partners will also include the Kenya Agricultural Research Institute (KARI) for dissemination of research-based technical packages; the International Plant Nutrition Institute (IPNI) for soil sampling; the Cereal Growers' Associations (CGA) for farmers' group development and advisory services, and capacity building of County Agricultural Offices; and AGMARK for building the capacities of agro dealers. Within the Country Programme, specific operational linkages will be promoted between KCEP and IFAD-financed PROFIT (Programme for Rural Outreach of Financial Innovations and Technologies). An insurance company will be competitively selected to provide access to weather insurance. A Project Steering Committee gathering the representatives of main stakeholders involved in project implementation will provide overall guidance and oversight.

11. **Programme phasing.** KCEP is conceived to be implemented over a first phase of four years. During this initial period, it will document successful business models to pave the way for scaling up under a second phase, which the European Union is planning to finance by early 2014[2]. Decision on scaling up KCEP will be based on assessment of programme achievements and lessons learned documented in the PIU progress report and the programme review. Recommendation for scaling up will be submitted to the steering committee for endorsement based on the above for consideration by the Lead Agency, the EU and IFAD.

[2] The EU Delegation in Kenya has already announced that an additional EURO 10 million will be made available from EDF 10^{th} and 11^{th} EDF to KCEP by early 2014.

Logical Framework

Results Hierarchy	Key Performance Indicators	Means of verification	Risks/Assumptions
Goals • Incomes of target smallholders increased and poverty sustainably reduced • National food security improved via increased production of targeted cereals and pulses	▪ Extraction of at least 66,000 households from poverty ▪ Number of households with improvement in assets ownership index (productive assets, bikes, radios, improved housing, tin roofs, etc.) ▪ Percentage reduction in the prevalence of child malnutrition (baseline: 33% rate of stunting)	• Randomised control Trial • Household income and expenditure surveys • RIMS impact survey questionnaire (baseline/final)	• Continued government commitment to agriculture and food security • • Successful public private partnership with Equity
Programme Objectives • Targeted smallholders graduating from subsistence farming to commercial agriculture • National grain deficit reduced	• # Targeted households using improved inputs autonomously (min 32,000 HH) • # Targeted small farmers in commercial contracts (min 55,000) • # Targeted smallholders engaged in financial services (investment loans) • # of targeted households selling grains at price 30% higher than farmgate price (min 80,000) • National grain deficit reduced by 41,000T/ 10% national deficit	• Randomised control Trial • Household income and expenditure surveys • RIMS impact survey questionnaire (baseline/final) • Programme M&E • EB database	• Increased smallholder production with KCEP support
Outcome 1: Productivity for maize, white sorghum, finger millet and pulses increased	Measure of productivity: • Maize: 0.9 to 1.8 T/acre • Sorghum: 0.6 to 1.2 T/acre • Millet: 0.7 to 1.3 T/acre • Pulses: 0.3 to 0.6 T/acre (beans, pigeon peas, cow peas and green grams) • Improved practices/packages adopted by 62,000 HH (32,000 subsistence, 30,000 advanced, 50% women)	• Randomised control Trial • Household income and expenditure surveys • RIMS impact survey questionnaire (baseline/final)	• Availability of inputs through agro-dealers with KCEP support • Sustainable soil/water management to maximize soil fertility • Inputs adapted to specific AEZ and type of soils
Output 1.1: Agricultural services/ inputs improved	• 40,000 HH subsistence farmers adopted input package • Capacity of 300 agro-dealers strengthened for agricultural services	• Randomised control Trial • Household income & expenditure surveys • RIMS impact survey questionnaire (baseline/final)	• Capacity building of and sanctions to agro-dealers cashing e-vouchers • Warehouse receipt system in place for maize • Contract with breweries for white sorghum • Access of farmers to weather-based insurance
Output 1.2: Capacity of farmers' organizations to mobilize extension services, participate in local planning and	• Capacity of 1,333 farmer groups in organizational management strengthened	• Registers of farmer organisations	

Results Hierarchy	Key Performance Indicators	Means of verification	Risks/Assumptions
value chains *fora*improved		• Programme M&E	
Outcome 2: Post-harvest practices and market linkages for targeted VCs improved	• Improved grain drying technologies adopted by 32,000 subsistence HH farmers • Improved grain storage technologies adopted by 32,000 subsistence HH farmers • Certified warehouses used by 80,000 HH (32,000 subsistence and 48,000 advanced) • Post-harvest grain losses reduced from 25 to 5% for 80,000 HH (32,000 subsistence and 48,000 advance farmers) • Operational self-sufficiency attained for 60 warehouses	• Agricultural statistics • Programme M&E	• Warehouse Receipt System Bill passed and enacted into law
Output 2.1: Post-harvest management Improved	• 40,000 subsistence farmers trained on post-harvest grain management • 60 warehouses certified and offering WRS services • 100 collection centres operational	• Agricultural statistics • Household surveys on levels of production and income generated from sales of agricultural produce	• Programme coverage for operational losses for Y1/Y2 • Adoption by target groups of weather-based insurance • Effective adoption by farmers of drying, storage and WRS
Output 2.2: Market access for participating smallholders improved	• 100,000 HH beneficiaries trained in business partnership • 60 initiatives of commercial partnership implemented • 20 spot improvement of access roads completed	• Programme M&E	
Outcome 3: financial inclusion of beneficiaries improved	• Number of beneficiaries accessing loans from EB (and total amount) • Total amount of savings by target groups (by gender); • Number/type of new financial products implemented by EB	• EB database • Programme M&E	• Equity Bank mobilize sufficient resources for programme goals • Weather Index Based Insurance embedded in package
Output 3.1: Use of financial tools and services by target groups increased	• 40,000 vouchers used by target groups • 62,500 HH using WRS • 40,000 cat 1 HH trained in financial literacy • 200 entrepreneurs trained in advanced financial training	• Programme M&E	• Management of warehouses by trained professionals • Facilitated access to bridge financing
Output 3.2: Access to value chain financing improved	• 100 value chain financing ventures completed • 80 forward contracts signed	• Programme M&E	• Interest of private sector in value chains maintained

Strategic context and rationale

A. Country and rural development context

1. **Economy**. Kenya occupies a total land area of 582,646 km2 with a diversified topography and hosts a population estimated at 40.5 million. High fertility, combined with declining mortality has contributed to one of the world's fastest population growth rate, currently estimated at around 2.6%. The Arid and Semi-Arid Lands (ASALs) make up more than 80% of the country's land mass, but they are home to only 30% of the population. The remaining 70% live in medium-high potential (MHP) areas in the centre and west of the country, where the population density is in some cases higher than ten times the national average. GDP growth has been highly variable over the years, declining from an annual 7% in the 1960s to 2.4% in the 1990s due to poor economic performance caused by recurrent unfavourable weather conditions. A more conducive policy environment and rapid expansion of the tourist and telecom sectors led to increased GDP growth from 2003 up to 7% in 2007. Subsequently, post-election violence in 2008, a prolonged 2008-2010 drought and the global financial crisis curtailed economic growth again. Peaceful national elections in March 2013 and a smooth transition of power renewed business confidence and strengthened prospects for a growth rate of 5.5% in 2013.

2. **Rural Poverty**. While the poverty rate has declined from 53% in 1999 to 46% in 2009, it is estimated that the total number of poor has increased from 15.2 to 17.8 million (World Bank). Poverty rate is markedly higher in rural areas (49.7%) than in urban areas (34.4%). The majority of the poor live in the MHP areas that cover about 16% of the country, while the ASALs have the lowest development indicators and the highest incidence of poverty. Food security continues to be a major concern with an estimated 3.8 million people in rural areas either highly or extremely food insecure. Statistical series indicate significant movements of rural households in and out of poverty and between different poverty categories in the last ten years highlighting the extreme vulnerability of rural households to external shocks (e.g., health, inflation, market volatility, unemployment, riots, violence, and displacement). Access to natural capital and the agro-ecological zone in which a household is located - from high rainfall to semi-arid and arid areas- are primary determinants of the poverty level.

3. **Agriculture and small farming**. The agriculture sector remains the backbone of the Kenyan economy providing about 65% of export earnings, although its share in the GDP has declined from nearly 40% in the 1970s, to about 28% in 2011. Industrial crops (tea, coffee, fresh vegetables and flowers) contribute 17% of the agricultural GDP and 55% of agricultural exports, while food crops contribute 32% of agricultural GDP but only 0.5% of exports. About 80% of people working in agriculture are smallholders, but they produce less than 20% of export vegetables and only about 25% of marketed maize, which is the main food crop. Production is carried out on farms ranging in size from 0.2 to 3 ha for subsistence and commercial purposes. The use of improved inputs such as hybrid seeds, fertilizer and pesticides or machinery is low. While 70% of households use fertilizer occasionally, quantities are low and practices to reverse soil degradation and improve productivity are inappropriate. Extension services are provided by a limited number of public extension agents focusing mostly on production and with limited linkages with research. Despite recent improvements, access to financial services remain limited with farmers relying mainly on costly and inadequate informal financial systems. Post-harvest management and handling is limited and the majority of farmers rely on traditional systems for grain storage, leading to up to 30% post-harvest losses. About 80% of rural households sell some crops, but the level of commercialisation ranges from less than 10% of farm output in relatively low potential counties to 80% in high potential counties. While physical access to market has improved, lack of market information and limited bargaining power cause farmers to sell mostly at farm gate at low prices.

4. **Women and youth**. Women contribute 80% of labour in food production and 50% in cash crop production. It is estimated that over 40% of smallholder farms are managed by women. Men increasingly migrate in search of off-farm labour, staying away for long periods. In their absence women find it difficult to access resources, services and inputs, most of which are distributed through male dominated information and social networks. Female-headed households have lower income and higher poverty incidences, lower level of educational attainment, lower access to capital assets and lack of control over property, particularly land. Youth form 30% of the population and 60% of the total labour force, yet the majority is unemployed and lack resources to start their own business. Lack of

access to land and disaffection with agricultural production as a livelihood strategy, especially amongst rural males, limits their livelihood options.

5. **Institutional framework**. The new constitution promulgated in 2010brings about fundamental changes to the way Kenya is governed, with in particular (i) the devolution of administrative responsibilities to the counties, and (ii) through the consolidation of institutional architecture into a much smaller number of ministries and institutions, accordingly:

(a) Kenya administrative organization has been revised is now made up of 47 County Governments dividing the country into 47 land areas. The Counties are semi-autonomous units of governance with responsibility for county legislation, executive functions, provision of public services, etc. The sub-counties are the decentralized units through which County Government of Kenya provide functions and services. With regards to agriculture, the powers of the county include (a) crop and animal husbandry; (b) livestock sale yards; (c) county abattoirs; (d) plant and animal disease control; and (e) fisheries. Institutional change in Kenya also covers policy harmonisation in agriculture.

(b) The 10 ministries operating in the sector have been collapsed into one to address the fragmentation of responsibilities between agriculture and rural development-related ministries, development partners and the private sector. Agriculture, Livestock and Fisheries are now in one ministry and are under the State Department ofAgriculture, Department of Livestock and Department of Fisheries.

(c) Kenya's legislature recently passed significant agricultural reforms. The Agriculture, Livestock, Fisheries and Food Authority (ALFA) Bill was passed in December 2012. The purpose of ALFA Bill is to transform Kenya's agricultural sector into a commercially-oriented and internationally competitive industry. It merges the 24 state corporations associated with agriculture into a single regulating entity: the Agriculture, Livestock, Fisheries, and Food Authority (ALFA) which now oversees operations of Kenya's agricultural sector including: licensing and law enforcement; farmer registration to enable the country to better provide services such as training and extension; checks and balance system to allow Kenya meet international standards and agreements; Policy guidelines on agricultural issues that local entities must implement in order to ensure national standards and policies remain consistent country-wide.

6. The main challenge of the second Medium Term Plan (MTP2) of vision 2010 is to implement this devolved system of government. Liberalization has enhanced the role of the private sector in the agricultural sector. One challenge is that during the past 15 years, government staffing levels have been reduced considerably, due to institutional restructuring and because of an embargo placed on staff recruitment as well as retrenchment. This has left the MOA and the MOLFD understaffed, particularly regarding frontline extension staff. Overall, this new administrative organization will have a major impact on the management of rural development programmes. It will require flexibility to adjust programme implementation modalities to devolution of responsibilities at decentralized level.

7. **Policies for rural growth**. Kenya Vision 2030 is the prospective national strategy to bring Kenya to a newly industrialised middle income country providing high quality life to all its citizens. It identifies agriculture as one of the six key economic sectors expected to drive the economy to a projected 10% economic growth annually over the next two decades. The Agriculture Sector Development Strategy 2010-2020 (ASDS) is based on Vision 2030. ASDS overall objective is to achieve an agricultural growth rate of 7% per year over the next five years and to reduce food insecurity by 30 per cent, by promoting an innovative, commercially-oriented and modern agriculture. It is guided by two main strategic thrusts: (i) increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises; and (ii) developing and managing the key factors of production. This is pursued by improving extension services, links between research, extension and farmers, and access to financial services and credit; encouraging the growth of agri-business in marketing and processing/value addition; improving the regulatory framework to control the quality of agricultural inputs and services; increasing the competitiveness in the supply of agricultural inputs; and rationalising and harmonising taxation regimes to provide incentives to producers, agro-processors and other service providers. The new (2012) National Agriculture Extension Strategy (NASEP) aims at empowering the extension clientele through sharing information,

imparting knowledge and skills, and changing attitudes so that they can efficiently manage their resources for improved quality of livelihoods. This is to be achieved through the promotion of a pluralistic system for the provision of extension services, building on public-private partnerships and on stronger linkages with research.

B. Rationale

8. **Main justification.**The main justifications of KCEP are to (i) increase the efficiency and effectiveness of the on-going intervention related to the access to agricultural inputs through the National Accelerated Agricultural Inputs Access Programme (NAAIAP); and (ii) promote a more efficient approach for the use of agricultural subsidies for the development of rainfed cereals (maize, sorghum and millet) and related pulses whereby subsidised inputs become part of a package including extension services for on-farm good agricultural practices and post-harvest losses reduction, improved storage linked to warehouse receipt systems as well as linkages to market.

9. In terms of improving NAAIAP's efficiency and effectiveness, KCEPbuilds on lessons learned presented in section D below to improve the agricultural inputs paper voucher system through a set of new features including: (i) linking the voucher to an electronic platform that will ensure immediate payment of the participating agro-dealers and improve traceability of transactions under the scheme; (ii) adapting the content of the voucher package to meet different needs for different crops and areas, based on technical packages tested and released by KARI; (iii) ensuring that the supply of agricultural inputs under the voucher scheme is done on a competitive basis by maximising the number agro-dealers participating in the programme and avoiding allocation of quotas of products to pre-selected agro-dealers; and (iv) introducing cost sharing modalities whereby farmers will contribute to the cost of the e-voucher to ensure stronger ownership and commitment to use it according to purpose.

10. In terms of promoting a more efficient use of agricultural subsidies, KCEPwill:

(a) *Improve the sustainability of increased productivity* reached through the combined package of inputs and technical services, to stabilise farmers' gains, reduce vulnerability to shocks and reverse the current trend of extreme mobility in and out of poverty. This will be supported by: (i) providing access to a second year package, to sustain early adoption of modern inputs and ensure that farmers have gained sufficient returns to start purchasing inputs on their own; (ii) building on NAAIAP's *KilimoBiashara* scheme (, linking the e-voucher to a bundle of banking services and developing warehouse receipt systems in project-supported warehouses, so that farmers gain access to financial resources enabling them to purchase inputs, and complement it with financial literacy and business management capacity building; (iii) providing dedicated support to farmers' groups over a minimum of two years, based on specific group objectives, related capacity assessment and tailor-made capacity building to fill identified gaps; (iv) mitigating risks of misuse of agricultural inputs acquired through the voucher scheme by establishing a group liability system whereby the group will be collectively responsible for ensuring that every member meets the obligation to redeem the voucher for the purpose it is meant for; (iv) strengthening the range and quality of services provided by agro-dealers so that they can meet farmers' needs and adapt to evolving demand; (v) including in the e-voucher the cost of the annual premium for weather insurance, as an incentive for small farmers to insurance their activity, and matching it with sensitisation and information on insurance products and benefits;

(b) *Strengthening the impact on food security*, by including in the voucher additional inputs aiming at decreasing households post-harvest losses and at improving family storage of grain and by providing capacity building for on-farm grain management; and

(c) *Facilitating the inclusion of participating smallholders into the target value chains* so that they can secure better prices and a larger share of the final value added, by: (i) extending KCEP support to farmers and groups (including those that graduated with NAAIAP) that have successfully increased production and are interested in further expanding their business and increasing value added by developing storage and processing; (ii) investing in the development of grain storage facilities, where smallholders will be able to bulk their produce and negotiate better prices with buyers; (iii) developing processing facilities to be owned either by farmers' groups as well as private sector players on the condition that they would provide profitable market outlets for produce from participating smallholders; (iv) developing sustainable access to market information; (iv) provide capacity building to smallholder groups so that they can develop fair and remunerative business partnerships with buyers.

11. **National policies.** With an estimated 3.8 million people in rural areas either highly or extremely food insecure, the Agricultural Sector Development Strategy sets the following targets by 2015: (i) reduced number of people living below absolute poverty lines to less than 25 percent, to achieve the first MDG; (ii) reduced food insecurity by 30 percent to surpass the MDGs; (iii) increased contribution of agriculture to GDP by more than KES 80 billion per year as set out in Vision 2030; (iv) divest from all state corporations production, processing and marketing activities that can be better done by the private sector; and (v) reformed and streamlined agricultural services such as in research, extension, training and regulatory institutions to make them effective and efficient. Accordingly, ASDS aims at supporting farmers' integration into a competitive and market-oriented agriculture by facilitating their access to services, knowledge and capacities. KCEP will contribute to the ASDS objectives of enhanced food security and a more market oriented agriculture by (i) supporting small farmers to graduate to commercial farming focusing on three staple food - maize, sorghum and millet- and pulses with important marketing potential ; and (ii) strengthening extension services including stronger linkages between research and extension, improving farmers' access to inputs and financial services, and improving agri-business and market access.

12. KCEP is also in line with the National Agricultural Sector Extension policy (NASEP) by promoting demand-driven approaches, building up farmers' capacity to link and access services, supporting the empowerment of counties to participate in priority setting and resource allocation, and supporting the expansion of private service providers. KCEP implementation modalities will be aligned to the new devolution framework. KCEP is also in line with the objectives of the Kenya Rural Development Programme (KRDP) funded by the European Union. KRDP (2011-2016) aims at improved food security and livelihoods, in particular in the ASALs. KCEP will address priority areas of KRDP, especially with regard to connecting farmers to markets, supporting the production of indigenous crops, developing better agricultural practices and promoting risk management schemes. The EU has announced that in addition to current funding of Euro 17.6 million, a further allocation of Euro 10 million is in pipeline for 2014. Upon confirmation, resources will be allocated to spot improvements and eligible activities programmed under the KCEP.

13. By targeting three ASAL counties, KCEP paves the way for a scaling-up approach in the ASALs, which will constitute the focus area of EU's forthcoming 11th European Development Fund (2014-2020). KCEP will contribute to all three objectives of IFAD's Country Strategic Opportunities Programme (COSOP), i.e. to (i) improving the delivery of services to the rural poor by strengthening the capacity of public-sector, private-sector and civil society organizations; (ii) increasing incomes among the rural poor through improved access to and utilization of appropriate technologies, markets and community-owned productive and rural social infrastructure; and (iii) increased investment opportunities for the rural poor through improved access to rural financial services. It will develop a Collaboration with IFAD-financed Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT), which will take responsibility of the implementation of Component 3 – Financial Inclusion. Synergies will also be developed with USAID (market linkages), AGRA (access to inputs) and the World Bank (support services).

14. **Target crops.** The three targeted value chains - maize, sorghum and millet- and associated pulses face similar challenges related to low/irregular volumes and quality of production, poor access to financial and non-financial services, weak farmers' organisations and limited and unrewarding access to markets. Rationale for crop targeting is as follows:

- *Adoption by smallholders:* the targeted crops play an important role in the livelihood, food security and risk management strategies of the poor and therefore offer an opportunity for relatively low risk diversification. Maize has a significant scale up potential in terms of number of producers, nutritional value, competitiveness and market demand. Stable maize production for household consumption is also a pre-condition for smallholder to diversify into higher value crop production. Sorghum and millet are lower risk drought tolerant crops well adapted to the semi-arid areas. Throughout the target areas, crop rotation or intercropping with pulses will improve soil fertility and enable small famers to produce more food and market surpluses per unit of land;

- *Potential for increased production:* the use of improved seeds, the combination of fertiliser with enhanced soil and water management practices, and better crop husbandry have demonstrated that yields could be doubled over 3-4 years -from 900 to 1,800 kg per acre for maize; 600 to 1,170 kg per acre for white sorghum; and 700 to 1,295 kg per acre for finger millet;
- *Food security:* increased production, better post-harvest management and the use of warehouse receipt systems will contribute to food security through increased availability of produce and better access to food through the income generated by the sale of marketable produce;
- *Market potential:* average annual production of maize, the main staple food, is estimated at 2,700,000 tons, while average annual consumption needs reach 3,400,000 tons. Most of the shortfall in domestic production is met by imports from neighbouring Uganda and Tanzania. The main buyers of white sorghum (East African Breweries) and finger millet (Unga Millers) are also importing from neighbouring countries (25,000 and 24,000 tons per year respectively) to meet their requirements. There is also significant market potential for sorghum in the animal feed sub-sector;
- *Partnerships with private investors:* in the three value chains, there are opportunities to develop partnerships with private stakeholders (processors and traders) that can benefit smallholders, not only through contractual marketing arrangements, but also for accessing inputs and financial services.

15. **Scaling up** the results of the National Accelerated Agricultural Input Access Program (NAAIAP). NAAIAP was initiated in 2007 by the GoK, the European Union, the World Bank and other partners. It aimed at facilitating the access of small farmers to agricultural inputsthrough a one-year voucher-grant package composed of fertilizers, certified seeds and related extension services, supporting them to raise the productivity and graduate from subsistence to commercial agriculture thus reaching increased income and food security. The 2011 evaluation of NAAIAP acknowledged that the programme brought positive impact and documented lessons learnt. At the request of the GoK and the EU, the KCEP builds on the results and experience gained through NAAIAP implementation in improving smallholders' access to agricultural inputs to support their graduation to commercial farming. Capitalizing NAAIAP experience, KCEP aims at supporting smallholders involved in the production of key staple crops to graduate from subsistence farming to market-oriented production by changing the approach from access to inputs and technical services to a value-chain onefocusing on post-harvest management, warehouse receipt systems and market linkages.

16. In terms of ideas to be scaled up, KCEP will incorporates features to increase the effectiveness of the voucher system by including: (i) an electronic platform that will ensure immediate payment of the participating agro-dealers and improve traceability of transactions; (ii) an adapted voucher package to meet different needs for different crops and areas based on technical packages released by KARI; and (iii) cost sharing modalities whereby farmers will contribute to the cost of the e-voucher to ensure stronger ownership and commitment to use it according to purpose. Warehouse receipt systems will be scaled up by linking them to the network of certified warehouses constructed/rehabilitated by KCEP. Alsoweather-based crop insurance coverage of the voucher input package will be rolled out.

17. The champions for the scaling up will be the Ministry of Agriculture and the EU Delegation of Kenya. The incentive framework includes (i) significant additional funding announced by the EU to the tune of USD 40-50 M over 2015-2020 and complementarity financing between NAAIAP and KCEP; (ii) a strong political demand to GoK generated by the e-voucher among Kenya smallholders; (iii) the policy dimension ensured through KCEP financial inclusiveness which is high on GoK rural development agenda and the WRS bill expected to be passed by Parliament before the end of 2013; and (iv) an organizational spacerelying onmaximizing the use of county and sub-county resources within the transition to the new Devolution process.

18. The appropriateness of the KCEP approach will be assessed at midterm. Based on lesson learned, it will be scaled up in subsequent phases.

Programmedescription

A. Programmearea and target group

19. **Programme area.** The programme area covers 2 main production zones of the country for maize, millet and sorghum:The High Potential Maize Area and the semi-arid areas of Eastern Kenya. Within these areas, eight counties are targeted for KCEP support based on 5 key criteria: (i) agro-ecological and economic potential; (ii) poverty incidence; (iii) population density; (iv) target commodity contributing to household income/food security and representing the best option the poor have for market participation; (v) geographical concentration to maximise impact:

- In the High Potential Maize Area of Kenya with a population of 6.5 million, KCEP will target the high producing counties of Western Kenya and the Rift Valley - Bungoma, Kakamega, Nakuru, Nandi and Trans Nzoia. These counties are known as "Kenya bread basket" or the Western high potential zone. The Rift Valley region with an average production of 22.5 million bags of maize in 2012 contributes to 50% of the total national production. It is classified as the agro-ecological zone I and II (AEZ) characterized by a humid and sub-humid climate. Rainfall is continuous between March-September and in some places ceases only in November, with averages of 1200-2200 mm per annum. It is also one of the most densely populated areas of the country, surpassing 1,000 people per km^2 in some locations.
- In the Semi-arid areas of Eastern Kenya housing a population of 2 million, KCEP will target the less populated semi-arid lowlands of Eastern Kenya – counties of Embu, Kityu and Tharaka. This area contributed 28% and to 56% of the national sorghum and millet production in 2012, respectively. It is located in the AEZ IV, with a semi-arid tropical climate and a bimodal pattern of rainfall. The first (long) rains fall between March and May, with the peak in April. They are followed by a dry period that extends to mid-October. The second (short) rains begin in mid-October, peak in November and taper off towards mid-December. The average seasonal rainfall for the long rains is 272 mm while that for the short rains is 382 mm. Both the seasonal and the annual rainfall totals vary widely. This zone is well known for erratic rainfall pattern. Frequency of drought (<250 mm rainfall) is two years every seven years.

20. Within these counties, 24 sub-counties have been pre-identified using the above-mentioned criteria. The final selection of 16 target sub-counties (2 per county) will be conducted at project start up to: (i) ensure sufficient volumes of production for commercialisation and warehouse supply in participating sub-county; (ii) match project resources and management capacity; and (iii) seek complementarity with NAAIAP programming to avoid overlapping.

Target group

21. Out of the 8.5 million people living in the programme area, about 6.5 million are located in the High potential Maize area and 2 million in the semi-arid area of Kenya. *In the High potential maize area*, the main source of livelihood is agriculture - food crops and cash crops. Livestock and livestock products such as milk are the second most important source of revenue. Markets are fairly efficient, well integrated and characterized by high levels of competition. Most are easily accessible and transaction costs are relatively low. Threats to food security within the zone include the rapidly increasing population which is a constraint to optimal land holding; poor agronomic practices which lead to poor land fertility and low productivity; high cost of veterinary drugs; and low producer prices for agricultural commodities.

22. *In the semi-arid areas*, household production is predominantly focussed on maize, sorghum, beans and vegetables for consumption needs. Wild foods are also consumed particularly during periods of stress. Households rely on the market for needed quantities of maize, wheat, barley, bread, rice and beans. Their main sources of cash are crops, livestock and honey (up to 40%); as well as remittances contributing up to 10% of their resources. The principle source of cash is generated from the sale of food and cash crops. Livestock and their by-products make up 25-40% of their income. This zone is characterized by market surpluses, especially during good harvests. The food security situation in the zone is constrained by shortage of reliable water supply, high input costs, poor soil fertility and poor access to markets. Poor or low yielding genetic stock, high cost of veterinary drugs for livestock production hinder the expansion of the livestock sector.

Target counties: poverty rate and agricultural production

County	Sub-counties	Production	Poverty Rate
Maize Area			
Bungoma	Bungoma East	457,700	52
	Bungoma North	966,000	53
	Bungoma West	374,400	
	Mt. Elgon	442,500	59
Kakamega	Likuyani	644,000	61
	Lugali	403,000	61
Nakuru	Molo	847,720	49
	Nakuru North	470,140	39
	Njoro	547,555	38
Nandi	Nandi Central	794,340	50
	Nandi North	775,800	51
	Nandi South	340,470	46
Trans Nzoia	Kwanza	1,937,900	52
	Trans Nzoia East	1,260,000	50
	Trans Nzoia West	1,694,250	48
Sorghum/Millet Area			
Kitui	Kyuso	28,800	68
	Mwingi Central	47,152	68
	Muumoni	20,800	68
	Tseikuru	21,614	68
Tharaka	Meru South	21,728	56
	Tharaka North	13,520	62
	Tharaka South	130,100	62
Embu	Mbeere North	34,200	55
	Mbeere South	20,562	56

23. Apart from Nakuru, all of the targeted counties have poverty levels above the national average. While the counties selected for maize have lower numbers of chronically poor than the national average, the high potential maize and western zones are characterised by increasing numbers of the population who have descended into poverty over the last ten years or who are oscillating in and out of poverty. This is the population who has the potential for increased maize production but with decreasing access to land, declining soil fertility and limited alternative livelihood options and who would stand to benefit most from project interventions. The eastern lowlands selected for sorghum and millet have lower population density but a high poverty incidence (between 55% and 68%), as well as large numbers (38%) oscillating in and out of poverty in the last ten years. Additionally, all of the selected counties have high numbers of female-headed households (between 21% and 41%)

24. KCEP will target about 100,000 smallholders whose livelihood revolve around maize, sorghum and millet categorized as follows:

25. **Subsistence farmers** - 40,000 subsistence farmerswill be supported in graduating to commercial agriculture, of which 20,000 are producers of maize, 15,000 of sorghum, and 5,000 of millet. Targeted subsistence farmers are currently net buyers of staple food, food insecure, and do not use fertilizers or modern agricultural inputs (while in the semi-arid lowlands, subsistence farmers use fertilisers, they lack adequate water and soil fertility management techniques). This target group will be eligible to the full package of KCEP support from access to improved inputs and agricultural practices for increased production, capacity building for post-harvest management, access to warehouse systems, market linkages, and access to financial services. Within this category, NAAIAP-supported farmers who were not able to graduate to commercial farming would be eligible to KCEP support.

26. **Small farmers graduating to commercial agriculture** - 60,000small farmers graduating to market-oriented agriculture: they are net-sellers of grains following an increase in production based on the use of appropriate inputs and the adoption of improved agricultural practices, and they show an interest in expanding their business around target crops. For this category of farmers, KCEP support will be focussed on group organization, post-harvest management, access to warehouse systems, market linkages, and access to financial services with the aim of anchoring them sustainably in commercial agriculture.

27. Within these groups, special attention will be given to women-headed households and youth given the specific constraints they face in accessing agricultural services and inputs.

28. The KCEP's third target group are the stakeholdersinvolved in the 3 value chains in facilitating smallholders' access to enhanced agricultural services, namely agro-dealers, private extension services, buyers, processors, and leading farmers providing support services to smallholders. KCEP will build their capacities to provide better services to farmers and support inclusive value chain growth through training and access to credit for investment. Beneficiary Service providers will be identified by the Programme Implementation Unit using competitive and transparent selection criteria defined in a participatory manner during project start up. Approval of selection criteria for beneficiary service providers by the Led agency and IFAD will be a condition for disbursement of funds under this activity.

29. Indirect target groups include those who will benefit from the spill-over effects of project activities, i.e. poor households who lack the assets necessary to participate directly in the programme activities but who will benefit from labour opportunities generated by increased agricultural production.

Targeting Mechanisms

30. At project start up, KCEP will undertake community sensitization campaigns in targeted sub-counties to raise awareness about opportunities offered through the programme. Campaigns will cover the modalities to access programme support, the specificities of the e-voucher scheme and inclusive financial services, eligibility criteria, and expected impact. Sensitization campaigns will bring together target communities, representatives of decentralized authorities, value chain stakeholders and implementation partners. Community awareness campaigns will be organized on a periodic basis to support programme expansion. Beneficiary targeting will follow a community-based process including:

- **Geographic targeting**: The focus will be on the counties and sub-counties with the greatest numbers of people living below the poverty line and whose livelihood revolves around maize, sorghum and millet. As mentioned above, 8 counties are targeted for KCEP support based on 5 key criteria: (i) agro-ecological and economic potential; (ii) poverty incidence; (iii) population density; (iv) target commodity contributing to household income/food security and representing the best option the poor have for market participation; (v) geographical concentration to maximise impact. Within these counties, sub-counties will be selected for intervention under KCEP by MoAcentral and county staff based on the above criteria.
- **Inclusiveness:** A Gender and Social Inclusion study (GESI) will be carried out at project start up to further (i) identify the distinctive characteristics of male and female producers of different poverty levels; (ii) identify opportunities and measures required to promote their inclusion in the 3 value chains; and (iii) mainstream on this basis gender and inclusion issues into project implementation. Results will be validated through stakeholder workshops and serve as a basis to set up GESI Strategy and Implementation Action Planfor each value chains. These will include actions to improve production and develop market linkages, as well as activities designed to expand women's and poorer households' access to and control over capital, land, knowledge and support services. GESI Value Chain Implementation Action Plans will be reviewed every year. A key measure will be the establishment of quotas for women's access to services and women's participation in decision-making bodies.
- **Eligibility criteria:** The Programme will facilitate the setup of community-based committees including representatives of sub-county authorities to select beneficiaries based on the following eligibility criteria:

Subsistence farmers	Small farmers graduating to commercial agriculture	Service Providers
- Unable to purchase adequate inputs - Use fertilisers with low water/soil fertility management practices (the latter is applicable in semi-arid area) - 1 acre of land dedicated to target crop - Committed to use aggregation/storage facilities for efficient marketing - Be organised in groups - Be able and willing to provide the beneficiary contribution; - Be willing to abide by the guidelines of the project; - At least 50% women head of household	- Use agricultural inputs appropriately - Use good agronomic practices - Be net sellers of grains - Be interested in further expanding farming activity - Be organised in groups - Committed to use aggregation/storage facilities for efficient marketing	- Interested in expanding their activities in rural areas - Willing to competitively provide the services to smallholders - Willing to provide their own contribution for promoted investments

B. Development objective

31. As part of its goal, KCEP will contribute to improved living conditions of beneficiary households through (i) extraction of at least 66,000 of them from poverty; (ii) improvement in assets ownership index (productive assets, bikes, radios, improved housing, tin roofs); and (iii) percentage reduction in the prevalence of child malnutrition (baseline: 33% rate of stunting). The overall development objective of the KCEP is to contribute to national food security by increasing production of cereal staples (maize, sorghum, millet, and associated pulses), and increase income of smallholders in medium and high potential production areas of targeted crops (ii) support smallholder farmers in graduating from subsistence to commercial agriculture. Key indicators are:

- 100,000 households directly reached by KCEP services, of which 40,000 subsistence smallholders; and 60,000 small farmers smallholders;
- 32,000 subsistence farmers graduating to commercial agriculture;
- 80,000 households (including 32,000 mentioned above) consolidating their presence in commercial agriculture through reduction of post-harvest losses and improved access to storage and warehouse receipt systems; and

32. National grain deficit reduced by 41,000 tons (equivalent 10% of average nationaldeficit).

C. Outcomes/Components

33. The programme is structured around four components: (i) Cereal Productivity Enhancement; (ii) Post-Harvest Management and Market Linkages; (iii) Financial Inclusion; and (iv) Project Management.

Component 1 – Cereal Productivity Enhancement (Total cost: USD 3.8 million)

34. Current agricultural practises of subsistence farmers result in lowyields for maize, white sorghum, finger millet and pulses because of: (i) low use of quality seeds, fertilizer and chemicals; (ii) untimely operations relying on family labour; (iii) low water and soil fertility management; and (iv) insufficient crop husbandry. Under this component, KCEP will contribute to increasing grain production and productivityto improve food security and generate marketable surpluses. The component will target small farmers with an average of 1 acre engaged in subsistence agriculture with no/limited access to inputs. The component will pursue 3 strategic thrusts:

i. *Facilitate smallholders' access to key production inputs:* The programme will facilitate the access of smallholders to technical packages including modern inputs and improved management of natural resources (adapted and high-yielding varieties of seeds; enhanced crop nutrition based on healthy soil management through crop rotations and appropriate use of organic/inorganic fertilisers; efficient water management particularly in the semi-arid area to build resistance to climate variability; better crop husbandry; and labour saving technologies to mitigate labour constraints and ease women's workload). To that end the KCEP will partner with KARI to develop technical packages adapted to the specificities of each AEZ building on available research outcomes. To facilitate access of smallholders to the technical packages, the programme will set up in partnership with Equity-Bank an e-voucher scheme (Component 3).

ii. *Build capacities of smallholders to produce grain and pulses responding to market requirements* generating sufficient and sustainable income allowing them to purchase enhanced agricultural inputs beyond programme interventions.

iii. *Strengthen public-private partnerships for agricultural services to farmers* by building up the capacity of : (a) target counties/sub-counties to plan, deliver and monitor the provision of agricultural services to smallholders through a diversified range of public and private service providers in line with NASEP objectives; (b) farmer organisations to identify and negotiate services they require to meet production targets; and (iii) agro-dealers to provide technical advisory services.

35. To achieve these objectives, programme support will be organized around 2 subcomponents: (i) build up the capacity of decentralized authorities and services providers to effectively deliver agricultural services required by farmers to sustainably increase the quantity and quality of production; and (ii) build up capacity of farmer organizations for a more organised demand of services (Sub-component 2).

36. **Expected outcome** is that around 40,000 subsistence farmers producing grain (maize in the High Potential Maize Area, sorghum and finger millet in the Semi-Arid Areas) and pulses will generate increased volumes of production for consumption and marketing. Average yields are expected to improve as follows:

- Maize from 0.9 to 1.8 tons/acre
- White sorghum from 0.6 to 1.2 tons/acre
- Finger millet from 0.7 to 1.3 tons/acre
- Pulses (beans, pigeon peas, cow peas and green grams) from 0.3 to 0.6 tons/acre.

37. Another 60,000 smallholders who are already applying fertilisers and marketing part of their production will also be targeted for improved agricultural services.

Sub-component 1.1: Effective agricultural services

38. Under this sub-component, KCEP will support (i) the dissemination of available technologies for smallholder adoption; (ii) the promotion of agricultural advisory services to facilitate smallholders' access and adoption of technologies and enhanced technical packages; and (iii) the expansion of the range of services offered by agro-dealers.

Dissemination of available technologies for smallholder adoption

39. KCEP will support the dissemination of released technologies and technical packages developed by KARI for scaling up based on agro-ecological specificities of each target zone. This will include: (i) the promotion of drought resistant high yielding varieties for sorghum, millet and pulses; (ii) improved management practices including crop husbandry, intercropping, rotations and integrated pest management; (iii) soil fertility management practices; (iv) capacity building for local diagnostic of nutrient deficiencies based on the observation of nutrient deficiency symptoms and local indicators of soil fertility status; (iv) technologies promoting rainwater use efficiency (i.e. planting furrows and tied ridging in semi-arid areas); and (v) adapted technologies/practices for land preparation and for labour saving, specifically targeting women. To achieve the above, the Programme will partner with KARI jointly with CGA and (sub)-county agricultural offices to conduct an inventory of potential agricultural service providers in each of the sub-counties. Based on this inventory, trainers will be identified to support the dissemination of technical packages including national extension *services*, input providers, lead farmers (from already existing market-oriented groups or large-scale farmers), agro-dealers and other private or non-governmental stakeholders. KARI will provide training of trainers, promote on-farm demonstrations, develop and disseminate extension material. Furthermore, IPNI will carry out fertiliser trials to develop fertiliser recommendations.

Promotion of agricultural advisory services

40. KCEP will promote theuse of technical packages for the sustainable intensification of maize-based, white sorghum-based and finger millet-based cropping systems. Packages will combine inputs, agronomic practices and technologies supporting yield growth and enhanced adaptation to rainfall variability and soil degradation:

(i) *E-voucher scheme:* KCEP will facilitatesmallholders' adoption of inputs and technologies through the provision of an e-voucher, which will cover part of the value of a package of inputs adapted to target areas/crops; access to tools for improved home-based conservation of grain[3]; and the annual premium of a weather-index based crop insurance[4]. The modalities for redeeming the e-vouchers are described in Component 3. Eligible smallholders will have access to the e-voucher over two cropping seasons for maize and three cropping seasons for sorghum and millet, with the second/third package accessible upon satisfactory use of the previous year package. The e-voucher will be financed by the programme (to the tune of 90% in year 1 and 60% in year 2 for the maize input package; 90% in year 1 and 60% in year 2 and 30% in year 3 for the sorghum/millet input package). Smallholders will finance the balance. Detailed financing plan and composition of the voucher packages are presented in table 6 of attachment 2 of Appendix 9. The allocation of the share of subsidies and beneficiary contribution for the proposed technological packages is based on the result of a detailed financial analysis carried out on both farm and household livelihood systems (see table 2 and 3 inAppendix 10). In addition, in the 1st year, beneficiaries will contribute 15% in nature under modalities set by the PIU, bringing contribution to 25% in line with NAAIAP. Access to second and third year voucher packages will be subject to smallholders demonstrating (i) satisfactory use of the first year package; and/or (ii) impact by a natural or man-made shock in the first year – a shock that was beyond their control and which interrupted their ability to operate under KCEP conditions to attain their first year targets.

(ii) *Agricultural services:* in line with NASEP, KCEP will promote demand-driven and iterative extension approaches that tap local knowledge to diagnose problems and develop solutions building on public and private service providers. This will include farmer-to-farmer extension, technical trainings, training of trainers, on-site-demonstrations, and technical advice. A special attention will be given to using gender and youth sensitive approaches. Advisory services will be made available to the 40,000 subsistence farmers benefitting from the e-voucher along a two-year programme accessible to every participating farmer. Market-oriented farmers will have access to technical advisory services on demand. This set of activities will be implemented by CGA which will be responsible jointly with the county and sub-county agriculture offices for the coordination of operations between research, the provision of technical advisory services, and farmers' group empowerment (see sub-component 2 below). Technical advisory services to targeted subsistence farmers will be provided by a combination of public extension workers from MoA and field workers hired by CGA to fill the gaps, based on the inventory carried out at project start;

Capacity building of agro-dealers

41. KCEP will contribute to improving the quantity and quality of services offered by agro-dealers at an affordable price for smallholder farmers. To that end, programme activities will include: (i) an assessment of agro-dealers in target sub-counties; (ii) registration, sensitization, and training of agro-dealers participating in the e-voucher scheme; (iii) capacity building of agro-dealers to provide technical advisory services to farmers. Agro-dealers will become trainers of target farmer. They will contribute to trainings, demonstrations, field days and exhibitions on a 15% cost basis. The selection of beneficiaries will be carried jointly by county/sub-county agriculture offices, with support from CGA. Activities related to agro-dealers support will be carried out by AGMARK based on the fact that this service provider has already been selected by NAAIAP for this task.

[3] See Component 2.
[4] See Component 3.

42. In the framework of the private/public partnership with the Programme, Equity Group Foundation will deliver training on financial literacy and business management to build up the capacity of participating agro-dealers to access financial services to sustain their activities (see Component 3). Research adaptation and dissemination will be implemented by KARI, in collaboration with IPNI for soil sampling. Activities related to the promotion of advisory services will be implemented by CGA which will also be responsible for coordinating with KARI and AGMARK, in collaboration with county and sub-county agriculture offices. Beneficiary Service providers will be identified by the Programme Implementation Unit using competitive and transparent selection criteria defined in a participatory manner during project start up. Approval of selection criteria for beneficiary service providers by the Led agency and IFAD will be a condition for disbursement of funds under this activity.

Sub-Component 1.2 – Supporting demand of services and inputs

43. Under this sub-component, programme activities will be focused on capacity building of farmers' groups including:

- Identification of existing groups in the programme areas and promotion of new groups;
- Capacity building of farmers' groups in production/business plans based on identified capacity gaps and corresponding annual capacity building plans. Capacity building programme will pay attention to the issues of group development, production/business planning and development, GESI, bulk procurement of inputs, negotiation skills. Capacity building will facilitate farmer groups' participation in stakeholders/value chain fora at sub-ounty and county level.

44. The sub-component will be implemented by CGA, along modalities similar to those applicable to the promotion of agricultural advisory services under Sub-component 1.1, and with the same staff.

Component 2 - Post-Harvest Management and Market Linkages (total cost USD 6.3 million)

45. **Objectives and approach.** Small producers of grain face two main challenges related to post-harvest management: (i) poor grain handling and management, leading to up to 30% post-harvest losses contributing to national shortage in food supply; and (ii) marketing of grain at low price forcing households to buy grains for family consumption when prices increase. Component 2 will support farmers in securing productivity gains from investments supported under Component 1 through: (i) adoption of improved on-farm grain handling and management technologies and practices to minimize post-harvest losses; (ii) enhanced access to profitable grain markets enabling marketing of produce at more favourable terms. Activities will be organized around 2 sub-components:

- *Post-harvest management:* Improve on-farm grain management by subsistence farmers by building up their capacity to use adequate technologies/practices to dry, extract and store grain.
- *Market linkages and value addition*: Invest in community storage facilities allowing target farmers to stock their produce to attract wholesale buyers, to wait for favourable terms of trade, and/or to leverage their stock to access credit. In addition, KCEP will (i) support target group to respond to market requirements, negotiate better prices and increase their share in the added value; and (ii) contribute to improving market access through spot improvements of feeder roads.

46. **Expected outcomes.** The expected outcomes of the component are that target groups will be supported in: (i) reducing post-harvest losses from 30 to 5%; and (ii) using certified warehouses to bulk and sell their produce at a price 30% higher than prevailing farm gate price.

Sub-component 2.1 – Post-Harvest Management

47. Under this sub-component, KCEP will specifically support target groups in (i) on-farm grain management; and (ii) produce collection and warehousing.

On-farm grain management

48. KCEP will support: (i) capacity building of target farmers in grain drying, handling and on-farm storage meeting standards for food handling and minimising losses; (ii) demonstration of new including collapsible dryer cases, mechanical solar drying, and metal silos; and (iii) access of

subsistence farmers – through the E-voucher scheme- to a tarpaulin to ensure clean drying, and 10 hermetic bagsusing the 'modified atmosphere' bagging technology to reduce grain losses caused by insect infestation.

Produce collection and warehousing

49. KCEP will contribute to: (i) strengthen farmer organisations around 100 existing village-based collection centres through access to tools to meet cleanliness and moisture content standards. Priority will be given to sorghum collection centres as it is not planned to finance new storage facility for this crop[5]; and (ii) the setup of 60 certified farmer-owned storage facilities (mainly for maize and millet faced with significant price fluctuation) and access warehouse receipt financing. This will include the construction of 15 new farmer-owned facilities, renovation of 35 facilities, and certification of 10 existing facilities financed by owners. Farmer-owned facilities will be promoted in the form of Limited Liability Companies (LLCs) with shares held by farmers. To ensure efficiency and full cost recovery, the programme will support running of the facilities by warehouse managers accountable to LLC Board and remunerated through storage fees; pre-certification training for warehouse managers; and contribute towards operating losses for each storage facilities likely to occur in the first year of operation (and residually in the second) as initial stored volumes might be insufficient to fully cover operation costs. Capacity building in post-harvest management will build on the training of farmer organizations in agricultural practices under Component 1.

Sub-component 2.2 – Market Linkages and Value Addition

Capacity building for market linkages and value addition

50. Activities carried out under this part of the sub-component will include (i) the training and coaching of farmer organisations (FOs) to develop business partnerships between farmers' organization and buyers (identification and establishment of contact with potential buyers, information of FOs on buyer requirements, and hand-holding in contract negotiation and signing) and strengthening of farmer organizations for sustained market presence (production planning, monitoring of progress, produce delivery management, payment management); (ii) organisation of initiatives at local level aimed at building commercial partnership and promoting as much as possible contracts with buyers; and (iii) technical capacity building for newly established processing initiatives (financed under Component 3.

Spot improvements

51. The programme will support spot improvements of access roads to storage facilities, and to village collection centres including operation and maintenance requirements.

52. **Implementation**: For implementation of activities under this component, the programme will contract a service provider selected on a competitive basis. Provisions are made in the budget for: (i) an annual lump sum for the service provider to design a capacity building programme; and (ii) a lump sum for KCEP to organise meetings or other events with buyers at each of the 60 project-supported storage facilities. Activities will be implemented in close collaboration with the Cereal Growers' Association, which is responsible for farmer groups' development under Component 1, and with Equity Group Foundation which will be providing literacy financial training and capacity building for business development in Component 3. Spot improvements will be implemented by the PIU engineer with design and management of works contracted out on a competitive basis to a specialised service provider.

Component 3 – Financial Inclusion (Base costs: USD 23.9 million)

53. **Objectives and approach.** Because of lack of collateral and credit-worthiness, smallholders face difficulties accessing financial services to boost production and invest in added value activities. Under this component, KCEP support will pursue three objectives building on an innovative public-private partnership with Equity Bank, the leading Bank in terms of financial inclusion in Kenya:

- Develop a voucher system linked to an electronic platform for (i) access of subsistence farmers to enhanced agricultural inputs; and (ii) direct payment of agro dealers. The e-

[5] Given the lack of price fluctuation for sorghum, there is little need to develop warehouse receipting for this grain; and storage costs would be high for small producers.

platform will support payment, monitoring and audit of agricultural input vouchers. Appropriate back up auditable systems in line with GoK requirements will be provided by Equity Bank;

- Through the e-platform, promote financial inclusion of targeted smallholders by giving them access to a range of efficient financial services at an affordable cost; and
- Build on financial inclusion to provide incentives for investment by smallholders towards commercial agriculture.

54. Accordingly, KCEP through the partnership with Equity Bank will:

- Provide the 40,000 subsistence farmers with a debit card linked to a transactional current and savings account. The debit card will contain an e-wallet for the delivery of the e-voucher allowing them to purchase the agricultural inputs and post-harvest tools supported under Component 1. Also, this debit card will give smallholders access to a bank account and financial products/services. This innovative system will be a world first.
- Supportsmallholder and private sector investment in storage facilities and processing equipment (shelling/threshing, milling, cleaning/polishing and packing) by facilitating their access to investment financing;
- Build up capacity of smallholders and private sector entrepreneurs in business management. For the 40,000 subsistence farmers, capacity building activities will cover financial literacy (financial management and use of financial services) as well as the promotion of risk-mitigating instruments including forward contracting and weather-index based crop insurance. The latter will also be promoted by including the cost of annual premium in the package delivered through the e-voucher.

55. **Expected outcomes.** KCEP expected outcomes under this component are that around 100,000 farmers producing grain and pulses have access to financial services enabling them to increase the production of target crops, as well as their share of the final value added. Financial services for 40,000 subsistence farmers will include working capital loans; warehouse receipt loans; targeted subsidy for value adding equipment; and e-voucher for inputs and insurance premium. Additionally, an estimated 62,500 farmers will have access to certified storage facilities implementing warehouse receipting. To that end, activities will organized around two sub-components (i) Financial inclusion and (ii) Value Chain Financing.

Sub-component 3.1 – Financial inclusion

56. To support financial inclusion, KCEP will promote 3 main financial instruments:

(iii) *Debit cards:* Equity Bank will provide the 40,000 subsistence farmers targeted by the programme with a debit card giving them access to a bank account and financial products/services;

(iv) *E-vouchers:*Each debit card will feature an e-voucher embedded in a ring-fenced e-wallet giving access to a market-price input-package described above. While the insurance premium will be paid directly to the insurance company, the rest of the package will be redeemable at registered agro-dealers paid instantly via the debit card;

(v) *Warehouse receipt:*in KCEP-supported storage facilities, Equity Bank will set up a warehouse receipt financing mechanism for storage users. Through this service, storage users will be in a position to apply for a loan with Equity Bank guaranteed by production in storage, provided that they meet the EB requirements for this type of financial product. In addition, KCEP will finance a study by Equity Bank on saving modalities best suited to KCEP target groups;

57. The above activities will be sustained with capacity-building of targeted subsistence farmers for greater access to financial services by: (i) developing their financial management skills and confidence in using financial tools to improve their livelihoods, through financial literacy training provided by Equity Group Foundation; and (ii) facilitating smallholder's use of risk-mitigation instruments, including forward contracting and insurance products.

Sub-component 3.2 – Value Chain Financing

58. KCEP will support investment in farmer-owned and private investor-owned processing facilities which will be financed through owner contribution, a project grant (for private sector-owned facilities, this grant will be subject to the effective purchase of the production from KCEP target smallholders), and debt financing. Detailed financing modalities are described in Working Paper 4. Processing facilities will cover shelling equipment for maize, threshing equipment for sorghum and millet, milling equipment (and construction,when private sector ownership is envisaged), as well as cleaning/polishing and packing for pulses. Farmer-owned equipment will be installed in a small number of the farmer-owned storage facilities developed under Component 2. To ensure adoption of best practices in business and financial management leading to a sustainable implementation and development of both storage and processing facilities, KCEP will finance the capacity building of LLCs managers and Board members, private investors, micro- and small entrepreneurs as well as key leading farmers for all storing and processing investments implemented under the project. Capacity building will be provided by Equity Group Foundation.

59. **Implementation.** This component will be implemented by the Financial Services Specialist of the PIU in collaboration with IFAD-financed Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT). In particular, Sub-Component 1 will be implemented in partnership with Equity Bank, and all capacity building activities will be implemented by Equity Group Foundation. Access to insurance will be implemented by an insurance company selected on a competitive basis. Sub-component 2 will be implemented by the PIU (calls for expression of interest and tendering), with support from a legal advisor for setting up farmer-owned LLCs and establishing public-private arrangements related to the operation of public storage facilities.

Programme Management (Total cost USD 3.6 million)

60. KCEP will be implemented through existing institutions according to their mandated responsibilities under the new constitution. The lead agency will be the Ministry in charge of Agriculture (MoA). The lead governance body for the programme will be the **Programme Steering Committee** (PSC), chaired by the Permanent Secretary of the ministry responsible for Agriculture. The PSC will be responsible for oversight of the programme and providing policy guidance to programme implementation. A **County Programme Coordinating Committee** (CPCC) will provide guidance to programme implementation within each county. Implementation arrangements at the county level will be further fine-tuned as the guidelines for the management of the decentralised entities become clearer.

61. The lead agency will delegate implementation functions to other ministries/agencies and programme partners. The expected contribution of each implementing partner and the resources to be provided by the programme will be defined in MOUs. The MoA will set up a well-resourced

62. **Programme Implementation Unit** (PIU) for day-to-day management of the programme, supported by the desk officers in the collaborating institutions. The Programme PIU will be responsible for overall coordination and management of KCEP implementation, including: (i) financial and administrative management of project resources in line with the gran agreement; (ii) planning of project activities and preparation of Annual Work Plan and Budget (AWPB); (iii) procurement and contracting of project-related services and supplies, and monitoring of contracts; (iv) coordination of project partners; (v) monitoring and evaluation (M&E) and knowledge management (KM); (v) preparation of progress reports.

63. The PIU will be composed of a central unit based in Nairobi, and 2 sub-units based in the western Kenya (Nakuru or Nandi), and in the Eastern Kenya (Mbere North), respectively. Under the supervision of the central unit, the 2 sub-units will manage implementation of activities in the maize and sorghum/millet areas respectively. The PIU will be headed by a Programme Coordinator and will include Financial and Administrative Manager; Value chain specialist; Senior Accountant; Procurement Officer; Knowledge Management, Communication and Visibility Officer, Planning and M&E Officer; Civil Engineer; and Financial Services Specialist.. The PIU will also include Support staff including two project assistants andthree drivers. Each sub-unit will include Agronomist ; Agri-Business Specialist, M&E/KM Officer; assistant; accountant; and two drivers.

64. A full time technical assistant will be recruited in the IFAD Country Office to assist with the implementation support and supervision of the KCEP.

D. Lessons learned and adherence to IFAD policies

65. KCEP builds on lessons learnt from the IFAD programme evaluation (2011), which found that overall results were encouraging, particularly in the areas of natural resources management and environmental conservation, community development, and marketing of` small farmers' produce. Main areas of concern that were taken into account in design included the need to have a clear agenda to drive the systematic tracking of innovation and scaling up, and the need to improve project management, in particular with regard to the replenishment of project special accounts, overall project management costs, and financial management, auditing and procurement processes.

66. At national level, KCEP design builds on key lessons learned from the National Accelerated Agricultural Input Access Program (NAAIAP) to support farmers' graduation to commercial farming as follows:

- *Ensuring sustainable Access to inputs:* voucher schemes for farmer access to agricultural inputs should go beyond one year to ensure that farmers have gained sufficient returns to start purchasing inputs on their own, given risks of drought and erratic weather events as well as soil degradation requiring sustained use of fertilisers and improved land management practices to significantly revert the loss of fertility;
- *Adapting the CompositionInput package:* the content of the package should be adapted to AEZ specificities in particular with regard to soil composition;
- *Minimizing Post-harvest losses: improved post-harvest grain handling should be supported to maximise surplus available for marketing and secure sufficient resources to purchase inputs on the market;*
- *Supporting effective Extension services:* adequate extension services should be supported to promote farming as a business, storage and post-harvest management;
- *Building up capacity of Agro-dealers:* Partnership with commercial banks in voucher management facilitate timely payment of agro-dealers, risk-sharing among major suppliers and small agro-dealers, and the development of better relations with suppliers and agro-dealers. Moreover, an e-voucher system improves accountability and enhance the monitoring of the entire program;
- *Demand for fertilizers:* farmers' effective demand for fertilizer should be strengthened by making fertilizer use profitable and by building durable input and output markets. Furthermore, increased fertilizer use efficiency should be sought by promoting the use of use of improved crop management practices;
- *Linking access to agricultural inputs and financial services:* financial literacy, bank linkages, cereal banking and warehouse receipt schemes should be promoted, together with related farmers' capacity building, to sustain farmers' graduation to market-oriented agriculture;
- *Promoting a value chain approach:* NAAIAP was designed to address production challenges facing resource poor farmers, but did not include any strategy to address the marketing of produce. The program needs to address produce marketing in partnership with other stakeholders;
- *Crop insurance:* crop insurance options should be explored as an additional component of the program;
- *Monitoring and Evaluation:* A computerised system allowing the monitoring of achievements is required to improve programme management and measure progress towards achieving programme targets.

67. Moreover, the experience of e-voucher programmes implemented in other countries was capitalized for KCEP design including fact-finding mission to Zambia. Lessons learnt from these initiatives complement those learnt from NAAIAP and are developed in detail in working paper 6. Key lessons retained for project design are that targeting only resource-poor farmers makes desired increases in yields and sustainability difficult to achieve; and the provision of a 100% free voucher leads to dependency.

68. Besides contributing to national objectives in the agricultural sector, KCEP is consistent with IFADStrategic Framework and Scaling-up Agenda; containing all the salient elements targeting poor rural population for : value-chain development; financial inclusion, climate change and resilience; and private-sector engagement. It contributes to the expected results of the Kenya COSOP (2013-18)in support of the agricultural sector: intensification, value addition and market access, as well as

sustainable natural resource management in the ASAL with a core target group of poor smallholder farmers and agro-pastoralists.The Kenya COSOP is scheduled for presentation to IFAD Executive Board of September 2013.

Programmeimplementation

A. Approach

69. The KCEP is conceived around a scaling up approach starting with 8 target counties over a first phase of 4 years, which will be mostly financed by EU-funded Kenya Rural Development Programme (KRDP). KRDP will be one of the major programmes of the forthcoming 11th European Development Fund (EDF) starting in 2016. Documented innovations, practices and business models will pave the way for the formulation of a second KCEP phase, which is expected to scale up the results of the first phase in the framework of KRDP. KCEP review planned for mid-2016 will provide key recommendations in this respect.

70. KCEP follows a value chain approach to support graduation of smallholders to subsistence farming. KCEP aims at addressing key constraints faced by smallholders in production, post-harvest management, processing and marketing in target commodity value chains, to enable them to graduate from subsistence to commercial farming, and achieving food security and improving incomes. This will be achieved by supporting them in: (i) improving their ability to produce the volumes required to meet household consumption needs and to respond to market opportunities by developing access to non-financial and financial services; (ii) reducing post-harvest losses and increasing the quality of marketed grain and pulses; (iii) aggregating and storing produce to attain volumes that are sufficient to access warehouse receipt systems, attract bulk buyers, fetch better prices and support credit access through warehouse receipting; and (iv) promoting remunerative and fair business partnerships with buyers. KCEP will then assist farmers in expanding business and increase their share in the final value added in target commodities through processing.

71. Capacity building is addressed in all components of the KCEP to support stakeholders in acquiring the skills and knowledge required to sustain results achieved with programme support. The programme will build up capacity of smallholders to improve quantity and quality of production, on-farm grain handling and produce marketing, through regular training and coaching of farmers' organisations. It will do so through an annual assessment of their performance and based on the skills required for improvement, as well as on knowledge management channelled through county agriculture stakeholders' fora. Furthermore board members and managers of farmer-owned storage facilities will be trained to oversee and manage the facilities. The ability of agro dealers and owners of storage/processing facilities to provide quality services and fair market outlets to smallholders will be strengthened. Finally, implementing partners such as Equity Bank, KARI, CGA, as well as the participating insurance company will also have access to capacity building in the form of either technical assistance or technical studies to develop new areas of support to smallholders.

72. Public-Private Partnership is central to programme implementation. MoA will partner with public sector stakeholders for KCEP implementation bringing in their expertise and knowledge in business and market development. The partnership with Equity Bank (EB) deserves a special mention. Since the early stage of KCEP design, EB showed strong interest in partnering with GoK, EU and IFAD on the implementation of KCEP. The bank was retained as a partner based on the following considerations: (i) EB is willing to invest $3.7 million against IFAD $0.44 million on the development of the e-platform system and the improved financial inclusion of KCEP beneficiaries; (ii) EB has been piloting the e-voucher scheme on its own and thus has some experience to draw from; (iii) EB has a platform that will take a shorter time to adjust to meet the implementation calendar of KCEP (being operational on the ground by 2014); (iv) EB has the Foundation (a training center) that has a robust training and skills development curriculum for KCEP-type clients; and (v) EB is the only Financial Institution (FI) that has accepted to drop its interest rate for participating smallholders from the on-going market-based rate of 24% to 12% and still find this lower interest rate sustainable[6].

[6] In a vibrantly competitive financial market as in Kenya, finding a FI that accepts to lower its market rate by 50% represents a significant opportunity. EB is able to do that as they are using donor support and their Foundation to "de-risk" their smallholder

73. Equity Bank will set up and operate the platform for the agricultural e-voucher scheme and improved access to financial services for smallholders and other stakeholders. This e-platform will allow to (i) perform real-time payments to agro-dealers thus increasing their buy-in, (ii) reduce the slowness and mismanagement associated with paper voucher; and (iii) improve monitoring of input use, credit access and other expenditures carried out by project beneficiaries through the open-loop magnetic card provided by KCEP. Beneficiary contribution to the e-voucher scheme is estimated at 10% in the first year declining to 40% on the second and 30% on the third year (applies only to sorghum and maize).

74. Climate change adaptation. Drought already constitutes a major factor of vulnerability in the semi-arid areas. KCEP will assist farmers in offsetting the risks that threaten their livelihoods and discourage them from investing in modern inputs and equipment, by promoting technical packages that can mitigate drought impact, through better water use and management, high-yield drought resistant seeds, and improved soil and crop management practices.

75. Innovation and knowledge management. A major innovation promoted with KCEP through partnership with Equity Bank is the combination of a debit card with an e-voucher to support smallholders' access to new technologies and financial services. Weather-based crop insurance will be further disseminated in the programme areas. Technical packages promoted by the programme will support the introduction of innovative combinations of modern inputs and of improved management of natural resources tested by KARI. Furthermore, KCEP will promote a set of business models, including new business partnerships between smallholders and buyers, governance structures and financial mechanisms for storage and processing facilities including farmer-owned limited liability companies. Monitoring and knowledge management will therefore have an important role to play to assess and compare performance, learn from experience, and document achievements and good practice. In particular, KCEP will include a methodology based on randomized control trial for rigorous assessment of poverty impact. Furthermore, as KCEP will unfold, NAAIAP will also continue its activities. It is therefore key that a strong coordination be secured between the two programmes, to learn from implementation.

B. Organizational framework

76. The Ministry of Agriculture will be the Lead Agency for KCEP implementation. Implementation will be managed by a Programme Implementation Unit. The Ministry of Agriculture will be the Lead Agency for KCEP implementation. Implementation will be managed by a Programme Implementation Unit.

77. **County Departments of Agriculture.** County Departments of Agriculture (and their sub-divisions at sub-county and ward levels) will play a key role in programme implementation. In collaboration with CGA, they will be responsible for organising the community based selection of beneficiaries, delivering advisory services with frontline extension workers, and facilitating linkages with local stakeholders in particular through the County/Sub-county Agriculture Stakeholder Fora. To that end, a Steering committee will be set up at county-level chaired by a County Liaison Officer, who will be the senior official in charge of the agriculture at county level.

78. **Partnerships** will be established with:

- *Equity Bank and the Equity Group Foundation.* Equity Bank will be a major partner to KCEP contribution 80% of the costs (USD 3.7 million) to the design, set up and management of the e-voucher platform, as well as the working capital for loans for KCEP target groups to the extent of USD 7.46 million. Equity Bank will also be responsible for implementing Component 3, sub-component 1 – Financial Inclusion, in particular the delivery of e-vouchers and the implementation of the warehouse receipt system in KCEP-supported storage facilities. Equity Group Foundation will be responsible for building the capacities of smallholders and other value chain stakeholders with regards to financial literacy and business management;

clients. Once smallholders have been 'de-risked', the cost of serving such less risky clients is much lesser, hence the lower interest rate charged to the de-risked clients.

- *The Cereal Growers' Association (CGA)* will be another key partner of KCEP as the major socio-professional organisation representing the interests of smallholders in the grain sector. This is in line with IFAD's corporate approach, which is embedded in the Farmers' Forum process, to relate to farmers' organisations as IFAD privileged partners and to promote them so that they become sustainable, self-financed national farmers' organisations, including through developing their membership and offering services meeting farmers' needs. Aside from having the technical expertise and management experience, CGA also offers a national outlet for disseminating the knowledge and experience that will be generated through KCEP activities, and to scale up successful business models. CGA will be the lead service provider for the implementation of Component 1 in collaboration with County Agriculture and other service providers involved in implementation of the component, i.e. KARI/IPNI and AGMARK;

79. The*IFAD-financed Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT)* will collaborate with KCEP on(i) the implementation of Component 3 financial instruments and (ii) the management of the KCEP-financed grant component included in the financing of processing and storing facilities.

80. The PIU will sign MoU with Equity Bank, KARI, IPNI, AgMARK, and CGA, which will be prepared as part of the preparatory activities specifying each party's responsibilities and quantified deliverables, including gender and inclusion target and indicators.

81. **Service providers.** The project will be implemented by service providers that will be hired by the PIU based on result-oriented contracts. Contract renewal will be subject to positive evaluation of performance by the Project Steering Committee (Section III C).

82. **Farmers' organisations.** Farmers' organisations (FOs) are central stakeholders in KCEP implementation. Programme strategy and activities are geared towards ensuring that, by the end of the programme, they have become professional players in their respective value chains. Furthermore, FOs will own shares in the equity of newly constructed warehouses, which will be established as Limited Liability Companies, and which will enable them to participate in decision-making at board level, and thereby contribute to sustainable provision of responsive and affordable services. The strengthening of FO capacities will be one of the main responsibilities of KCEP partners and service providers.

83. **Programme phasing.** While NAAIAP is a nation-wide programme, KCEP is conceived to be implemented at a smaller scale over a first phase of four years. During this initial period, it will document successful business models to pave the way for scaling up under a second phase, which the European Union is planning to finance by early 2014[7]. Accordingly, KCEP has been designed using a phasing approachas follows:

- *Initial Stage* of one and a half year (January 2014-June 2015), during which they will: (i) set up all logistics arrangements; (ii) develop a methodology for achieving KCEP objectives with the first groups of farmers (see Table 1); (iii) set up M&E/KM arrangements; and (iii) set up administrative, financial and management systems. By the end of this period, a comprehensive supervision mission will assess first results, identify business models to be further developed, and decide on corrections required to improve performance;
- *Second Stage* (January 2015 for maize/June 2015 for sorghum/millet, to mid-2016) during which they will consolidate their approach, extend it to the remaining part of the target group, and further document achievements under the guidance and in collaboration with the PIU. The programme review will be carried out at the end of this stage to assess achievements document business models, and good practices, and provide recommendations for scaling up KCEP. Decision on scaling up KCEP will be based on assessment of programme achievements and lessons learned documented in the PIU progress report and the programme review. Recommendation for scaling up will be

[7] The EU Delegation in Kenya has already announced that an additional EURO 10 million will be made available from EDF 10th and 11th EDF to KCEP by early 2014.

submitted to the steering committee for endorsement based on the above for consideration by the Lead Agency, the EU and IFAD.

- *Final Stage* (until December 2017), during which they will: (i) ensure that implementation responsibilities intended to outlive the programme will be taken over by permanent stakeholders; and (ii) finalise their documentation of business models, lessons learnt and good practices. No new groups will be initiated in 2017, as per Table 1 to ensure that across target areas, all farmers will have a minimum of two years of programme support.

Table 1 – Phasing of beneficiaries

Areas	2014		2015		2016		2017	
	New	Total	New	Total	New	Total	New	Total
Maize	2,500	2,500	7,500	10,000	10,000	20,000	0	20,000
Sorghum/millet	7,500	7,500	12,500	20,000	0	20,000	0	20,0000
Total	**10,000**	**10,000**	**20,000**	**30,000**	**10,000**	**40,000**	**0**	**40,000**

84. **Programme preparatory activities.** To ensure a quick start-up and initiate voucher delivery during the farming season starting in March/April 2014 in the maize area and in September 2014 in the sorghum/millet area, a set of preparatory activities will be carried upon signing of the Contribution Agreement between the EU and IFAD, and the Grant Agreement with GoK. These include: (i) *the recruitment of three short-term consultants*, who will launch all the activities required to set up the programme implementation structure, i.e. Project Management Specialist, procurement specialist and Financial Services Specialist; and (ii) *the hiring of a team of a consultants* who will carry out a participatory scoping study, which will identify value chain stakeholders that will participate in project implementation, mapping grain handling facilities in the targeted sub-counties, lay out business development opportunities that have potential for increasing the income of smallholders in the target sub-counties, and supply baseline data upon which to base monitoring and evaluation. Preparatory activities will be financed with IFAD start-up funds and with EU grant funds once disbursement conditions will be met. Detailed preparatory activities are listed in Appendix 5, and main orientations for the topics to be covered by the scoping study are outlined in Working Paper 3 – Post-Harvest Management and Market Linkages.

C. Programme Oversight

85. The EU and Government of Kenya signed a Financing Agreement in 2011 for the implementation of the Kenya Rural Development Programme (KRDP). The overall objective of the KRDP is to contribute to improved food security in Kenya. Among the expected results of the programme is increased access to and availability of food in Kenya, and strengthened institutional capacity to manage droughts and improve food security and livelihoods in the Arid and Semi-Arid Lands (ASALs). The Government of Kenya set up the National Accelerated Agricultural Inputs Access Programme (NAAIAP) financed by the Government of Kenya (GoK) supported on a co-financed basis with EU, World Bank and other development partners. The primary objective of NAAIAP is to improve input access and affordability of the key inputs for approximately resource-poor smallholder farmers, and transform them from subsistence farming to commercial agriculture. The KCEP will be the second programme funded by the EU under the KRDP.

86. The lead governance body for the KCEP will be the **Programme Steering Committee** (PSC), chaired by the Permanent Secretary of the ministry responsible for Agriculture. Core membership of KCEP Programme Steering Committee will be the same as NAAIAP's and include additional members to reflect KCEP value-chain based approach. Complementarity in membership will ensure that KCEP takes advantage of NAAIAP's experience and activities are not duplicated. KCEP Steering Committee will meet twice a year to: (i) review progress against targets; (ii) assess management effectiveness; (ii) decide on corrective measures where appropriate; (iii) review lessons learned, good practices and

innovation; (iv) approve AWPBs and review progress reports; and (v) provide overall guidance on implementation. The Steering Committee will be chaired by MoA Permanent Secretary. Under the leadership of the MOA, report of the KCEP steering committee will feed in the Steering committee of the KRDP.

D. Planning, M&E, learning and knowledge management

87. The Programme M&E/KM system will fulfil three main objectives:

- *Guide programme implementation:* M&E/KM system will measure programme outputs and outcomes; impact on livelihoods of target groups; and relevance of programme strategy to identify constraints and successes, and guide decision-making for programme performance. It M&E system will also aim at documenting programme contribution to ASDS and COSOP targets;
- *Capitalize and disseminate lessons learned*: The M&E/KM system will include lessons learned, good practices and innovations, and share knowledge to guide programme implementation performance and policy dialogue. Specific areas of interest are (i) adapted technical packages; (ii) inclusive business models for farmers' access to services and markets; and (iii) innovative financial instruments, including the e-voucher for graduation of small farmers to commercial agriculture;
- *Measure programme impact:*The M&E/KM system will measure impact of KCEP *(i) on graduation of target groups to commercial agriculture, (ii) food security; and (iii) poverty and livelihoods of participating farmers*, in particular on women and young people. Under Stage 2 of implementation, a programme review will be carried out to assess programme achievements, good practices, and lessons learned to inform the negotiations of a second phase of the KCEP. Decision on scaling up KCEP will be based on assessment of programme achievements and lessons learned documented in the PIU progress report and the programme review. Recommendation for scaling up KCEP will be submitted to the steering committee for endorsement based on the above for consideration by the Lead Agency, the EU and IFAD.

88. **Framework and implementation plans.** The M&E system will be developed and managed by the PIU (detailed responsibilities in Annex 5) under the technical leadership of and will meet MoA, IFAD and EU reporting requirements. At start up a specialized M&E/KM service provider will be contracted by the PIU to support its set up based on quantitative and qualitative indicators building on the logical framework and on the set of IFAD's corporate Results and Impact Management System (RIMS). The Service provider will support the PIU in developingan M&E/KM and Communication manual supported by an implementation plan.

89. **Impact assessment.** In line with IFAD target to bring 80 million people out of poverty by 2015, the M&E system of KCEP will devote significant attention to assessing the poverty impact. Under KCEP, rigorous impact assessment will be conducted using *Randomised Controlled Trial* (RCT), a methodology that requires the target group to be compared with a control group not benefiting from programme support (see Appendix 6). RCT surveys will be implemented at baseline, midterm and completion. This survey will monitor logical framework indicators, IFAD corporate Results and Impact Management System (RIMS) indicatorsas well as specific poverty reduction impact. It will be carried by a specialised service provider contracted through a competitive process. The impact assessment will also build on the information gathered through (i) the database of programme beneficiaries (see below); and (ii) the scoping study that will be carried out as part of preparatory activities (see Appendix 5).

90. **A Beneficiary database** will be established for two purposes: (i) allowing the payment of electronic vouchers and (ii) monitoring the outcomes and impacts of KCEP. The list of eligible programme beneficiaries will be transmitted by the PIU to Equity Bank that will enrol the farmers in the e-voucher platform. In order to ensure transparency and effectiveness, the e-voucher beneficiary database will have to include a number of mandatory data on beneficiaries such as: name, location, ID number and mobile phone (if available). Data collection will take place during the initial phase of voucher activation. This database will be established and maintained by a specialized service provider. Other data relevant to outcome and impact measurement such as: size of plots, yield, family

consumption, agricultural output sold, type and size of agricultural loans will be monitored through the database. The access to the data generated under KCEP will be open under the condition that privacy rules and regulations are complied with. The use of a debit card will allow tracking the expenditure pattern of target farmers, which is an additional tool that could be used for measurement of poverty reduction. Also, the e-voucher scheme will be linked to a cell phone platform (it's the case for MPESA by SAFARICOM which is already linked to the Equity Bank platform). This should allow conductingcell phone-based household surveys among beneficiaries at a cost lower than traditional HH surveys.

91. **Programme planning, data collection and analysis**. The M&E/KM cycle will start with the preparation of the programme Annual Work Plan and Budget (AWPB), which will be a key instrument for implementation. Data collection will be organised along three levels: (i) *at producers' level*, information will relate to farmers and their organisations, access to inputs and services, and production/income evolution; (ii) *at value chain level,* information will be provided on the achievements of business partnerships and aggregating and processing facilities and business partnerships; (iii) *at programme level,* informationwill encompass overall performance.

92. **MIS.** A Management Information System (MIS) will be set up to facilitate the flow and processing of data. The MIS will track financial and technical data on project outputs and outcomes, lessons learnt, good practices, and other important sector information to analyse performance of the programme, including information regarding price and export statistics. The MIS will include a beneficiary database (mentioned above): (i) allowing the redemption of e-vouchers and (ii) monitoring the outcomes and impacts of KCEP. The MIS will also include other relevant programme data related to outcome and impact measurement such as: size of plots, yield, family consumption, agricultural output sold, type and size of agricultural loans, etc. Relevant data to include in the MIS will be identified by the M&E/KM consultant. The MIS will be set up by the service provider responsible for undertaking poverty assessment (see below).

93. **Knowledge management.** The PIU will ensure that knowledge generated within the programme is systematically identified, analysed, documented and shared. It will be used to support capacity building and institutional strengthening of stakeholders including community organisations, service providers, farmer organisations and government departments. In addition, KM processes will ensure that appropriate lessons learned and good practices are gathered and disseminated within Kenya. Namely, information on successful business models and innovative techniques promoted by the programme will be disseminated to stakeholders through appropriate communication channels to strengthen their capacities and improve performance. Tools and modalities for knowledge sharing will be developed in the M&E/KM manual. Areas of good practice for exchange of knowledge will be identified on an annual basis. This could include: agricultural intensification; negotiating business partnerships; service provision through agro dealers; access to credit through warehouse receipt; storage facilities, etc. Good practices will be gathered through participatory methods. Peer learning groups among key stakeholders (for example farmer groups, owners of storage/processing facilities) will be established to share knowledge and interact as a learning community on key areas of interest. Multi-stakeholder dialogue will be developed on an annual/semi-annual basis in the Programme Steering Committee, and it will be promoted in the County Agriculture Stakeholder Fora. The M&E and KM Officers will be responsible for ensuring that women and youth are participating in the dialogue as equal partners, and that issues specifically related to women and youth are being adequately addressed.

E. Financial Management, Procurement and Governance

94. The project will be implemented through GoK financial management systems, which are assessed by the design team as adequate for this purpose. GoK has adopted the International Public Sector Accounting Standards - Cash Basis (IPSAS) which is acceptable to IFAD. Accounting formats acceptable to IFAD will be explained during the start-up workshop ensuring to involve the Kenya National Audit Office (KENAO). The counties will continue to use GoK financial management tools such as the access based computer software, manual vote books and manual cash books. The PIU will source financial data and supporting documents as appropriate from the counties and the PIU staff will post these in the accounting software to be installed at the PIU. The PIU will also obtain expenditure reports from all implementing agencies and cost centres in order to update the project financial statements. KENAO will audit the project annual financial statements prepared by the PIU using the International Standards on Auditing. The audited financial statements will be submitted to

IFAD within six months after the end of the fiscal year along with the management letter and management response thereto.

95. **Disbursement**. EU grants are disbursed to IFAD in tranches as per disbursement schedule included in the Contribution agreement. The last tranche of the grant (generally around 3-5%) will be disbursed upon justification of 100% of eligible expenditure. This will require pre-financing of this last tranche. In order to use the full amount of the EU Grant, it is suggested that i) IFAD will negotiate with GoK to pre-finance the last tranche, as IFAD is not allowed to do so; (ii) the last tranche of the EU grant be negotiated at the lowest possible amount; and (iii) the Project will prepare accurate cash flow plans to mitigate cash flow problems towards the end of project implementation.

96. As the EU grant is denominated in EURO and the exchange rate used in the costing of the programme was 1.30 USD/€, the value in USD of the EU grant will have to be frequently checked to assess the impact on the overall grant allocation and on the balance to be used under KCEP. To this end, each AWPB shall be prepared considering the actual USD balance of EU grant funds.

97. **Flow of funds**. The Borrower/Recipient will make the proceeds of the Financing available to the Project Parties upon terms and conditions specified in the Financing Agreement or otherwise approved by the Fund for the purpose of carrying out the Project. IFAD will disburse funds for the project to the Designated Account (DA) in USD (see Letter to the Borrower for definition of Designated Accounts) maintained with the Central Bank of Kenya (CBK) or with a Commercial Bank acceptable to IFAD managed and monitored by the CBK; then the funds will flow from the DA to the PIU Project Account, in local currency Kenya Shillings for funding the programme activities. From the PIU the funds will be transferred predominantly ii) to the two Project branches; ii) to Equity Bank, which will have a dedicated account for KCEP funds, for financing the agricultural "Vouchers" according to the ad-hoc Memorandum of Understanding which will be established between Equity Bank and the Project and iii) to the identified Service Providers according to the ad-hoc Memorandum of Understanding which will be established with the Project on PBA basis. Equity Bank has been selected based on their strong experience in similar activities.

98. **Procurement**. IFAD's procurement guidelines specify that national procurement systems will be used, provided the systems are assessed as satisfactory or better. This applies to all procurement except international competitive bidding (ICB) for contracts above an agreed threshold. The IFAD guidelines state that ICB procurement will follow the procedures recommended by the World Bank. Kenyan national procurement systems under the oversight of the Public Procurement Oversight Authority can be relied upon to undertake procurement below the agreed ICB thresholds.

99. **Supervision**. Supervision of KCEP will be carried out directly by IFAD jointly with the in-country CPMT as an on-going process of implementation support. One supervision mission and one follow-up mission will be conducted every year. Implementation support will focus on planning, gender and targeting, procurement, financial management, M&E, partnerships, the integration of programme activities within the evolving governance framework; and monitoring of the achievement of outputs and outcomes.

100. **Programme review**. A joint review will be organised by the Lead Ministry and IFAD by the end of the third year (mid-2016) to: (i) assess achievements and interim impact, the efficiency and effectiveness of KCEP management; (ii) identify key lessons learnt and good practices; (iii) provide recommendations to ensure the sustainability of results beyond completion; and (iv) provide recommendations for the formulation of KCEP second phase. Specific issues to be addressed include the following: (i) the performance of the e-voucher system and its impact on supporting improved agriculture and on-farm grain handling practices; (ii) the performance of storage and processing facilities in terms of cost-effectiveness, revenues accruing to farmers, and effectiveness and impact of warehouse receipting; (iii) the performance of business partnerships in terms of revenues accruing to farmers and distribution of the value share; (iv) the performance of farmers' organisations; (v) the identification of most performing business models and opportunities for scaling up; (vi) progress in gender equity and social inclusion.

F. Risk identification and mitigation measures

Risks	Mitigating measures
Adverse climate change, in particular drought	- Crop varieties, technologies and water and soil management techniques mitigating adverse/drought effect
Weak technical and management capacities of farmers' organisations	Capacity building, including training, coaching and knowledge sharing and exchange built throughout project activities - Inclusion of professional managers paid by storage fees in farmer-owned storage facilities
Misuse of e-vouchers (elite capture, cashing-in of vouchers at agrodealers', side-selling of inputs)	- Community-based participatory selection of beneficiaries, peer pressure based farmers' group solidary responsibility to comply with proper use, capacity building of and sanctions applicable to agro dealers accepting to cash in e-vouchers, and control by extension officers
Low availability and delayed supply of inputs	- Sensitization and information campaigns on e-voucher eligibility requirements targeting agro-dealers well in advance to ensure on-time availability of inputs
Low impact on yields in case of bad or medium crop year	- Provision of inputs adapted to specific features of different AEZ - Improving sustainable water and land management will maximize soils capacities to retain rain water increasing water and nutrients availability for crops - E-voucher will be provided over two years allowing farmers to measure productivity improvement
Adverse climate change, in particular drought	- Crop varieties, technologies and water and soil management techniques mitigating adverse/drought effect - Weather insurance included in e-voucher and matched by information and sensitization
Low farmers' capacities to purchase inputs after project intervention	- Linkages between crop production and access to market Warehouse receipt system - Debit card with e-voucher also giving access to financial services - Increasing famers' contribution to the e-voucher will avoid dependency and will increase farmers' commitment
Lack of respect of contract terms	- Link with weather-based insurance system to mitigate risk of drought - Build peer pressure mechanisms within FO to enforce adherence; bring in relevant Government body to witness contracts

Lack of capacities of smallholders to negotiate fair deals with private investors and to exert shareholders' responsibilities	- Provision of legal assistance and support by service providers
Storage facilities are not viable in Y1 and Y2 because they are not used at sufficient capacity	- Include coverage for operational losses in programme costs
Insufficient quality of management of Warehouses	- Recruitment by project and Equity Bank of young professionals
Failure of farmers to adopt the warehouse-based produce aggregation and marketing model	- Favourable conditions to enter into ownership arrangements - Price impact creating strong incentive - Warehouse receipt system allowing easier access to credit - Capacity building and knowledge sharing
Lack of financial capacity/interest on behalf of private sector to invest in processing	- Provide private investors with incentives to support investment in innovative and riskier activity - Develop farmer-owned storage and processing facilities as an alternative to private investors
Delays in implementation	- Pre-identification of service providers in preparatory activities - Annual result-based contracts - Technical assistance and capacity building (agro dealers)

101. **Specific measures will be set up to mitigate the risk of misuse of e-vouchers.** The risk of elite capture and/or misuse of vouchers (cashing in at agro-dealers' and side-selling) by eligible beneficiaries will be mitigated through a mixed set of measures as follows:

- Information and capacity building of e-vouchers recipients;
- Farmers' cost-sharing of the e-voucher (10% in year 1 and 40% in year 2), to contribute to developing farmers' commitment and ownership;
- Spot controls by extension agents in beneficiary's farms;
- Peer pressure to be sustained by member signature of a document describing obligations linked to the use of the e-voucher, matched by collective group responsibility for ensuring that every member meets the obligation to redeem the voucher for the purpose it is meant, and sanctioned by group exclusion from receiving e-vouchers in the second year in case of no respect;
- Financial inclusion: access to bank services and the development of warehouse receipt systems will reduce the need for e-voucher to be cashed in for emergency needs;
- Information and capacity building of agro dealers;
- Specific measures will be devised to facilitate youth participation, both in on and off farm activities; and
- Specific performance audit carried out by an independent specialised service provider

102. The PIU, under the overall responsibility of the Programme Coordinator, will be responsible for ensuring overall implementation of the GESI Annual Action Plans

KCEPcosts, financing, benefits and sustainability

A. KCEP costs

103. The total investment and recurrent Programme costs is estimated at USD 39.1 million (Khs 3.3 billion). The foreign exchange component is estimated at USD 6.9 million. Taxes make up approximately USD 1.7 million (4 percent of the total Programme costs). An exchange rate EURO/USD of 1.30 has been used. Summary tables and detailed cost tables are presented in Appendix 9.

104. **Start-up costs.** The costs for start-up activities have been estimated to be USD 163,000. For details refers to par. 84 and to Appendix 5. This amount will be funded by IFAD start-up funds (available before entry into force of KCEP) and by the EU grant in accordance with the Terms of the Agreements, which will be signed between EU and IFAD and between GoK and IFAD.

Programme Costs by Component (EURO and USD'000)

	(EURO '000)			(US$ '000)			% Foreign	% Total Base
	Local	Foreign	Total	Local	Foreign	Total	Exchange	Costs
A. Cereal Productivity Enhancement	2 854.1	38.5	2 892.6	3 710.5	50.0	3 760.5	1	10
B. Post-harvest Management and Market Linkages	3 137.7	68.5	3 206.2	4 079.2	89.0	4 168.2	2	11
C. Financial Inclusion	14 786.4	3 616.3	18 402.8	19 223.1	4 701.4	23 924.5	20	61
D. Programme Administration								
1. Preparatory and implementation support	1 313.1	318.8	1 631.9	1 707.1	414.5	2 121.5	20	5
2. Programme Management	2 624.5	118.8	2 743.3	3 412.0	154.4	3 566.5	4	9
3. Visibility Actiivities	68.7	12.1	80.8	89.3	15.8	105.0	15	-
4. IFAD Administrative fees	-	1 149.4	1 149.4	-	1 494.3	1 494.3	100	4
Subtotal	4 006.3	1 599.1	5 605.4	5 208.3	2 078.9	7 287.3	29	19
Total BASELINE COSTS	24 784.5	5 322.3	30 106.9	32 221.2	6 919.3	39 140.5	18	100
Physical Contingencies	-	-	-	-	-	-	-	-
Price Contingencies	-	-	-	-	-	-	-	-
Total PROJECT COSTS	24 784.5	5 322.3	30 106.9	32 221.2	6 919.3	39 140.5	18	100

B. KCEPfinancing

105. The whole Programme is estimated to have an overall cost of US$ 39.1 million (total investment and recurrent programme costs) of which: USD 23.9 million (59% of total programme costs) from an

EU Grant; USD 3.7 million (10% of total programme cost) from Equity Bank; 4.7 million (12% of total programme costs) from private sector; USD 4.6 million (12% of total programme costs) from the beneficiaries; and the Government Kenya contribution is estimated at USD 3.1million (8% of total programme costs) to cover taxes and duties foregone.The EU has announced that in addition to current funding of Euro 17.6 million, a further allocation of Euro 10 million is in the pipeline for 2014. Upon confirmation, resources will be allocated to construction and rehabilitation of storage facilities, road spot improvements and other eligible activities programmed under the KCEP.

Financing Plan by Components[8] (USD '000)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1. Preparatory and implementation support activities	3 255.2	87.5	-	-	-	-	226.8	6.1	75.0	2.0	163.8	4.4	3 720.8	9.5
2. Cereal Productivity Enhancement	3 087.0	82.1	-	-	-	-	71.8	1.9	-	-	601.7	16.0	3 760.5	9.6
3. Post-harvest Management and Market Linkages	3 216.7	77.2	350.6	8.4	-	-	46.2	1.1	-	-	554.7	13.3	4 168.2	10.6
4. Financial Inclusion	9 875.4	41.3	4 282.0	17.9	3 740.3	15.6	4 354.6	18.2	-	-	1 672.2	7.0	23 924.5	61.1
5. Project Management	3 447.0	96.6	-	-	-	-	-	-	-	-	120.0	3.4	3 567.0	9.1
Total PROJECT COSTS	22 881.4	58.5	4 632.6	11.8	3 740.3	9.6	4 699.4	12.0	75.0	0.2	3 112.4	8.0	39 141.0	100.0

Financing Plan by Components (EURO '000)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Cereal Productivity Enhancement	2 374.5	82.1	-	-	-	-	55.2	1.9	-	-	462.8	16.0	2 892.6	9.6
B. Post-harvest Management and Market Linkages	2 474.3	77.2	269.7	8.4	-	-	35.5	1.1	-	-	426.7	13.3	3 206.2	10.6
C. Financial Inclusion	7 596.2	41.3	3 293.7	17.9	2 877.0	15.6	3 349.6	18.2	-	-	1 286.3	7.0	18 402.8	61.1
D. Programme Administration														
1. Preparatory and implementation support	1 286.7	78.8	-	-	-	-	174.5	10.7	57.7	3.5	113.0	6.9	1 631.9	5.4
2. Programme Management	2 651.1	96.6	-	-	-	-	-	-	-	-	92.2	3.4	2 743.3	9.1
3. Visibility Actiivities	67.8	84.0	-	-	-	-	-	-	-	-	12.9	16.0	80.8	0.3
4. IFAD Administrative fees	1 149.4	100.0	-	-	-	-	-	-	-	-	-	-	1 149.4	3.8
Subtotal	5 155.0	92.0	-	-	-	-	174.5	3.1	57.7	1.0	218.2	3.9	5 605.4	18.6
Total PROJECT COSTS	17 600.0	58.5	3 563.4	11.8	2 877.0	9.6	3 614.8	12.0	57.7	0.2	2 394.0	8.0	30 106.9	100.0

C. Summary benefits and economic analysis

106. The number of direct beneficiaries is estimated to be 100,000 households and the project cost per household is approximately USD 386.Service providers namely agro-dealers, private extension services, buyers, processors, and leading farmers providing support services to smallholders will also benefit from the Programme. Indirect target groups include those who will benefit from the spill-over effects of project activities, such as poor households who lack the assets necessary to participate directly in the programme activities but who will benefit from labour opportunities generated by increased agricultural production.

107. Appendix 10 provides an analysis of the financial and economic impacts of KCEP. The economic rationale of the programme is associatedwith (i) the import substitution potential for the three targeted cereals with annual shortfall ranging from 400,000 tons for maize to an averageof 20,000 tons for sorghumand millet; (ii) the potential for increased production through the use of improved seeds, the combination of fertiliser with enhanced soil and water management practices, and better crop husbandry; and (iii) improved food security through increased availability of produce and better access to food through the income generated by the sale of marketable produce.

108. The three main source of benefits from KCEP include:

[8]The different structure of the financing plans in USD and EURO reflects the different requirements of EU and IFAD.

- Higher agricultural productivity associated with the package promoted in Component 1 (adapted input package, improved agricultural technology and practices disseminated through extension services) accruing to category 1 beneficiaries. This type of benefits will accrue also to category 2 beneficiaries through training of trainers of lead farmers on identified needs, demonstrations, field days and fairs organized by agro-dealers localized in their area of production.
- Post-harvest losses reduction and improved quality of grains through training on grading and drying and storage management both on-farm and at larger warehouse facilities. This benefit applies to both cat. 1 and 2 households.
- Increase in farm gate price associated with Warehouse Receipt System and improved market linkages with buyers.

109. The results of the financial analysis suggest that all farm models are financially viable. The economic analysis of the programme indicates an EIRR of 30%. The sensitivity analysis suggests that the economic viability of KCEP is robust and more sensitive to benefit reduction as compared to cost increase. It would take a 30% reduction of benefits to make the programme unviable.

110. **Voucher sustainability.**KCEP will improve the access to inputs for subsistence farmers through an electronic voucher system accompanied by the provision of adapted agricultural services both on-farm and post-harvest. Financial and economic viability checks have been carried out on the voucher scheme (see Appendix 10) by: (i) analysing the sustainability of input packages in the context of the household livelihood system; and (ii) assessing the economic viability of these input package independently from the other programme interventions to confirm the interest for the country to specifically invest in agricultural input subsidies. The results of the household livelihood model suggest that (i) both maize and sorghum subsistence farmers will generate enough income through the proposed voucher scheme (subsidies of 90% in Y1 and 40% in Y2 for maize; 90% in Y1, 60% in Y2 and 30% in Y3 for sorghum and millet) to be able to sustain the cost of basic food, health and education and in addition finance the cost of the inputs and the proposed farming technology; (ii) millet subsistence farmers will have difficulties in the first year due to a significantly lower crop income but will break even in the second year. Access to consumption and/or production loans during the first year of programme intervention will be crucial for this target group; and (iii) over time, the increase in income associated with programme interventions will allow households to significantly improve their pattern of basic expenditure and thus their livelihood system. The results of the specific economic analysis carried out on the promoted input packages suggest that all three voucher schemes are economically viable.

111. **Poverty assessment.** The programme's preliminary poverty impact was assessed (see Appendix 10). Results suggest that for subsistence smallholders, the potential for poverty extraction is significant. Maize and sorghum subsistence farmers are able to reach income levels above the poverty line (87,630 Ksh per household per year equivalent to 0.52 USD/individual/day) in Y4. Millet farmers exit poverty in Y7. Among the more advanced farmers (category 2 beneficiaries), maize farmers exit poverty in Y2, millet farmers in Y5 while sorghum farmers are above the poverty line since the start. For these smallholders, the issue is also avoiding falling back into poverty as 75% of them are oscillating in and out of poverty and/or have recently exited from poverty. Preliminary poverty reduction targets were estimated. When beneficiaries are assumed to adopt the "minimum package" available under KCEP (improved inputs, agricultural extension and produce aggregation services), the potential for poverty extraction was estimated at 66,400 HH out of 100,000 beneficiary households (equivalent to 66% of beneficiaries receiving programme services). It should be noted that this poverty extraction is potentially unsustainable as the risks of falling back into poverty are high. When beneficiary household adopt the full package of improvements promoted by KCEP (input package with extension services, post-harvest services, market linkages and crop insurance), the potential for poverty extraction is 40,800 HH (equivalent to 41% of beneficiaries receiving programme services). On the one hand, the reduced number of household extracted from poverty in this scenario is a consequence of the lower adoption rate of the proposed interventions (especially weather-based crop insurance). On the other hand, the sustainability of this type of poverty extraction is higher as the risks of falling back into poverty are significantly reduced.

D. Sustainability

112. KCEP aims at supporting the development of sustainable technical packages and business models in selected value chains, with a clear objective of supporting smallholders to graduate to commercial agriculture. This is reflected by the following programme features:

- *Sustainable improvement of smallholder income* ensured through the provision of a comprehensive package addressing agricultural productivity, post-harvest losses, as well as lack of remunerative farm gate prices and market outlets. This package has been checked for financial and economic viability (see section on economic analysis above and Appendix 10);
- *Capacity-building of Farmers' organisations*: they will be supported through tailor-made capacity building packages to acquire the technical and management capacities allowing them to become sustainable and profit-oriented;
- *Mainstreaming climate resilience:* the development of climate resilient technological packages (drought resistant seeds, water management and soil conservation) will support sustained productivity and quality, particularly in the semi-arid areas. Furthermore, the e-voucher will cover the cost of the annual premium for weather insurance with sensitisation and information on insurance products and benefits;
- *Inclusive business ventures:* business partnerships will be developed so that they can evolve into long-standing commercial relationships bringing mutual benefits to parties including capacity building of farmers' organisations to conduct fair negotiations with buyers, and owners of storage/processing facilities to enter into fair marketing arrangements with smallholders;
- *Farmer-owned storage facilities:* farmer-owned warehouses will be managed by professional managers appointed paid through storage fees to ensure sustainable management. Legal assistance and capacity building will be provided to farmers to set up LLCs and exert their responsibilities of shareholders and members of the Board;
- *Agro dealers:* KCEP will strengthen the range and quality of services they provide so that they can meet farmers' needs and adapt to evolving demand
- *Farmers' access to financial services:* they will have access to a range of banking services through the debit card supporting the e-voucher, and will receive financial literacy and business management capacity building. Warehouse receipt systems will be developed in storage facilities so that farmers gain easier access to credit;
- *County Agriculture Officers:* KCEP will build up capacities to provide technical services beyond programme completion;
- *Knowledge management:* it will secure the capitalisation and dissemination of good practices to maintain results and impact beyond KCEP completion.

113. Furthermore, a project review will be organised by mid-2016 to make recommendations with regard to key measures required to ensure the sustainability of programme achievements, based on which the PIU will prepare a detailed exit strategy jointly with programme stakeholders. This will include the organisation of a county-based handover process with the aim of empowering stakeholders to take charge of their responsibilities for maintaining KCEP achievements and benefits once the programme is completed. The PIU will prepare a draft handover document for each target county, which will: (i) detail investments and achievements (including related costs) implemented in the county; (ii) lay out the outcomes of the knowledge management activities; and (iii) propose institutional arrangements and resources required to ensure that achievements and related benefits are sustained, as well as who would be responsible for them (line agencies, farmers' organisations, private sector). A workshop will then be organised in every district to agree on the distribution of responsibilities and finalise the document as appropriate.

E. Visibility

114. A communication and visibility plan will be drafted at the start of the KCEP. This plan will include a list of communication & visibility initiatives and a budget based on the EU guidelines on Communication and Visibility. Communication and visibility activities will be implemented by the KM, communication and Visibility officer of the PIU.

Appendix 1: Country and rural context background

Overview

1. **Demography.** Kenya occupies a total land area of 582,646 km2 with varied topography and hosts a population estimated at 40.5 million. High fertility, combined with declining mortality has contributed to one of the world's fastest population growth rates. The population has more than tripled over the past 30 years, greatly increasing pressure on the country's resources. At present, Kenya's population growth rate is estimated to be around 2.6%. Average population density is estimated at 69 persons per km^2, but about 70% of people live in medium-high potential (MHP) areas in the centre and west of the country, where the population density can be more than ten times the national average. The Arid and Semi-Arid Lands (ASALs) make up more than 80% of the country's land mass, and are home to 30% of the population. Agricultural land covers about 33 per cent of the country. Average annual rainfall is 630 mm, with wide variations from less than 200 mm in the Chalbi Desert in the north to more than 1,800 mm on the slopes of Mount Kenya.

2. **Economic growth.** Kenya had a GDP estimated at USD 33.62 billion in 2011 and a per capita GDP of USD 808. GDP growth has been highly variable over the years, declining from an annual 7% in the 1960s to 2.4% in the 1990s, due to poor economic performance caused by frequent unfavourable weather conditions affecting the agriculture sector; deteriorating physical infrastructure and high energy costs, and poor governance and security. A more conducive policy environment and rapid expansion of the tourist and telecom sectors led to increased GDP growth as of 2003 up to a high 7% in 2007. Post-election violence in 2008, a prolonged 2008-2010 drought and the global financial crisis cut back the economic growth again. Peaceful national elections in March 2013 and a smooth transition of power renewed business confidence, strengthening prospects for the economy to achieve a growth rate of 5.5% in 2013, compared to 4.3% in 2012. Between 1980 and 2010 Kenya's Human Development Index (HDI) rose by 0.5% per year. Kenya ranks 145 over 186 countries in the 2012 Human Development Index. A highly fluctuating GDP per capita growth, averaging 0.8 per cent over the period 1997-2007, indicates that the country's economy can just about keep up with the population increase.

3. **Agriculture sector.** The agricultural sector remains the backbone of the economy, providing about 65% of export earnings, although its share in the GDP has declined from nearly 40% in the 1970s to about 28% in 2011. Industrial crops contribute 17% of the agricultural GDP and 55% of agricultural exports, while food crops contribute 32% of agricultural GDP but only 0.5% of exports. Horticulture is the largest sub-sector, contributing 33% to the agricultural GDP and 38% to export earnings. The main food crops are maize, wheat, sorghum, millet, cassava, potato and sweet potato, while the main exports are tea, coffee, fresh vegetables and flowers. Today, less than half of the working population is engaged in family farming, compared to two thirds two decades ago. In recent years the agricultural sector growth has been constrained by drought conditions, whilst there is an on-going boom in telecommunications, financial services, and construction. While recent political and economic developments have stimulated development opportunities, youth unemployment, poverty and food insecurity, the quality of governance and corruption remain critical challenges to achieve shared prosperity, particularly in the rural areas.

4. **Small farming.** About 80% of people working in agriculture are smallholders, but they produce less than 20% of export vegetables and only about 25% of marketed maize, which is the main food crop. Women contribute 75-80% of all labour in food production and 50% in cash crop production. Women are also increasingly becoming farm managers and heads of farm households, with estimates that over 40% of smallholder farms are **managed** by women. Additionally, 47% of micro- and small-enterprises are women-owned, even though they have difficulty in accessing financial services. It is estimated that 80% of all rural households sell some crops, although the degree of commercialisation can range from less than 10% in relatively low potential counties to 80% in high potential counties.

5. **Challenges.** Kenya's agriculture is predominantly rain-fed. Irrigation accounts for 1.7% of total agricultural land but 18% of the **value** of agricultural produce. Despite tremendous potential for increasing productivity, only 105,000 ha out of an estimated irrigation potential of 1.3 million ha have been developed so far. Other key challenges constraining sector development include: (i) land degradation and declining soil fertility, further aggravated by climate change (especially in the ASALs,

which have some of the highest levels of poverty incidence) and population density (going up to 300 persons per km2 in the environs and watershed of Mt Kenya); (ii) low access to services, including inputs, extension and other technical services, affordable credit and capital investment;(iii) inadequate storage and lack of post-harvest facilities; and (iv) poorly organised markets and lack of processing and other marketing infrastructure. The average budget allocation to the sector has remained around 3-4% over 2000-2010, much below the Maputo Declaration target of 10%.

6. **Food security**. An estimated 47% of the rural population have insufficient food to meet their daily energy requirements. Official data indicate that there is a 33% rate of stunting among children of up to five years of age, and that 20% of all children are underweight. Very little progress has been made in combating chronic malnutrition.

The Grain Sector

7. KCEP target crops, comprising the three leading rain-fed cereals (maize, sorghum and millet) and four pulses (beans, cow peas, green grams and pigeon peas), account for 95% of the land under food crop production and 70% of the value of food crops produced annually. Taken together, these are the crops that determine not only the food security of the nation but also the earnings in the agricultural sector on which three quarters of the country's population is dependent on for their livelihood. It is here where efforts towards building Kenya's food security must focus on and bear fruit.

8. **Production.** Although grain production in Kenya has been on an upward trend over the last decade increasing at an annual average rate of 7.7% for cereals and 15.3% for pulses, the country is still not self-sufficient in food production. With a per capita consumption of around 90Kgs for maize and 16Kgs for beans – which together account for 83% of grain consumption in Kenya - the current levels of production are not able to meet consumption needs and, on average, every year the country has to import 2 - 4 million bags (90 kg) of maize and about 800 bags of beans even in normal years when there is no drought. This also applies to Sorghum and Millet whose domestic demand far exceeds production by more than 50%. Most grain imports come from neighbouring Tanzania and Uganda. Given that the limits for rainfed expansion of land under production has generally been reached, main efforts to increase national production must focus on increasing land productivity and arresting post-harvest losses, which range from 10 to 30%.

9. The national average maize yield is 1.8 t/ha, but there is a wide variance in individual farm yields with some farms averaging between 4 t/ha to 5 t/ha. Evidence from a number of studies show that the improvement in the main cereal commodities (maize, sorghum, millet) is constrained by limited adoption of crop technologies including improved seed varieties, correct fertilizer use, soil and water management, conservation agriculture, processing and storage. This is mainly attributed to inadequate access to information and knowledge; lack of financial capital; limited extension services; under-developed output markets; and chronic and/or recurrent drought. Additionally, smallholders tend to produce maize as a subsistence food crop and invest their capital in other production operations (especially dairy and horticulture) that yield higher economic returns.

10. **Access to inputs and services.** In the early-1990s, the Kenyan government launched a series of reforms designed to spur agricultural productivity by encouraging private investment in fertilizer distribution. These measures have significantly improved the access and use of agricultural inputs, with overall domestic fertilizer use doubling between mid-1990s and late-2000s.

11. Extension services are mainly provided by limited numbers of public extensionists (with a ratio of one extension agent to 2-6,000 farm households), who mostly focus on production, with less emphasis on marketing and quality standards. In addition, lack of financing and transport equipment, compounded by impassable roads during the rainy season, further limited their range of action. Embedded services are offered by a few private companies and cooperatives, but only for traditional cash crops. There is a limited use of ICT for information and communication. The 2012 National Agriculture Sector Extension Policy (NASEP) promotes a pluralistic extension service for effective service delivery and the development of private sector-operated extension services to complement public extension services. Measures are planned to encourage the private sector to take over the extension service for commodity enterprises where established commercial farming is in place. This should also be facilitated by the development of Stakeholders Fora from the ward up to the county level, which should assist in developing collaboration and networking between the range of possible service providers.

12. Storage technologies remain a challenge as the majority of farmers rely on traditional systems to store grain. Technologies such as improved granaries, metal silos and hermetic bags offer better and safer systems against losses to pests, rodents and aflotoxin contamination, but they are still difficult to access because of the lack of farmers' information and because of their cost. Farmers are used to market their grain right after harvest, when prices are lower, and to buy maize for family consumption when prices are much higher. Warehouse receipt systems have been introduced but have still limited outreach.

13. Despite recent improvements, there is limited access to formal credit and in general farmers heavily rely on the informal financial systems. Such systems in most cases involve borrowing from fellow farmers or relatives to address household investment and for consumption smoothing when encountered with food shortage. Small amounts of credit made available through microfinance are either expensive or largely unsuitable for major investment in productive inputs and conservation agriculture. Small farmers have no access to formal risk management options.

14. **Maize small-scale sector.**Although the total number of maize farmers in Kenya is not well known, most estimates suggest that this number is likely to be 3.0 – 3.5 million. With the exception of about 3,500 medium and large-scale farmers who have over 50 acres of land, all other farmers can be categorized as small-scale. In terms of numbers, smallholder farmers account for over 98% of maize farmers in the country. Their production however accounts for around 70% of total production reflecting a much lower productivity levels compared to the yield levels of medium and large scale farms. The majority of smallholder maize farmers can be categorized as subsistence farmers whose production is largely geared towards own household consumption. This category is estimated to comprise 60 – 70% smallholder maize farmers and have an average land holding is 1.6 hectares. This is the primary target group for KCEP which comprises maize farmers who are net buyers of maize.

15. The second category of smallholder maize farmers comprises small-scale farmers who are able to produce maize quantities beyond their household consumption needs (category 2 in KCEP). They produce with a purpose of generating surpluses for the market and can therefore be regarded as commercial small-scale maize farmers. Surpluses are generated through a combination of adoption of good agricultural practices (including better use of inputs) and larger scale of production ranging from 2 – 50 acres. These comprise category II target group of KCEP and account for 30 – 40% of all smallholder maize farmers. Combined, Smallholder farmers (Category I and II) account for 80% of land under cultivation but their productivity is estimated to be only 54% of the yield levels achieved by their medium and larger scale counterparts. Even a small percentage increase in the yield levels among these farmers can translate into enormous increments in the total volume of maize production in Kenya.

16. The marketing of grains has traditionally been influenced by the National Cereals and Produce Board (NCPB), a public institution responsible for controlling maize marketing and movement. NCPB has intervened in the maize market by making sizeable purchases of grain for the strategic purpose of assuring adequate supplies and by setting both consumer and producer prices, i.e., establishing a dual pricing policy of high farm gate prices when buying from domestic producers and below-market prices when selling to industrial maize millers. The stated objective of these interventions is to protect farmers' livelihoods when maize prices fall and to protect consumers when maize prices rise. Currently, only 2% of smallholders sell to NCPB mostly due to the fact that NCPB can take up to 6 months to pay maize producers, which de facto eliminate smallholders from this system.

17. The total installed grain milling capacity in Kenya is 1.35 million tons. Of the total maize produced in Kenya, one-third is processed by large-scale millers and the other two-thirds by medium and small-scale millers. Four of these large-scale millers - Mombasa Millers, Pembe Millers, Unga Ltd and United Millers - account for 80% of maize purchased for milling. By-products from the maize milling process go into the corn oil and animal feed industry. In 2011, the total installed poultry feed production capacity was about 843,000 tons, of which only 44.5% was utilised. This underutilisation – which at times led to the closure of some mills – was owed to the lack of reliable quality raw materials/feed ingredients and in some cases, farmers' inability to purchase the feed.

18. Because of the overall strong demand for maize, maize prices in Kenya are among the highest in Africa. High maize consumer prices also result from the long value chain and the behavior of traders. Value chain analyses show that although the value chain has many links, transport cost account for the largest share of the market margin while traders' margins are usually competitive.

19. **Sorghum small-scale sector.** Sorghum is a hardy cereal crop that grows in semi-arid areas and can perform well from sea level to altitudes of 2500 meters. It requires a minimum annual rainfall of 250 mm and temperatures of above 10^{o} C. Production in the country has been on a rapid increase over the last five years rising by more than three times from 600,000 bags in 2008 to over 1.8 million bags in 2012. Over this short period of time, the value of production has increased from Ksh 0.7 billion in 2008 to almost Ksh 7 billion in 2012 making the value chain become one of the important livelihood options among smallholder farmers in marginal areas. This rapid increase has been as result of expansion in area under cultivation and increases in productivity (see table 10). Keen observers of the value chain attribute this growth to a combination of promotional efforts by Government and market pull triggered by the entry of East African Breweries in the purchase of Sorghum for its malting business.

20. The decision by the East African Breweries Limited (EABL) in 2008 to start using sorghum in its malting business (for brewing) has been one of the most significant turning points for the sorghum value chain. The firm entered into the sorghum value chain after years of research for an alternative source of malt following a declining trend in the production of barley and a corresponding increase in prices. EABL approached the Government with an offer to purchase 40,000 – 50,000 MT of white Sorghum varieties (mainly Gadam) developed by KARI (in close collaboration with EABL). Through a public-private partnership between EABL, Africa Harvest and the Government (through MALF), production of Gadam sorghum in parts of Upper Eastern (Embu, Meru and TharakaNithi) began in 2008 with a target of 4,000 MT for the season. During the first year, the company however got only 400 MT but through expansion into other parts of Eastern as well as intensified farmer mobilization in targeted areas, production has been on the rise and has now stands at 15,000 MT for 2012/13 short rains season. The company continues to experience a big gap in its sorghum requirements and is now importing about 50% of its annual sorghum consumption from Uganda and Tanzania. It however still faces a shortfall in supply of about 24,000 MT which it is forced to bridge the gap through substitution (with barley).

21. Theprocurement of sorghum by EABL is organized around two channels (i) Farmer mobilization, training and capacity development for increased production is organized through one partner, a non-governmental organization – EUCORD; and (ii) Direct contracting of vendors to supply the sorghum produced by farmers to the company (more details are provided in WP 3).

22. *The World Food program*: The other major buyer for sorghum is World Food Program (WFP) whose annual requirement is estimated to be 50,000 MT.

23. **Millet small-scale sector.** Millet production in Kenya has been on an upward trend over the last five years with production rising from 38,500 tons in 2008 to slightly over 75,000 tons in 2012. This increase has largely been accounted for expansion in area under cultivation perhaps resulting from government efforts to promote the crop under the Orphan Crops Development initiative of the Ministry of Agriculture (now renamed Traditional High Value crops). Yield levels have generally remained unchanged, somewhat showing a declining trend. Out of the two main types of millet cultivated in Kenya, it is finger millet that appears to have significant prospects for a market-based pull to spur production and increased incomes among smallholder farmers. There is significant unmet demand for finger millet. Unga limited requires 1,000 MT of finger millet per month (and 5 MT Sorghum). Only 20% is sourced from Kenya. The balance is imported from Uganda and Tanzania. Unga would be willing to explore mechanisms for developing direct linkage business partnerships with smallholder farmers for supply of finger millet. Key issues for consideration under KCEP would include the expected volume of supply and quality of the produce, particularly in relation to cleanliness (de-stoning) and contamination from micro-toxins usually associated with the drying and threshing practices adopted by most smallholder farmers. There are indications that there are many other large buyers (mainly millers) who would be willing to enter into similar supply business partnerships with smallholder farmers.

Institutional Context

24. **Devolution.** The new constitution promulgated in 2010 promotes the devolution of responsibilities and resources from central government to 47 counties, with a view to promote democratic and accountable exercise of power, give powers of self-governance to the people, and promote the provision of proximate, easily accessible public services. In the agriculture sector, the national level is responsible for policy development, planning and financing, while counties are

responsible for service provision and monitoring. Three levels of further decentralisation include sub-counties, wards and villages. The new constitution contains a robust system of checks and balances and institutions to ensure improved governance and fiscal accountability. The expanded devolved governance promises Kenyans a more equitable development model and creates opportunities for new growth centers. However, there is the risk of possible transitional destabilization associated with the decentralization (changes in administrative, financial and procurement management, changes of responsibilities, etc.).

25. **Vision 2030.** The Government's first long-term economic development plan was outlined in the National Poverty Eradication Plan for the period 1999-2015, which was designed to address poverty as set out in the MDGs, particularly that of reducing poverty by half by 2015. Kenya Vision 2030 was launched in June 2008 with the goal of transforming Kenya into a newly industrialised middle income country providing high quality life to all its citizens by 2030. It now constitutes the overall policy framework that aims at bringing about a greater and more sustainable growth of the economy in a more equitable environment, accompanied by increased employment opportunities. Vision 2030 identifies agriculture as one of the six key economic sectors expected to drive the economy to a projected 10% economic growth annually over the next two decades.

26. **ASDS.** The Agriculture Sector Development Strategy (ASDS) is based on Vision 2030 and covers 2010 to 2020. The overall objective of ASDS is to achieve an agricultural growth rate of 7% per year over the next five years, by promoting an innovative, commercially-oriented and modern agriculture. To this effect, the ASDS has identified two strategic thrusts: (i) increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises; and (ii) developing and managing the key factors of production. This is to be achieved by: improving the extension service; improving links between research, extension (both public and private) and farmers; improving access to financial services and credit; encouraging the growth of agri-business in marketing and processing/value addition; improving the regulatory framework to control the quality of agricultural inputs and services; increasing competitiveness in the supply of agricultural inputs; and rationalising and harmonising taxation regimes to provide incentives to producers, agro-processors and other service providers.

27. **Agriculture sector.** Kenya's agricultural and rural development sector has a complex institutional framework, with five main ministries -- the Ministry of Agriculture (MOA), the Ministry of Livestock Development, the Ministry of Fisheries Development, the Ministry of Forestry and Wildlife and the Ministry of Water and Irrigation – as well as numerous public agencies and parastatal institutions, leading to duplication and overlapping responsibilities, fuelling patronage, often retaining limited relevance in a market economy and sometimes running deficits. The Agriculture Sector Reform Bill was passed in 2012 with a view to streamline and harmonise the sector institutional and legal framework. MOA is currently restructuring to adapt its organisation to the new devolution framework and to assign increased functions to County Agriculture Office.

28. Liberalisation has enhanced the role of private enterprise in the agricultural sector. During the past 15 years, government staffing levels have been reduced considerably, due to institutional restructuring, staff retrenchment and an embargo on staff recruitment. This has left the MOA understaffed, particularly in frontline extension staff. This reduced capacity, combined with a reduced role of government focused on a smaller set of core tasks, therefore increasingly requires the use of contracted external services providers and public-private partnerships for the successful implementation of projects. This is especially true for the two latest IFAD programmes supporting farming as a business, SHOMAP and PROFIT.

29. Private enterprises offering services to farmers primarily include agrodealers, which constitute an heterogeneous group, unevenly spread in Kenya an facing two major constraints: agro-dealership is risky so the business must look beyond supplying seeds and fertilizers and diversify the range of services; and the lack of access to capital for investment limits agro-dealers in expanding their activities. Registered agro-dealers are involved in the implementation of the National Accelerated Agricultural Input Access Program (NAAIAP), the voucher-based programme implemented by the Ministry of Agriculture. Due to increased competition, private agribusiness companies are increasingly providing farmers with inputs as well as technical and other services, either directly or indirectly (which is the case of the Eastern Breweries' sorghum supply system).

30. Farmers' groups are spread all over the country and are used as a primary channel for the provision of public extension and other services. MoA has been recently promoting Common Interest Groups (CIGs), which develop farming as a business around one target commodity, which is selected in line with the potential of focal areas. The Kenya National Farmer Federation of Agricultural Producers (KENFAP) is the national farmers' federation representing the interests of 1.8 million large-scale to small-scale farmers from 42 counties and about 5,000 farmer groups. Among KENFAP's membership, commodity associations are very important in terms of lobby and advocacy. The main one in the grain sector is the Cereal Growers Association (CGA), which is composed of 30,000 members, of which 25,000 are small to medium-scale farmers. CGA main activities are lobbying and advocacy, as well as the provision of support services to members. Support to small-scale farmers in particular is funded by several projects in which CGA has been engaged as an implementing agent, and which are financed by a range of donors, including USAID, AGRA and the European Union.

Appendix 2: Poverty, targeting and gender

The Poverty context

1. **Increased national poverty.** In 2005/6 almost 47% of the population (or 16.3 million people) were unable to meet the recommended daily nutritional requirements; 14 million of these people live in rural areas. Little inroads have been made in reducing poverty over the past 25 years, as can be attested to by the 48% poverty rate in 1981. The acceleration of economic growth after 2003 was expected to have reduced poverty and indeed there was a slight increase in the Human Development Index (HDI) from 0.523 in 2004 to 0.541 in 2007. However the political crisis of 2008 may have reversed this trend. It has been estimated that the poverty headcount has increased by 22% and that the measure of severe poverty has gone up by 38%, reversing the gains that had been made over the past five years.[9]

2. **Rural poverty.** The national poverty line in 2005/6 was estimated at KSh 1562 for the rural poor and KSh 988 for the food poor[10], and poverty rate was markedly higher in rural areas (49.7%) than in urban areas (34.4%). Food security continues to be a major concern, with an estimated 3.8 million people in rural areas either highly or extremely food insecure. The agro-ecological zone (AEZ) in which the poor are located has more influence on the poverty of a household than the province. The high rainfall zones – 11% of Kenya's land, including the High Maize Potential Zone – produce 70% of its agricultural output and have attracted large populations, resulting in sub-division of land, decreasing productivity, and high densities of impoverished and malnourished Kenyans. Semi-arid regions (including sorghum producing areas) produce 20% of Kenya's agricultural output. Traditionally these areas received less rainfall than high potential areas, with climate change already evident in the increasingly erratic rainfall patterns. Lastly, Kenya's arid regions take up 68% of the land area, and produce 10% of Kenya's agricultural output, largely livestock. Although poverty and malnutrition are high in the arid regions, the population density is low, meaning that the total number of poor Kenyans is relatively low compared to the other two regions. Table 1 breaks the population down into poverty quintiles by agro-ecological zone (AEZ).

Table 1: Population distribution and poverty levels by AEZ

		High Rainfall			Arid Areas			Semi-Arid Areas		
	National	Rural farm	Rural Nonfarm	Urban	Rural farm	Rural Nonfarm	Urban	Rural farm	Rural Nonfarm	Urban
Population ('000)	35,147	10,444	1,434	3,796	3,352	673	411	13,052	700	1,554
Quintile 1	25.0	13.5	15.1	1.9	45.2	59.7	11.6	24.8	21.4	2.1
Quintile 2	25.0	21.5	20.5	4.0	26.7	15.8	13.5	24.3	15.4	2.8
Quintile 3	25.0	25.5	16.2	10.9	15.3	11.4	17.0	21.2	18.8	14.1
Quintile 4	25.0	23.5	23.4	18.8	8.3	7.9	26.3	19.9	19.5	27.7
Quintile 5	25.0	15.9	24.8	64.4	4.5	5.3	31.6	9.8	24.9	53.3
No. of Households	6,954	1,981	392	1,038	501	128	90	2,271	171	382
Household size	5.1	5.3	3.7	3.7	6.7	5.3	4.6	5.7	4.1	4.1
Poverty rate (%)	46.7	38.4	36.7	26.5	74.7	77.1	56.5	52.9	36.3	37.0
Share of poor (%)	100.0	24.3	3.2	6.1	15.1	3.1	1.4	41.7	1.5	3.5
Share of pop (%)	100.0	29.5	4.0	10.7	9.5	1.9	1.2	36.9	2.0	4.4

Source: ReSAKKS

9 World Bank. Country Brief. March 2009

[10] Rural poor refers to households who have a level of consumption that does not enable them to meet basic food and non-food levels of consumption. Food poverty refers to households who have levels of consumption that do not enable them to meet basic food needs.

3. **Poverty mobility.** Recent studies in Kenya have examined the driving forces behind rural poverty and in particular what factors contribute to stabilised income-generation and asset accumulation[11]. Table 2 provides an overview of household poverty dynamics in the period 1997 to 2007.

Table 2: Poverty mobility type and distribution by AEZ, 2000-2007

AEZ	Chronic Poor	Descended	Oscillated	Exited	Non-Poor
Coastal Lowland (SA)	28	5	41	12	13
Eastern Lowland (SA)	12	3	37	14	34
Western Lowland (HR)	39	8	30	16	7
Western Transitional (HR)	16	7	45	7	25
High Potential Maize Zone (HR)	17	5	24	12	41
Western Highlands (HR)	32	8	32	12	17
Central Highlands (HR/SA)	6	1	15	12	70
Marginal rain shadow (SA)	8	3	30	19	41
National	19	5	29	12	36

Source: Suri (2008) Rural Incomes, Inequality and Poverty Dynamics in Kenya, Working Paper 30, Tegemeo Institute.

4. The table shows the significant movement in and out of poverty in the last ten years and the influence of the AEZ on poverty mobility. The extreme fluctuation in the poverty status of surveyed households is caused mainly by the vulnerability of the rural poor to political (e.g., riots, violence, displacement), economic (e.g., inflation, market volatility, unemployment) and health shocks. Most rural households pursue diversified livelihood strategies by combining subsistence and market oriented agriculture with off-farm labor and other non-agricultural income-generating activities. Households successfully accumulating assets and rising out of poverty were: (i) more likely to have remained healthy and suffer no unexpected deaths during the decade prior to the start of the initial survey in 1997; (ii) less adversely affected by mortality that did occur during the panel period compared to other households; (iii) consistently headed by a male; (iv) received relatively more land from their parents; and (v) had parents who were relatively well-off and educated. Moreover, the ascenders were able to cultivate 70% more land, and increase their use of fertilisers. This shows a clear correlation between human capital assets and capacity to intensify agricultural production. The implications for the project are that human capital constraints –particularly gender, labour availability and education – are likely to influence the uptake of project interventions. The project therefore has to develop inclusive strategies to ensure that interventions factor in these constraints both in the activities and delivery mechanisms of the project. Besides, reducing vulnerability to shocks and ensuring interventions are adapted to different AEZ will be a central feature of the project strategy.

5. **Livelihoods of the rural poor in the target areas.** Access to natural capital and the AEZ in which the household is located is the single most important factor in determining household poverty levels. There is however a growing level of poverty in many of the HR areas (and in particular in the High Maize Potential area) driven mainly by the subdivision of land and increasingly uneconomical landholdings. Availability and access to land is not a limiting factor across the whole project area; in many of the semi-arid areas where farmers traditionally grow sorghum labour is the main constraint on increasing production. The physical characteristics of the land and its productivity are also key determinants of poverty levels. The use of inorganic fertilizer has increased rapidly in the last ten years with an estimated 70% of households using fertilizer at least sometimes[12], although fertilizer use remains lowest in poorer semi-arid areas and amongst households with a low mean value of productive assets. Land degradation and declining soil fertility has been recognized as a serious production constraint and without investments in soil productivity in semi-arid areas, fertilizer use alone is unlikely to result in significant productivity improvements. Recent studies suggest that even in HR areas fertilizer use without investments in soil and water conservation will result in declining returns. The use of hybrid seed not only increases income but it does so also in less favorable areas and reduces relative deprivation amongst households in poorer AEZs. Among maize-growing households, hybrid seed reduces the likelihood that the household income falls below the poverty line

[11] Most of these studies draw on the four period panel data from the Tegemeo Institute (Egerton University) which provides insights into rural poverty dynamics between 1997 and 2007. There is no data that provides a nationally representative overview since the political and economic upheavals of 2007.
[12] Kimenju, S. and D.Tschirley (2008) Agriculture and Livelihood Diversification in Kenyan Rural Households, Working Paper 29; Tegemeo Institute.

by 16% overall, 22% in the higher potential maize zones, and 16% in the lower income areas. The main determinant of hybrid seed adoption, more than access, price and location of the household, is the gender and education level of the household head. Female-headed households have had a slow uptake of improved technologies, which has major targeting implications.

6. Physical access to both input and output market services and infrastructure has improved significantly in rural Kenya during the 1997-2007 period across all regions. There were also broad improvements in indicators of market access attributable to private sector investment. In particular, the **distance** households travelled to the point of maize sale and to the nearest fertilizer retailer declined by 0.4 km and 4.7 km, respectively, between 1997 and 2007, reflecting the increased density of grain buyers and fertilizer sellers operating in maize areas. By 2007, over 75% of smallholder households selling maize stated that the private trader to which they sold came to their farm or village to buy their maize. The highest marginal returns to new private investment in input retailing and output marketing might very well be in the medium to lower potential areas that have been historically underserved. A recent study suggests that given the high number of traders operating in villages, access to markets should no longer be defined in terms of physical distance to point of sale, but rather the ability of farmers to obtain and negotiate a good price. Farmers do not have access to good market information and are not able to identify buyers and negotiate prices and that this plays a significant role in the ability of farmers to negotiate prices and identify buyers.

7. The single most important livelihood strategy of the poor is maize production for subsistence, with 99% of households producing maize between 1997 and 2007, even in areas that are not adapted to maize. While nearly all households attempt to produce maize for their own consumption, many lack access to sufficient land and productive assets to produce a meaningful surplus and are net buyers. On-farm diversification, especially in crops, has been closely correlated with poverty reduction. The number of crops tends to be fewer among households with more uneducated adults, and those with less land. **Recent** studies show that whilst diversification both on and off farm has been an important livelihood strategy for both poor and non-poor households, households that are accumulating assets and smoothing consumption have started to specialize production. There is considerable evidence that the 'dynamic and active poor' amongst the smallholder households are reducing the area planted to maize, by intensifying production, which enables them to putting part of their land, which may include rented land, under higher value crops. Recent policy briefs have noted that specialization is a 'change in the direction of change' and should be supported by appropriate policy and technical packages, including for maize. The 51.7% of households that only buy maize include those 46% of households under the poverty line that have a low crop diversification index, produce low input, low output maize, even in areas that are not suited to maize production, are often selling their own labour during peak production periods and not able to labour on own fields and are buying maize during peak price hikes. Non-farm activities and the role that they have in household livelihood strategies and the impact on agricultural production differ between the poor and non-poor. Whereas non-poor households participate in non-farm activities as a permanent livelihood strategy, households in the lower quintiles participate in nonfarm activities mainly as a coping mechanism. Poor households facing crop short-falls are selling own production and labour in pursuit of immediate cash and are not able to spend as much time on their own crop production[13]. Many of these households constitute the economically active poor but they are caught in a cash trap whereby their failure to improve crop productivity and household food security prevents access to both higher return farm and non-farm activities. One of the most robust findings from the rural panel survey is the importance of credit as a correlate of escaping from poverty.

8. Annex 1 combines the national data set of the KIHBS (2005/6) and the studies based on the Tegemeo panel data (1997-2007) to develop a typology of the poor in the project regions. Table 3 summarises the main features of smallholders' livelihoods in the target areas.

[13] Rural credit could be available at MFIs but would only be accessible by poor households that have been assessed to have cashflow that allows them to pay back loans/credits borrowed at market-based or quasi market-based rates

Table 3 – Smallholders' livelihoods in the project target areas

High Maize Potential Areas	Semi-Arid Areas
• grow between 0.5 to 2 acres of maize (long season) in monoculture and in rotation with pulses (short season) • diversify with cash crops such as tea ,coffee, horticulture and fodder crops, on small plots (0.25 to 1 acre) • use OPV and local seed varieties • low fertilizer use efficiency (quantities and type inadequate when used) • mainly use family labour and hand implements • women are highly involved in farming, while husbands look for income generating activities (casual labour) • low productivity : 5 -12 bags (of 90 kg) per acre for maize and 1-6 bags per acre for pulses • post-harvest losses estimated at 25% • may own 2-5 small ruminants and 1-5 dairy cows • net buyers of maize, selling a few bags at harvest time	• in low lands, subsistence farmers traditionally grow red sorghum and Proso millet in monoculture for food, or in rotation with pulses sold as cash crops • land is not a limiting factor but labour availability limits the extent of land that can be farmed, i.e. 1-5 acres • some have plots in upper lands, growing maize over 0.5-1 acre (land is limiting factor) • use local seeds - OPV seeds are used for cereals and pulses over more than five years • low use of fertilizers due to high drought risk, limited availability of agrodealers in remote areas, limited know how • family labour is combined with hired labour, with shortages during peak seasons (land preparation, planting, weeding and harvesting) – use of hand implements • limited soil fertility and lack of rain water management are critical issues – use of fallows with slash and burn, causing loss of organic matter • cash crops (green grams and cow peas) sold just after harvesting • keep 3-4 cattle, 6 goats and 8-10 chickens

Source: Design mission interviews

Target Areas

9. Eight target counties were selected based on a preliminary consultation with MoA, and on the application of the following criteria: (i) agro-ecological and economic potential; (ii) poverty incidence; (iii) population density; (iv) target commodity already contributing to household income/food security and representing the best option the poor have for market participation; (v) geographical concentration and ease of access to facilitate project logistics and to maximise impact. Target counties are:

- *Maize area:* Bungoma, Kakamega, Nakuru, Nandi and Trans Nzoia;
- *Sorghum/millet area:*Embu, Kitui and Tharaka.

10. Apart from Nakuru, all of the counties have poverty levels above the national average. While the counties selected for maize have lower numbers of chronically poor than the national average, the high potential maize and western zones are characterised by increasing numbers of the population who have descended into poverty over the last ten years or who are oscillating in and out of poverty. These are the populations who have the potential for increased maize production but with declining access to land, decreasing soil fertility and limited alternative livelihood options would stand to benefit most from project interventions. The eastern lowlands selected for sorghum and millet have lower population density but a high poverty incidence (between 55% and 68%), as well as large numbers (38%) oscillating into and out of poverty in the last ten years. All three counties were considered borderline food insecure in 2013, and Kitui and Tharaka are included in the drought prone areas that are regularly monitored by the Kenya Food Security Steering Group. They are also part of the supply area for East African Breweries with identified buyers across the zone, which will facilitate market linkages and the development of business partnerships. Additionally, all of the selected counties have high numbers of female-headed households (between 21% and 41%) and apart from Nandi and Nakuru, they are all way above the national average (8.8%) for polygamous households, with Embu having 17.5% and Bungoma 22%. These are factors that have been closely correlated with an increased incidence of poverty and extreme vulnerability. Another contributing social factor is that investment in these areas will reach a diverse set of ethnic groups. The ethno-linguistic fractionalisation index (ELF)[14] is high in all of the counties chosen for maize, whilst for the sorghum/millet counties it is close to the national average.

[14]The ELF is a well-established measure of ethnic diversity that indexes diversity between a low of 0.0 (all from one ethnic group) to a high of 1.0 (all from different groups).

11. Within the target counties, a long list of 24 sub-counties has been selected, in application of the same criteria listed above. Annex 2 shows the target counties and sub-counties with some of their characteristics. The final selection of 2 sub-counties will be carried out by MoA prior to project start.

Target Groups

12. **Main target group.** The main target group will consist of two different categories:

- *Category 1is composed of 40,000 subsistence farmers who will graduate to commercial agriculture.* Farmers in this category are net buyers of staple crops, food insecure and do not use fertilizers or modern inputs (or, in the lowlands, use fertilisers but no proper water and soil fertility management practices), and could also include NAAIAP-supported farmers that were not able to graduate to commercial farming. This group will be supported to increase and stabilise food consumption, to develop income and to acquire the resource base required to participate in the target value chains, by accessing the e-voucher and participating in all of the interventions outlined in Components 1, 2 and 3;
- *Category 2includes an estimated 60,000 farmers who will be further developing farming as a business.* This group is composed of both poor and non-poor, who have already graduated to market-oriented agriculture. This group has successfully increased production, applies fertilizers and good agronomic practices, and is interested in further expanding their business, increasing value-added and developing new activities that support the production and marketing of target crops. This category can include NAAIAP supported groups as well as individual smallholders who are net sellers, and will benefit from project interventions, with the exception of the e-voucher.

13. **Women** will constitute a direct target group because, whilst they constitute the majority of the population and female-headed households are amongst the poorest, their access to the value chain and capacity to generate income is heavily curtailed by traditional gender roles that will undermine their participation unless gender is mainstreamed into the project. Selection criteria will prioritise their participation whenever possible and project implementation and management arrangements will be gender sensitive. **Youth** will constitute a direct target group because they are more likely to be resource poor, lack control over assets and have limited livelihood options, and their integration into rural economies has long-term positive social and economic consequences. Selection criteria, to be outlined in section III, will prioritise their participation whenever possible and a number of activities have been identified that will address their needs and priorities.

14. **Secondary target group.** The secondary target groupwill be other stakeholders in the targeted value chains. Interventions aimed at building their capacity through training and short-term investment credit will aim to increase their capacity to provide better services to farmers. The stakeholders identified include: agro-dealers, privateextension services, buyers, processors, and large farmers providing support services to smallholders. Whilst a significant part of this target group is likely to be non-poor, these services at all levels of the value chain are essential for inclusive value chain growth.

15. **Indirect target group.** Indirect target groups include those that are not directly targeted through project activities but who will benefit from the spill-over effects of project activities. These include: (i) poor households who lack the assets necessary to participate directly in the project activities but who will benefit from labour opportunities generated by increased agricultural production; and (ii) value chain producers in target counties but out of the project area, who will benefit from the development of institutional capacities and business models building on project achievements that will support the replication of project activities out of the target sub-counties.

Annex 3 summarises KCEP target rationale, target groups and key expected benefits.

Targeting and Gender and Social Inclusion (Gesi) Mechanisms[15]

Targeting Mechanisms

16. **Selection of e-voucher beneficiaries.** Farmers eligible to receiving the e-voucher will have to meet the following conditions:

[15] Complete description is in Working Paper 1 – Poverty, Targeting and Gender.

- be subsistence farmers unable to procure adequate inputs on their own. In the semi-arid area farmers who do use fertilisers yet without applying water and soil fertility management practices would also be eligible;
- have minimum one acre of land that they dedicate or are willing to dedicate to target crop;
- be able and willing to provide the beneficiary contribution;
- be willing to abide by the guidelines of the project;
- be willing to use aggregation/storage facilities for efficient marketing;
- women-headed household to be given first priority, to reach 50% quota.

17. Eligibility to receiving the e-voucher in the second year will be linked to proper use of the e-voucher in the first year along accepted modalities, as described below or in reconnaissance of the fact that a beneficiary could have experienced natural shocks (beyond his/her control) that prevented returns on his/her investment in the first year.

18. The selection of beneficiaries will follow the community-based targeting process established by NAAIAP as follows: (i) information and sensitisation of potential participants to the purposes of the e-voucher; (ii) community meeting to introduce the eligibility criteria and explain the procedure for beneficiary selection; (iii) the community establishes a list of potential beneficiaries and a second community meeting is called to verify and discuss the list; (iv) service providers verify whether or not the proposed beneficiaries meet the criteria; (v) the beneficiaries from small groups of maximum 25-30 members, where possible based on pre-existing experience of collective action, in order to promote collective action and facilitate the dissemination of advisory services. These activities will be carried jointly by county/sub-county agriculture offices, with support from the Cereal Growers Association, which is the lead service provider for the implementation of Component 1 - Cereal Productivity Enhancement.

19. **Mitigating the risk of the misuse of e-vouchers.** The risk of elite capture will be offset by applying the mixed system combining community-based targeting and eligibility criteria as described above, which has proven to be effective in NAAIAP as revealed by the final evaluation. Furthermore, measures will be taken to prevent the misuse of e-vouchers, including: (i) *Information and capacity building of e-vouchers recipients*; (ii) *Farmers' cost-sharing of the e-voucher* (10% in year 1 and 40% in year 2), to contribute to developing farmers' commitment and ownership; (iii) *Peer pressure amongst group members*, to be sustained by: (a) promoting small groups, where members know each other; (b) materializing group commitment through the signature by each member of a document describing obligations linked to the use of the e-voucher, including a monitoring system; and (c) collective group responsibility for ensuring that every member meets the obligation to redeem the voucher for the purpose it is meant, sanctioned by group exclusion from receiving e-vouchers in the second year in case of no respect; (iv) *Financial inclusion*: access to bank services (through the opening of a bank account by Equity Bank to every e-voucher beneficiaries, and financial literacy provided by Equity Group Foundation) and the development of warehouse receipt systems will reduce the need for e-voucher to be cashed in for emergency needs; (v) *Information and capacity building of agrodealers* that would be found to have accepted to provide cash to e-voucher holders instead of the prescribed inputs will lose their accreditation and will no longer be eligible to participate in the programme; (vi) *M&E:* regular M&E, building on group and agrodealer M&E. Details are provided in Working Paper 1 – Poverty, Targeting and Gender.

20. **Gender.** *Quotas* will be established for women's participation in all project activities. For the e-voucher system, the quota will be 50% of women's participation in e-voucher, while quotas for participation in other activities will be established during project start-up. *Barrier*s to the inclusion of women as full value chain participants will be mainstreamed into all capacity building activities at all levels of the project implementation structure, building on available approaches (for example KMDP 'Power of Attitude Change' and 'Farming as a Family Business' modules). *Capacity building and extension services* will have to be delivered in such a way that they are accessible to women (in terms of place, time and social context), and they will have to meet women specific requirements, in particular, for example, labour saving technologies.

21. **Youth.** Households with young heads will be prioritised, after women-headed households, in the selection of beneficiaries for e-vouchers. Information sessions provided on project objectives, benefits and activities in participating sub-counties will make sure that: (i) youth are included among the participants; (ii) innovation features are made salient, as well as expected economic benefits and

prospects for further growth; (iii) youth are given the opportunity to voice their concerns and expectations and that they can be addressed. Given the limited control that young people have over land and production decisions, KCEP-supported activities will also provide them with fresh opportunities with alternative employment in support services (diversification of service providers supported by Component 1), as well as in storage and processing businesses (supported through Component 2). Capacity building activities will build on the KMDP curriculum, such as My Future, My Choice, which was designed to introduce farming approaches to young people.

Gender and Social Inclusion Mechanisms

22. **GESI study.** Building on the analysis and targeting mechanisms developed in this working paper, a GESI study will be carried out as part of start-up activities to further detail the main characteristics of male and female producers of different poverty levels; identify opportunities and measures required to promote the inclusion of the various groups in the three value chains; and mainstream gender and inclusion issues into project activities. The study will be carried out by a team composed of an international and a national consultants, who will be recruited by the PIU and will work in close collaboration with the component value chain service providers.

23. **Value Chain GESI Strategy and Implementation Action Plan.** Stakeholder workshops will be organized by the PIU, in collaboration with CGA and Component 2 service provider to discuss the results of the GESI study and to contribute to the establishment of a GESI Strategy and Implementation Action Planfor each of the value chains. This plan will include actions to improve production and develop market linkages as well as activities designed to expand women's and poorer households' access to and control over capital, land, knowledge, financial and non-financial support services. They will include quantified targets and performance indicators. Value Chain Implementation Action Plans will be reviewed every year.

24. **Capacity Assessments of Farmer Groups.** Annual capacity assessments and development plans will be the key instrument used to programme capacity building activities in farmers' organisations. Capacity assessments and development plans will take into account specific challenges and constraints faced by women and by poorer smallholders and contribute to making farmers groups more inclusive and gender-balanced organisations.

25. **M&E and KM.**The PIU Knowledge Management and Communication Officer and M&E Officer will be responsible for ensuring that the Project Learning System allows the monitoring of GESI aspects, and that achievements and lessons learnt are made available to project stakeholders and project implementers to support regular analysis, improved performance and annual programming of related activities. TOR will be drafted as part of the start-up activities.

Annex 1: Assets, Resources, Livelihoods Strategies and Priorities

<table>
<tr><th>Characteristics, Assets, Resources</th><th>Livelihood Strategies (relevant to target VCs)</th><th>Priority Needs (relevant to target VCs) and in rough order of priority</th></tr>
<tr><td colspan="3">Extreme Poor (Chronic Poor) Quintile 1 including 19% of the rural farm population unable to meet recommended daily requirements even if they spent entire budget on food. Intergenerational and entrenched poverty leading to asset depletion. Human capital constraints include low labour availability. Main livelihood strategy is to stabilise household consumption and stabilise the loss of assets. It includes the 13% who are functionally landless in that they do not have enough land for economic production.</td></tr>
<tr><td>• Household assets below Ksh 50,000
• Livestock assets 14,452
• Household income less than 43,000 per annum
• Food self-sufficiency less than 2 months
• Less than 1 acre in HR, less than 3 acres in SA, tenure may be insecure.
• Degraded, arid and marginal land
• Limited mobile phone access
• 37% female-headed HH.
• High number of polygamous HH.
• High number of youths
• 84% with no education/primary only
• Poor health status of household members
• 63% association members but limited attendance.</td><td>• Relatively low crop diversification index with production focused on staples.
• Diversification in livelihood strategies and high reliance on non-farm income.
• High reliance on kibuaraand other types of unskilled labour.
• Access but limited involvement in agricultural input/output markets although these may be physically accessible (57% have used fertilizer). No use of hybrid seed.
• Buy poshomeal from duka shops and open markets, often recipients of food security outreach.
• Few information, communication and exchange networks beyond the immediate family. Do not participate in agricultural extension activities.
• Many have recently relocated to current location.</td><td>• Food security – accessible and affordable staple food markets.
• Collective action for bulk food purchase.
• Employment and income earning opportunities.
• Interventions to improve soil fertility and interventions that are not labour intensive.
• Bridging finance (credit) to enable household labour to be used for food production on own land.
• Gender sensitive public sector outreach and policies.</td></tr>
<tr><td colspan="3">Poor (descending poor and oscillating poor) Quintile 2 and 3, 34% of the rural farm population that is poor and food poor yet above the severe poverty line. The main overall livelihood strategy is to smooth household consumption/protect assets and smooth household income/acquire assets. Over one-third of Kenyan farms are less than 1 ha and this line will fall within this group. Those that are over 1 ha (the threshold to be defined) have physical capital input requirements.</td></tr>
<tr><td>• Household assets less than Ksh 100,000.
• Livestock assets Ksh 15,242- Ksh 22,619
• Household income less than Ksh 72,000 (13,423 per AE)
• Food self-sufficiency up to 8 months
• Less than 3 acres in HR and 4 acres in SA, tenure may be insecure.
• Degraded land
• 74% using inorganic fertilizer, limited use of organic fertilizer
• Sporadic uptake of hybrid seeds
• No formal bank accounts
• Have mobile phones</td><td>• Food crops occupy 80% of their land; some cash crops as part of a diversified cropping strategy.
• The intensity of fertilizer use depends on the quality of land and the expected price of maize.
• Sometimes uses hybrid maize seed but do not have regular supply of quality seed.
• Buys posho meal and sifted flour from duka shops and open markets.
• Many of those who have descended into poverty have spent high amounts on health (on average it reduces household assets by 100%).
• Many households use female dominated social networks and have problems accessing formal</td><td>• Food security – accessible and affordable staple food markets.
• Interventions to improve soil fertility and conservation agriculture technologies.
• Labour saving technologies.
• Credit
• Reduced transaction costs in accessing input markets, particularly quality maize seed.
• Support in negotiating better prices in output markets.</td></tr>
</table>

• 27% female-headed households, high number of youths, high ratio of dependents and few adults with more than primary school education. • Poor health status of household members.	male networks, particularly market networks. • Sporadic recipients of agricultural extension and limited negotiating power in markets. • 74% association members but do not have extensive information networks.	
Non-Poor (exited poor and non poor) Quintile 4 and 5, 48% of the population including 12% that were poor in the last ten years but have become non-poor. The main overall livelihood strategy is to expand household income/leverage assets and stabilized income-generation and asset accumulation. Increasing trend towards specialisation in agriculture.		
• Household assets greater than Ksh 100,000 of which livestock assets Ksh 49,634. • Household income greater than Ksh 72,000 • Food self-sufficiency greater than 8 months • Have more than 3 acres of productive land in HR, up to 8 acres in SA. • 90% use inorganic fertilizer and most use organic fertilizer. • Regular use of hybrid seeds. • Regularised access to input/output markets and capacity to pick between traders. • Mainly male-headed households, low ratio of dependents and secondary school or higher education. • Regularised contact with input suppliers.	• A narrowing crop diversification index and increasing specialisation, particularly near urban centres. • Access to high-return non-farm income options as a permanent livelihood strategy • Use animal traction/tractors • Hire labour on regular seasonal basis for production. • Build up livestock numbers for insurance, cash, food. • Sell surplus to wholesalers/retail • Skilled traders more able to negotiate high prices and select traders and output markets. • Social and political influence, particularly in mainly male only networks.	• Technological packages and extension to enable specialisation. • Reduced transaction costs of marketing outputs. • Less volatile prices and protection against downside slide to justify agribusiness investment. • Support for upgrading production practices. • Advice and training on value chain standards/quality (particularly for differentiated sorghum market). • Rural finance for agribusiness investment. • Agricultural labour

Annex 2 – Target counties and sub-counties

County	Sub-counties	Production	Poverty Rate	County Population Density	Sub-County Population
Maize Area					
Bungoma	Bungoma East	457,700	52	453.49	230,263
	Bungoma North	966,000	53		
	Bungoma West	374,400			
	Mt. Elgon	442,500	59		174,540
Kakamega	Likuyani	644,000	61	550.31	125,125
	Lugali	403,000	61		106,123
Nakuru	Molo	847,720	49	213.92	124,438
	Nakuru North	470,140	39		153,555
	Njoro	547,555	38		178,180
Nandi	Nandi Central	794,340	50	261.07	231,054
	Nandi North	775,800	51		165,298
	Nandi South	340,470	46		157,967
Trans Nzoia	Kwanza	1,937,900	52	328.09	235,667
	Trans Nzoia East	1,260,000	50		195,173
	Trans Nzoia West	1,694,250	48		387,366
Sorghum/Millet Area					
Kitui	Kyuso	28,800	68	33.21	111,708
	Mwingi Central	47,152	68		80,086
	Muumoni	20,800	68		37,609
	Tseikuru	21,614	68		33,836
Tharaka	Meru South	21,728	56	138.44	128,107
	Tharaka North	13,520	62		49,976
	Tharaka South	130,100	62		80,122
Embu	Mbeere North	34,200	55	183.18	89,035
	Mbeere South	20,562	56		130,185

Annex 3: Target Rationale, Target Group and Key Benefits

Project Targeting Rationale	Key Benefits
Main Target Group 1: 40,000 resource poor farmers graduating to commercial agriculture in quintiles 1, 2 and 3	
• Directly target financial support to enable the poor to overcome key asset constraints (e-voucher). • Provide farmers with the technical resources, capacities, equipment to increase production. • Disseminate technical packages for different socio-ecological niches. • Reduce farmer exposure to shocks and provide farmers with security to diversify into higher value crops. • Increased capacity to produce to a high market standard. • Provide farmers with the capacities to access markets and negotiate remunerative prices with traders and processors.	• Increased and stabilised food consumption. • Reduced risk, stemmed asset loss and opportunity to acquire assets • Increased household income from crops • Expanded set of livelihood options • Reduced transaction cost of finding markets • Spill-over effects on household human capital, especially on health and education. • Empowerment in value chain transactions.
Main Target Group 2: 60,000 farmers further developing farming as a businessin quintiles 2, 3 and 4	
• Further develop market linkages and access to segmented markets in order to increase value added received. • Support to optimise use of inputs and address specific production constraints, in particular soil fertility management . • Support with further business expansion, increasing value added and developing new activities (storage, input selling points, land preparation etc). • Increase opportunities for employment of the very poor by this target group.	• Smoothed household consumption, stabilised income-generation and opportunity to leverage assets. • Expanded set of livelihood options and opportunities for integration into the project value chains. • Empowerment in value chain transactions.
Secondary Beneficiaries	
• Increase capacity to provide services to smallholders. • Provide enabling conditions for private sector providers to invest in developing support services and market outlets for smallholders • Develop employment opportunities for the indirect target group. • Increase stake of secondary beneficiaries in the development of the smallholder sector.	• Increased opportunities for economic growth. • Increased capacity for developing business relationships with farmers groups. • Increased capacity to provide value chain services. •
Indirect: poor and non-poor in the project area	
• Provide opportunities to gain employment in the project value chain. • Enable spill-over benefits through demonstration to non-project producers with similar asset profiles. • Increase the capacity of value chain stakeholders to provide pro-poor services that will benefit the indirect target group.	• Employment generated • Replicable technologies for production contribute to increased production through spill-over effects. • Access to value chain services more adapted to the needs of the poor.
Cross-cutting target group: women	
• Provide opportunities for women to overcome constraints on asset accumulation, production and access to value chain services due to gender roles.	• Women empowered as producers and able to independently access and negotiate value chain services. • Stabilised consumption, less risk, more income. • Women more represented in decision-making bodies and upward value chain structures.
Cross-cutting target group: youth	
• Provide opportunities for youth to gain income	• Young people have income and opportunities for

as value chain producers and service providers.	productive contribution.

Appendix 3: Country performance and lessons learned

IFADCountry Programme

1. Since 1979, IFAD has invested a total of USD 119 million in 12 loan-financed projects/programmes and three grant-financed programmes supporting the Government's efforts to reduce rural poverty. IFAD has also mobilized additional co-financing of about USD 68 million from other donors. GoK and project beneficiaries have contributed about USD 56 million and USD 11 million respectively.

2. The entire IFAD portfolio was suspended in 1995 as a result of poor project performance, weak management and lack of appropriate financial accountability, including lack of audits. The period 2001-2007 represented a phase of re-engagement of IFAD in Kenya and of portfolio development. The first new operation in Kenya became operational in mid-2001, followed by three other projects developed during the period of the first Country Strategic Opportunities Programme (COSOP).

3. **Current portfolio.** There are currently five on-going IFAD operations in the country. The Southern Nyanza Community Development Project is an area-based project focusing on agricultural production and access to social services, including health and domestic water supply. The Small Holder Dairy Commercialization Programme and the Small Holder Horticulture Marketing Programme (SHoMAP) both focus on market linkages in key agriculture sub-sectors. The Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT) aims at improving the access of poor rural households to a range of innovative financial products. The Upper Tana Catchment Natural Resources Management Project is contributing to improving the livelihoods of poor rural households through increased food production and income, as well as sustainable management of natural resources. The total value of these projects amounts to USD 242 million, with IFAD financing amounting to USD 119 million. The total cumulative number of beneficiaries of the combined projects to date is estimated at 437,000 rural people.

4. **COSOP.** The current COSOP (2007 to 2012) supports Kenya's Strategy for Revitalization of Agriculture and focuses on three strategic objectives:

- improving the delivery of services to the rural poor by strengthening the capacity of public-sector, private-sector and civil society organizations;
- increasing income among the rural poor through improved access to and utilization of appropriate technologies, markets and community-owned productive and social rural infrastructure;
- increasing investment opportunities for the rural poor through improved access to rural financial services.

5. Areas of focus in the COSOP that are directly relevant for KCEP design include the following:

- *the diversification of service* providers delivering support services to rural producers, including private service providers such as stockists and traders, and community-based organisations, and the provision of related capacity building;
- the promotion of productive infrastructure such as rural access roads, stores and markets that can make a direct contribution to economic growth and increased farmer incomes;
- an increased use of contracted private-sector service providers with specific expertise to support project implementation, in particular with regard to value chain analysis, market information dissemination, and training in farming as a business;
- the strengthening of links between research and extension to open up smallholders' access to adapted technologies and practices;
- improved implementation performance, through decentralized project management units, rolling audits to improve financial management and the flow of funds and to build staff capacities, and the *outsourcingof services,* to generate added value and improved efficiency.

6. **CPE.** A Country Programme Evaluation (CPE) was carried out in 2010-2011, which rated the IFAD-GoK partnership in the past decade as moderately satisfactory. Overall results were found encouraging, particularly in the areas of natural resources management and environmental

conservation, community development, and marketing of small farmers' produce. Main weaknesses included: the large diversity of project interventions; an excessive focus on fertile areas of the south west to the detriment of the arid and semi-arid lands; the lack of a coherent agenda to drive the systematic tracking of innovation and scaling up; weak efficiency of operations due to slow replenishment of project special accounts, delays in payment of services, high overall project management costs, multiple components and institutions involved in project execution; and insufficient attention to policy dialogue and partnerships with bilateral and multilateral donors. The CPE also underlined a number of areas of concern regarding the performance of the government, including weak project implementation capacity at the district level, small allocation of counterpart funds, insufficient commitment to policy implementation, slow flow of funds, and inadequate financial management, auditing and procurement processes.

LESSONS FROM NAAIAP AND OTHER INPUT VOUCHER INITIATIVES

7. **NAAIAP.** The National Accelerated Agricultural Inputs Access Programme (NAAIAP) is an initiative of the government of Kenya aiming at improving agricultural productivity for 2.5 million smallholder farmers with one acre or less land, so that they can achieve better food security and develop agriculture as a business enterprise. The programme includes four components:

- *Kilimo Plus:* the component covers: (i) a voucher scheme giving 100% free access to an input package consisting of basal fertilizer, top dressing fertilizer, certified seeds and extension services for one year; and (ii) capacity building and accreditation of agro-dealers with whom farmers can redeem the voucher;
- KilimoBiashara Agricultural Credit Guarantee Scheme: the component aims at facilitating farmers' access to credit and other financial services for investment by providing guarantee funds to participating banks;
- Orphan Crops: this component aims at promoting the utilization of traditional crops, by addressing the constraints that inhibit productivity and access to input market in the Arid and Semi-Arid Lands (ASAL's) areas;
- Administration and Coordination.

8. After initial success several development partners supported NAAIAP. Table 1 shows the level of contribution received from each of the main program financiers as at end 2011.

Table 1 – Financing of NAAIAP (USD - December 2011)

Funding source	**USD million**
Public Budget	
GoK	34.83
Contributions to projects	4.56
Grants	
European Union	25.55
World Bank	4.65
ADB	1.59
FAO	0.38
Total	**71.56**

9. NAAIAP began its operations in 2007, with the World Bank (WB) acting as an implementing agency of the EU financing in seven provinces in Kenya. The first phase was completed in 2011. The WB could not engage in a second phase of the programme because of an issue raised by the completion audit that was not solved by GoK.

10. An independent evaluation of NAAIAP was carried out end of 2011[16]. The evaluation found that, due to funding constraints, the program had reached only 25% of the original target, with 615,000 farmers who benefitted from Kilimo Plus and around 4,900 agrodealers trained. Positive impacts were noted with regard to: (i) increased yields, from an average of 3-5 (90kgs) bags per acre to 15-22 (90kgs) bags; (ii) enhanced household food security and surplus marketing; (iii) a significant

[16] NAAIAP, Ministry of Agriculture, Program Evaluation, Final Report, December 2011.

increase of agrodealers; and (iv) spill-over effects with farmers who were not directly targeted by the programme adopting improved practices.

11. Key lessons learnt identified by NAAIAP evaluation, which were taken into account in the design of KCEP include the following:

- *targeting of beneficiaries:* the community-based selection of NAAIAP beneficiaries was found effective to reach the intended targets and to identify resource-poor farmers;
- *duration covered by voucher:* farmers found that the one-time package was not adequate to improve household food security and eradicate poverty, because of drought and erratic weather events preventing from reaping out expected benefits, as well as degraded soils requiring sustained use of fertilisers and improved land management practices to significantly revert the loss of fertility. Input adoption after one year was limited to around 50% of benefitting farmers. In line with what is practiced in other countries, access to the vouchers should cover enough years to ensure that farmers have gained sufficient returns to start purchasing inputs on their own;
- *uniform input package composition:* the input package was the same for all districts and farmers, despite different agro-ecological conditions and needs. The content of the package should be adapted to sub-county specificities, in particular with regard to soil composition;
- *voucher price:* vouchers were redeemable based on one single price across the whole country, usually reflecting price prevailing in Nairobi or surrounding areas, and did not reflect transportation costs, the fluctuations of the international price of fertilisers, or depreciations of the Kenyan shilling. Because the voucher price did not cover these additional costs, farmers did not receive the full package. Voucher entitlements should make space for these additional costs;
- *post-harvest losses:* considerable post-harvest losses also minimised the impact of receiving free inputs, with limited surplus available for marketing and, consequently, little or no resources available to purchase inputs on the market in the second year;
- *extension services:* because of limited staff and resources, public extension services were not able to provide adequate support to all of the target farmers. Only 31% of NAAIAP-promoted farmers' groups had access to training in farming as a business, and only 25% had training on storage and post-harvest management. Little support was provided to farmers after the first season. The evaluation noted that the lack of adequate support to newly commercialized farmers runs the risk of pushing them back to vulnerable groups. It recommended to collaborate with other stakeholders to extend appropriate support services, to use radio and other communication channels, to promote farmer-to-farmer extension, and to ensure adequate follow-up of extension activities;
- *voucher redemption:* 95% of interviewees found that the voucher redemption process overseen by District Agriculture Offices was efficient and there were no reports of voucher loss, voucher manipulation or vouchers sold by beneficiaries to third parties. However delays were experienced in input delivery, leading to late planting and negative impact on production, with also cases where farmers could not receive their inputs at all. The late supply of inputs has been attributed to lack of certified seeds, lack of adequate capacity of local stockist to purchase and distribute inputs, and lack of reliable transport facilities. Timely planning and distribution of inputs, as well as quick refunding of agrodealers are required to ensure proper supply to farmers;
- *agrodealers:* challenges faced by agrodealers included the lack of working capital, high supply prices, high transaction and transportation costs, and limited farmer knowledge in delivering inputs to farmers. The vast majority (90%) of interviewed agro-dealers indicated that they would prefer that vouchers be redeemed by financial institutions instead of district offices, so that they could be paid without delay and have access to working capital. Minimum duration to get payment was two months (but it took one year in 2008/09 and six months in 2009/10), which also contributed to delays in replenishing stocks (agro-dealers could not get short-term credit from major suppliers or commercial banks and they had limited resources of their own) and to late supply of inputs to farmers. The involvement of commercial banks would generate several benefits including timely payment of vouchers, risk-sharing among major suppliers and small agro-dealers,

and the development of better relations with suppliers and agro-dealers. Moreover, an e-voucher system would ensure timely payment, improve accountability and enhance the monitoring of the entire program;

- *demand for fertilizer:* farmers' effective demand for fertilizer should be strengthened by making fertilizer use profitable and by building durable input and output markets that can absorb the increased output without gluts that depress producer prices. Furthermore, increased fertilizer use efficiency should be sought by promoting the use of improved crop management practices (such as crop rotation with legumes, changes in density and spacing patterns of seeds, placement of fertilizer and seeds at planting), early planting, timely weeding, and other soil and water conservation farming methods;
- *access to inputs beyond 'voucher year':* farmers that had received the input package in the first year were expected to graduate in the second year by either using sale proceeds to purchase inputs or by taking a credit. The evaluation showed that this had happened with only a limited fraction of the package beneficiaries, because of constraints to accessing credit, (financial) illiteracy and transportation cost to reach out to a financial institution. Cereal banks were promoted but were generally not sustainable because of mismanagement, insufficient group dynamics, insecurity, and diverging priorities between meeting household needs and commercialisation. Warehouse receipt systems were promoted but received insufficient capacity building. Financial literacy, bank linkages, cereal banking and warehouse receipt schemes were deemed key areas for sustained capacity building;
- *Marketing:* NAAIAP was designed to address production challenges facing resource poor farmers, but did not include any strategy to address the marketing of produce. NCPB has little or no capacity to collect and buy maize from the smallholder farmers. The program needs to address produce marketing in partnership with other stakeholders;
- *Crop insurance:*farmers regard agricultural insurance as a foreign concept which can only be undertaken by large scale farmers. Crop insurance options should be explored as an additional component of the program;
- *M&E:* the data collected from NAAIAP's initial baseline survey was never analysed due to the lack of capacity and resources, and the programme did not put in place an adequate monitoring and evaluation system to assess impact of the program and learn from implementation experience. A computerised system allowing the monitoring of achievements is required to improve programme management and measure progress towards achieving programme targets.

12. As part of KCEP design process, the experience of e-voucher programmes implemented in Zambia, Zimbabwe and Nigeria were analysed, including through a fact-finding mission to Zambia. Lessons learnt from these initiatives presented in detail in working paper 6, complement and corroborate those from NAAIAP. Additional lessons learned mainly include the following:

- *Targeting:* targeting only resource-poor farmers makes desired increases in yields and sustainability difficult to *achieve;*
- *Voucher modalities: Kenya is the only country where vouchers are provided 100% free of charge. Other countries require a farmers' contribution ranging from 14 to 50%. The Zimbabwe case demonstrates that farmers can and are prepared to contribute towards inputs. The provision of free inputs can lead to dependency.*
- *Financial inclusion: The electronic* card needs to remain active beyond the life cycle of the project so that farmers can carry out transaction through existing banking services. This would offer the option for farmers to become banked and have access to services and credits in their own right.

13. *Agrodealers:* agro-dealer (owners and shop keepers) training and linkages with wholesale suppliers is required to improve timely availability, quality and suitability of inputs. Ensuring competition among agro-dealers prevents collusive behaviour and input price hik

Appendix 4: Detailed description of activities

Component 1 – Cereal Productivity And Quality Enhancement[17]

Sub-Component 1.1 – Supporting Effective Supply of Services and Inputs (3.3 USD million base cost)

1. Support to developing effective supply of services and inputs will be organized around three pillars: (i) adaptation and dissemination of available technologies for smallholder application; (ii) agricultural advisory services for effective access to and adoption of technologies and technical packages; and (iii) capacity building and expansion of the range of services offered by agro-dealers .

2. **Adaptation and dissemination of available technologies for smallholder application.**KCEP will promote the dissemination of existing (released) technologies and technical packages that have been developed by KARI and are available for scaling up, in accordance with the specific features of each target agro-ecological zone. This will include: (i) the promotion of drought resistant high yielding varieties (sorghum, millet and pulses); (ii) improved management practices including crop husbandry, intercropping, rotations and integrated pest management; (iii) soil fertility management practices; (iv) capacity building for local level diagnostic of nutrient deficiencies based on the observation of nutrient deficiency symptoms and local indicators of soil fertility status; (iv) technologies promoting rainwater use efficiency (i.e. planting furrows and tied ridging in semi-arid areas); and (v) adapted technologies/practices for land preparation and for labour saving, specifically targeting women.

3. Activities to support the dissemination and adoption of available new technologies will include:

- An inventory of potential agricultural advisory service providers in each of the sub-counties, including national extension services, input providers, lead farmers (from already existing, market-oriented groups or large-scale farmers), agro-dealers, and other private or non-governmental stakeholders;
- participatory training of trainers on released technologies;
- on-farm demonstrations and capacity building of lead farmers on released technologies and best practices responding to user needs/demand;
- soil sampling[18] and multi-location fertilizer trials under diverse soil fertility conditions to develop crop- and site-specific fertilizer recommendations;
- development and dissemination of extension material and guidelines;
- mapping of soil fertility and soil nutrient deficit and requirements, to support dissemination of best fertilizer management practices;
- farmers' feedback and data collection on technology adoption and impact on productivity feeding into KCEP Project Learning System.

4. **Implementation.** Activities will be implemented by KARI through its Adaptive research programme. KARI will provide training of trainers to groups of about 80 extension workers, lead farmers (KCEP target category 2) and service providers agents, including from CGA and AGMARK. Demonstration plots will be set up on farm and at KARI research stations. IPNI will work with KARI's Soil Laboratory to map fertility response to trials and demonstrations. Results from on-going IPNI's research and collaborations will also be used to improve training contents, soil and fertility management recommendations. At project start-up, a consultant will prepare contract agreements with KARI and IPNI detailing the approach, activities and quantified deliverables.

5. **Agricultural advisory services for effective access to and adoption of technologies and technical packages.** Building on the packages and training of trainers developed by KARI/IPNI , KCEP will promote theuse of technical packages for the sustainable intensification of maize-based, white sorghum-based and finger millet-based cropping systems. Packages will combine inputs, agronomic practices and technologies allowing yield growth and enhanced adaptation to rainfall

[17] Detailed description of the component is in KCEP Working Paper 2.
[18] Complementary soil samples to those carried out by NAIAAP (141 sub-counties already covered by NAIAAP).

variability and soil degradation. They will also need to respond to market requirements in terms of quality, for which strong linkages between Components 1 and 2 will need to be established. More specifically, the project will support the following investments:

- *E-voucher.*KCEP will promotesmallholders' adoption of adapted inputs and technologies through the provision of an e-voucher, which will give access to (i) certified seeds (maize, white sorghum, finger millet and pulses); (ii) basal and top-dressing fertilizers; (iii) hermetic storage bags and a tarpaulin to improve home-based conservation of grain for family consumption[19]; and (iv) the annual premium for a weather-index based crop insurance[20]. E-vouchers will be made available to the 40,000 farmers of category 1, which will be selected based on community-based targeting and on a set of eligibility criteria. Eligible farmers will have to: (i) be subsistence farmers unable to procure adequate inputs on their own (or, specifically for the semi-arid area, use fertilizers but no water and soil fertility management practices); (ii) have minimum one acre of land that they dedicate or are willing to dedicate to target crop; (iii) be able and willing to provide the beneficiary contribution; (iv) be willing to abide with the guidelines of the project; and (v) be willing to join cereal banks for efficient marketing. Eligible smallholders will have access to the e-voucher over two cropping seasons, with the second package accessible upon satisfactory use of the first year package. Over a season, the package will be provided in two batches: cereal seeds and basal fertilizer before planting cereals, and top-dressing fertilizer, pulses seeds, hermetic storage bags and tarpaulin at top-dressing stage. The package will be jointly financed by the project (90% in year 1 and 60% in year 2) and by smallholders. The modalities whereby e-vouchers will be redeemable are described in Component 3.
- Agricultural advisory services. KCEP will promote demand-driven, participatory and iterative extension approaches that tap local knowledge and resources to diagnose problems and experiment with solutions. This will include farmer group approaches, farmer-to-farmer extension, technical trainings, training of trainers, on-site-demonstrations, farm group visits and the provision of technical advice. A special attention will be given to using gender and youth sensitive approaches to make sure that the specific constraints faced by these groups are appropriately addressed and that they have an effective access to services. Topics will include: crop husbandry; integrated pest management (i.e. push-pull demonstrations for stem borer control); soil fertility management (i.e. planting basins/pits, erosion barriers, fallow improvement, manure/compost combined with inorganic fertilizer use, specific recommendations based on yield potential, soil type and limiting nutrients, etc.); legume intercropping/rotations; and bird control for white sorghum. *Subsistence farmers (target category 1)* who will receive the e-voucher (about 40,000 farmers) will be directly supported over two years by field extension workers, who will: (i) provide ToT to lead farmers from subsistence farmers' group; (ii) support demonstration plots at farmers' group level and exchange visits to other groups; and (iii) visit farmer's groups to provide on-farm technical advice and close monitoring. Each farmers' group will be visited twice per month during the cropping season and supported during a period of two years. After this period, farmers' groups will be empowered to demand services (sub-component 2) and technical advisory services will be provided on a demand-base. *Market-oriented farmers (target category 2*, about 60,000 farmers) will have access to technical advisory services on demand.

6. **Implementation.** This set of activities will be implemented by CGA, who will be responsible, jointly with the county and sub-county agriculture offices, for the coordination of operations between research, the provision of technical advisory services, support to agro-dealers and farmers' group empowerment (see sub-component 2). CGA will assign one County Coordinator to each County Agriculture Office to this effect, who will also be responsible for building the capacities of counties and sub-counties to plan, coordinate and monitor the provision of advisory services through a diversified range of public and private service providers, and to develop linkages with research, in line with

[19] See Component 2.
[20] See Component 3.

NASEP prescriptions. The selection of beneficiaries will be carried jointly by county/sub-county agriculture offices, with support from CGA. Annual programmes will be established in a participatory way at county and sub-county level, jointly with farmers' organizations, extension services, research and other service providers (agro-dealers, private service providers, NGOs…) and will be reflected in MoA annual planning. The project will start activities in priority in areas where existing service providers are available, building on the inventory indicated above. Technical advisory services to targeted subsistence farmers will be provided by a combination of public extension workers from MoA and field workers hired by CGA to fill the gaps, based on the inventory carried out at project start. The assumption made at project design is that half of the field extension workers required for KCEP implementation will be provided by MoA. At project start-up, the same consultant mentioned above will prepare a contract agreement with CGA detailing the approach, activities and quantified deliverables.

7. **Strengthening the capacities and expanding the range of services offered by agro-dealers.** KCEP will increase the quantity and quality of services offered by agro-dealers at an affordable price for smallholder farmers. Main activities will include: (i) an assessment of agro-dealers in the target sub-counties; (ii) sensitization, registration and training of agro-dealers participating in the e-voucher scheme, particularly on product supply and storage, and stock management; (iii) support in developing the capacities of agro-dealers to provide technical advisory services to farmers through specific trainings (provided by trainers trained by KARI/IPNI) and support for the organisation of field days and demonstrations plots. Agro-dealers will contribute to trainings, demonstrations, field days and exhibitions on a 15% basis. Capacity building on financial literacy and business management will be provided by the Equity Group Foundation to facilitate access to bank services, so that participating agro-dealers have access to the financial resources they require to sustain their activities (see Component 3).

8. **Implementation.** Activities related to agro-dealers support will be carried out by AGMARK. At project start-up, the same consultant mentioned above will prepare a contract agreement with AGMARK detailing the approach, activities and quantified deliverables.

Sub-Component 1.2 – Supporting Demand of Services and Inputs (0.4 USD million base costs)21

9. Activities will be geared towards promoting farmers' organisations that can engage into collective action, identify service needs and engage with public and private service providers. KCEP will promote farmers' groups under the form of Common Interest Groups (CIGs). It will build their organization and capacities and will facilitate their representation and active participation into value chain/stakeholders fora at sub-county and county level. Activities will include:

- identification of existing groups in the project areas and promotion of new groups where needed;
- capacity building of farmers' groups based on simple production/business plans, identification of required capacities and gaps, and annual capacity building plans covering topics such as group dynamics, leadership, gender and social inclusion, production planning and development, participation at stakeholders' fora level. Plans will be reviewed on an annual basis;
- farmers' capacity building and sensitization meetings to link groups to identified input suppliers (bulk procurement of inputs) and trainings on negotiation skills;
- peer exchange visits for mutual learning.

10. **Implementation.** Farmer' groups receiving this support will be the same as those receiving technical advisory services. Support will therefore be provided by the same mix of public extensionists and CGA field workers, under the overall coordination of CGA/County Agriculture Office.

Component 2 – Post- Harvest Management and Market Linkages

Sub-Component 2.1 – Post-Harvest Management (4.3 USD million base costs)

[21] Detailed description of the component is in KCEP Working Paper 3.

11. This subcomponent comprises of activities aimed at: (i) farmer adoption of improved technologies and practices for on-farm grain management: drying, on-farm storage and shelling/threshing; and (ii) produce bulking at well managed aggregation and storage facilities for easy access to profitable markets.

12. **On-farm grain management.** KCEP will support improved on-farm grain management through farmers' capacity building, demonstrations, and the provision of e-vouchers:

- *Capacity building.*KCEP will provide capacity building to smallholder farmers belonging to Category 1 to encourage the adoption of better technologies and practices in drying, grain extraction (shelling and threshing) and storage. This will cover the following: (i) grain drying and handling practices; and (ii) on-farm storage covering preparations of grain for storage including maximum moisture content, cleanliness and quality appropriate packaging including palletizing, suitable storage methods and facilities and good practices in pest and rodent control;
- *Demonstrations.* To support the adoption of innovative on-farm grain management processes, KCEP will promote the demonstration of new technologies to be determined as suitable under the scoping study to be commissioned at the start-up phase (mapping of grain handling and storage facilities). A demonstration kit will be provided per approximately 40 farmers (2 groups) neighboring each other, for practical demonstration by each farmer on a rotational basis. Budget provision for this activity in the cost tables is based on: (i) *one collapsible dryer case*, allowing farmers to dry their grain faster and more efficiently; and (ii) *onemetal silo.* The content of the demonstration kit could however be adapted as required, within the envelope for each cluster of 40 farmers, based on the recommendations of the scoping study. *Mechanized solar drying* and other mechanized grain drying technologies including mobile diesel dryers will also be promoted in targeted areas where weather conditions make direct sun-drying difficult;
- *E-voucher.* The e-voucher that will bemade accessible to all of the 40,000 farmers of category 1 will include: (i) one tarpaulin to ensure clean drying; and (ii) 10 hermetic bags using the 'modified atmosphere' bagging technologies to reduce grain losses caused by insect infestation, to store the part of grain production required for household consumption. Delivery modalities for e-vouchers are described in Component 1, financing modalities are described in Component 3.

13. This sub-component will be implemented by the service provider responsible for implementing Component 2. The training and capacity building of farmers on post-harvest handling and management will build on the activities in farmer organization and training on good agricultural practices under Component 1. Groups to be targeted are those that have already been developed under Component 1 and are expected to have increased production. There should therefore be close interaction and coordination between the capacity building inputs under Components 1 and 2.

14. **Produce aggregation and storing.**This set of activities aims at providing smallholders of both target categories 1 and 2 with aggregating facilities whereby they will be able to: (i) bulk surplus produce to attain volumes that are sufficient to attract bulk buyers and fetch better prices; (ii) store grain to await price appreciation; and (iii) leverage their stored grain to access credit to meet immediate financial needs. This will be achieved by promoting village-based collection centers and certified farmer-, public sector- or private sector-owned storage facilities, through the following activities:

- *Village collection centers.* KCEP will: (i) organize farmer groups to confederate into local associations at the production cluster/village level, and to rent storage space in a centrally located area within the production cluster; (ii) support 100 groups of 200 farmers each (total of 20,000 farmers in Category 1) to have the minimum required equipment at collection centers, including a weighing machine, moisture meter, two tarpaulins, pallets, and a manual sieve. Farmers will be trained on basic skills of managing the stores to meet food safety standards, minimize grain losses associated with poor storage practices and safeguard pilferage. Priority will be given to collection centres storing sorghum production, as it is not planned to finance any storage facility for sorghum storage[22].This activity will be implemented by the service provider implementing Component 2.

- *Storage facilities.* This will include:
  - *Construction and certification of 15 new farmer-owned storage facilities*, of which 10 in the maize area, and 5 in the millet area. No warehouses are planned in the sorghum area because the lack of price fluctuation and the unbalanced supply/demand market do not allow developing any warehouse receipt financing. Farmer-owned storage facilities will take the form of Limited Liability Companies (LLCs), whose shares will be held by farmers. Main advantages of LLCs are that they offer stronger security for smallholders whose liability in case of bankruptcy would be limited to the amount subscribed to the company's equity; they allow easier access to credit because as assets can be used as collateral; (iii) partners (including private ones) can join the ownership. To secure efficiency and full cost recovery they will be run by professional managers who will be jointly selected by the PIU and Equity Bank, with an endorsement by the LLC Board. Managers will be accountable to the LLC Board and paid through storage fees.Project will contribute 90% of the investment of farmer-owned storage facilities (with farmers paying the remaining 10%) considering farmers' limited financial capacity (average cost of storage facility is at USD 86,750);
  - *Rehabilitation and certification of 35 existing storage facilities*[23], which are mostly expected to be public sector-owned, of which 30 in the maize area, and 5 in the millet area. KCEP will finance 68% of the estimated rehabilitation and certification cost (total cost of USD 15,500), the rest being contributed by users;
  - *Certification of 10 existing owned storage facilities*. This cost will entirely be borne by owners/operators/users, but capacity building to managers and to key leading farmer users will be made available by the project;
  - *Operational losses*: the project will also finance 1st year operating losses for each of the 60 supported storage facilities. It is expected that losses will occur during the 1st year of operations because farmers will only gradually increase the stored portion of their marketable production. Financial models have shown that failing to cover such losses in the first year, would lead to prolonged indebtedness and to excessively high storage fees, with altogether an elevated risk of farmers not using the facilities financed by the project.

15. Modalities for (i) the selection of sites/existing facilities; (ii) the financing and implementation of civil works and equipment; (iii) the management of new and refurbished facilities, and (iv) the financing of operating losses are detailed in Working Paper 3 – Financial Inclusion. These activities will be carried out in close coordination with the service provider implementing component 2 to ensure that the construction works meet required warehouse certification standards. Furthermore, this service provider will assist the PIU/Financial Services Specialist in carrying out sensitization/awareness campaigns in target communities, for which a provision has been included in the cost table of Component 2.

16. KCEP will support investment in storage facilities, which will be owned either by farmers' groups, by the private sector, by the government (as in the case of National Cereals and Produce Board of Kenya) or by a private-public institution (as is the case of the Eastern African Grain Council).

Sub-Component 2.2 – Market linkages and Value Addition (2.0 USD million base costs)

[22] This is motivated by the fact that because of the lack of price fluctuation on sorghum, (i) there is no justification to develop warehouse receipting on sorghum; (ii) storage costs on sorghum would not be affordable to small sorghum producers. Storage facilities will therefore only be developed for maize and millet.

[23] Both construction and refurbishment of storage facilities will be partly funded using the top up grant of 10 million that the EU will make available in 2014. More precisely, (i) a total of 15 facilities are planned to be constructed of which 6 under this EU grant and 9 under the top up EU grant; and (ii) a total of 35 facilities are planned to be refurbished of which 19 under this EU grant and 16 under the top up EU grant.

17. This sub-component aims at supporting smallholders to fetch better price for their produce and to increase their share of the final added value for the target commodities by (i) developing their capacities to develop market linkages and improving value addition through adequate processing; and (ii) improving market access through road spot improvements.

18. **Capacity** building **for market linkages and value addition.** Capacity building will cover:

- *Business partnerships.* KCEP will support the development of longstanding business relationships between targeted smallholder farmers and large volume buyers by supporting farmers' groups in village collection and storage facilities. This will be achieved through: (i) identification and establishment of contacts with potential buyers; (ii) discussion with farmer groups to inform them of the requirements of potential buyers and process required to enter into the business partnership; (iii) farmer-buyer meetings; and (iv) hand holding in contract negotiations and signing. Forward contracts will be encouraged to provide the confidence farmers require to invest in production;
- *Farmer organization and ongoing capacity building for continued market relevance.* KCEP will provide capacity building to strengthen farmer organizations in key areas required to manage their relationship with established markets. This will involve: (i) *Pre-production planning* for fulfillment of market supply targets agreed with buyers; (ii) *production monitoring* to ensure continued farmer adherence to agreed supply targets; (iii) *Harvesting and post-harvesting* planning and support for quality control and timely produce aggregation; (iv) *Produce delivery management*; and *Post-produce purchase management* involving individual farmer payments and reconciliations to ensure efficiency and transparency.
- *Technical capacity building support for newly established processing initiatives***.** KCEP will build the capacities required to attain the levels of efficiency required for successful operations. Management capacity building will be provided by the Equity Group Foundation as part of Component

19. **Organisation of initiatives aimed at building commercial partnership with buyers.** The type of support required to establish longstanding business relationships between targeted smallholder farmers and large volume buyers will depend on the model of market linkage:

i. <u>For linkages involving spot-market type of buyer relationships</u> (as in the case of maize) where the buyer is only sought once the produce is aggregated at the warehouse and prices have appreciated enough, support will be provided to the warehouse management team (farmer oversight committee and warehouse manager) to plan the servicing of orders and coordination with farmer groups wishing to dispose their grain at the different prices prevailing over the supply period.

ii. <u>For market linkages likely to use the commodity futures market model</u> (as in the case of sorghum, millet and most pulses), where buyers can be pre-identified and their interest in establishing commercial relationships can be confirmed, the support will aim at meeting the requirements of these buyer to force long standing commercial relationship and building trust. In this type of marketing model, the East African Breweries Limited (EABL), World Food Program (WFP) and Unga Limited are lead buyers who have already expressed interest to forge contractual relationships with smallholder farmers. KCEP will build on these initial discussions to firm up the specific details of the partnerships to be forged. EABL has an unmet demand of 25,000 MT for white sorghum. KCEP will facilitate building of market linkages with smallholder sorghum farmers in the Kitui, Embu and Mbeere sub-counties to meet this demand. This will involve investments under Component 1 to increase productivity among targeted farmers; establishment of forward supply contracts between farmers and EABL; and capacity building of contracted farmers to make sure they meet the volume and quality targets agreed in the contracts. KCEP will enter into an MOU with EABL at the initial period of start-up to clearly define and agree on the details of this partnership, the roles and responsibilities of each participating party and the implementation modalities. A similar process will be followed for WFP and Unga Limited who have already shown interest in building direct market linkage partnerships with sorghum and millet farmers.

20. At local level, the process of linking sellers and buyers will be implemented through a series of meetings between farmer organisations and buyers to be held at the network of storage facilities established by the programme. These meetings will start the trust-building effort between seller and buyer whereby farmer organisations will be informed of market standards and market conditions of the buyers and the buyers will assess the capacity of the small farmer to deliver the goods according to required quantity, quality and time.

21. This set of activities will be implemented by the same service provider selected for implementing Sub-component 1. Provisions are made in the budget for: (i) an annual lumpsum for the service provider to develop all the capacity building activities; and (ii) a lumpsum for each of the 60 project-supported storage facilities to organize meetings or other events with buyers. Activities will be implemented in close collaboration with the Cereal Growers' Association, which is responsible for farmers' groups development in Component 1, and with Equity Group Foundation who will be providing literacy financial training and capacity building for business development in Component 3.

22. **Road spot improvements.** KCEP will facilitate access to produce aggregation centers by financing targeted spot improvements of key access roads to warehouses as a first priority, and to village collection centres as a second priority[24]. Road spot improvements will be implemented by the PIU engineer through service contracts issued to qualified civil works vendors for design and management of spot improvement works.

Component 3 – Financial Inclusion

Sub-Component 3.1 – Financial Inclusion (16.9 USD million base costs)

23. Support to financial inclusion will be organised around two main thrusts: (i) Financing smallholders' activities; and (ii) Smallholders' capacity building.

24. Financing **smallholders' activities.** KCEP will promote the following financial instruments:

- *Debit card.* Equity Bank will provide each of the 40,000 smallholders in target Category 1 with a debit card giving access to a bank account and to the bank'srange of financial products and services. The e-card (including the e-wallet - see below) will be activated when the smallholder will have deposited into the account a personal contribution that should at least be equal to the portion of the package not subsidized by the project (10% in year 1, 40% in year 2). The cost of developing the e-card/e-voucher will be borne by Equity Bank (USD 3.7 million) and IFAD (USD 0.44 million);
- *E-voucher.* Each debit card will feature an e-voucher, which will be embedded in a ring-fenced e-wallet. The e-voucher will give access to a package in two batches, under eligibility and delivery conditions described under Component 1. Access to the package will be adapted to the specific crops and locations. Prior to the beginning of every farming season, and based on indications provided by the service provider in charge with strengthening the capacities of the agro-dealer 2 (see Component 1 sub-component 2), Equity Bank will determine the market price for the package in the various target counties. Payments will be processed directly to the agro-dealer's bank account. The payment of the insurance premium will be included in the first delivery batch and will represent around 12% of the market value of the full package in year 1, and of the market value of the full package and the value (at market price) of the production self-consumed by the insurant family in year 2. The portion of the premium included in the package will be paid directly to the insurance company. To mitigate the risk of misuse of e-vouchers, KCEP will promote small groups who will be collectively responsible for ensuring that every member meets the obligation to redeem the voucher for the purpose it is meant for. Should a member be found to cash the voucher for other purposes, then the whole group would be precluded from receiving the second year voucher. Furthermore, information and capacity building will be provided to agro-dealers registered to participate in the programme, and agro-dealers found to have cashed e-vouchers instead of delivering the input package will lose their accreditation.

[24] This activity will be funded using the top up grant of 10 million that the EU will make available in 2014.

Details and additional measures to prevent misusing e-vouchers are listed in Working Paper 1 – Poverty, Targeting and Gender;

- *Warehouse receipt.* In all of KCEP-supported storage facilities, Equity Bank will implement a warehouse receipt financing mechanism for storage users, whereby they will be able to access a loan based on 75% of the quantity stored by the borrower and on the average price of the stored commodity over the previous season. The production in storage will constitute the guarantee for Equity Bank, who will support the total cost of the loans (around USD 7.5 million), while KCEP will contribute to warehouse construction/refurbishment and certification. Equity Bank will develop an e-application whereby a special e-wallet will record the quantities stored by each user and automatically inform the user of the maximum loan amount s/he would be eligible to.
- *Other financial services.* These include: (i) *savings:* KCEP will finance a study to assist Equity Bank in identifying the different types of savings that would meet the needs of KCEP target groups; (ii) *short-term working capital loans,* along Equity Bank conditions (12 % interest rate, guaranteed by forward contract or group solidarity).

25. **Smallholders' capacity building.** The project will develop an integrated approach aiming at creating a pathway to greater financial access, as well as providing financial advisory services to help develop, strengthen and grow project-supported smallholders. Capacity building activities will aim at (i) developing smallholders' financial management skills and confidence in using financial tools to improve their livelihoods; and (ii) at facilitating smallholder's use of risk-mitigation instruments. They will be made available to the 40,000 smallholders of target category 1 and will include:

- *Financial literacy training.* It will be provided by Equity Group Foundation and will cover:i) budgeting; (ii) savings; (iii) financial services; (iv) debt management; (v) insurance;
- Promotion of forward contracting. Equity Group Foundation will also include capacity building for farmers' groups to enter into forward contracts with buyers. Forward contracts will be used as collaterals by Equity Bank or other financial institutions to extend loans;
- Insurance products. Smallholders' adoption of insurance products will be supported through the e-voucher, which will contribute to the payment of the annual premium. The insurance company will carry out information campaigns to sensitise smallholders. Furthermore, KCEP will finance a study to develop complementary insurance modalities, allowing insurance coverage of any crop failure (including through pest or disease) and not only weather-related risks.

Sub-Component 3.2 – Value Chain Financing (5.7 USD million base costs)

26. Support to financial inclusion will be organized around two thrusts: (i) Investing in value chains; and (ii) Stakeholders' capacity building.

27. Investing **in value chains.**While the project first step is to enable smallholders to graduate from subsistence to commercial farming, the second step aims at assisting them in expanding their business and increasing their share of the final value added in the target value chains, through the processing and marketing of their produce. KCEP will finance up to 20% of the cost of farmer-owned processing facilities (with farmers paying 10%, and debt-financing through a medium-term loan extended by Equity Bank for 75-80%). Private investor-owned facilities will be financed through a project subsidy of 10%, the rest being financed by the private entrepreneur, through own or borrowed resources. The subsidy will be used as an incentive for private investors willing to open new market outlets to smallholders. The provision of capacity building (see below), and the security of sourcing produce with smallholders supported by the project will constitute additional incentives. Processing facilities financed by the project will include: shelling and threshing facilities; milling facilities; and cleaning/polishing/packing facilities for pulses.

- *Shelling and threshing facilities,* consisting of shelling/threshing mobile equipment and a tractor, which can also be used for land preparation and transport (total investment USD 36,250). The project will contribute to the financing of a total of 40 such facilities, of which 15 will be farmer-owned and located in the newly constructed farmer-owned warehouses, and 25 will be private sector-owned;
- *Milling facilities:* KCEP support to milling activities will be threefold: (i) co-financing of two new milling facilities as a demonstration, to be implemented in the same locan as new

project-financed storage facilities (unit cost USD 100,000); (ii) co-financing with private investors of 5 new milling facilities (unit cost USD 160,000 including construction); and (iii) co-financing with private investors of the cost related to the upgrading of 20 existing milling facilities (average unit cost USD 31,250);

- *Cleaning/polishing/packing facilities for pulses*. KCEP will support the implementation of 2 demonstration farmers' owned facilities located in new storage facilities, and of 10 other facilities that will be financed by the private sector (unit cost USD 75,000).

28. Stakeholders' **capacity building.** To ensure adoption of best practices in business and financial management leading to a sustainable implementation and development of facilities, KCEP will finance the capacity building of LLCs managers and Board members, private investors, micro- and small entrepreneurs as well as key leading farmers for all storing and processing investments implemented under the project. Capacity building modules will include: (i) financial management (credit, repayment, elaboration of loan applications); (ii) business planning and management; (iii) marketing (marketing studies, marketing channels); (iv) price determination; (v) legal and tax environment; (vi) budgeting; (vii) reporting and accounting (financial statements); (viii) role and responsibilities of governing bodies' members; (x) internal control and audit, and (xi) quality control and international/national standards. Capacity building courses will be provided by Equity Group Foundation.

Implementation arrangements for Component 3

29. This component will be implemented by the Financial Services Specialist of the PIU in collaboration with IFAD-financed Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT). KCEP will finance the cost of a Financial Services Specialist who will be responsible for managing KCEP grants, liaising with Equity Bank and with the service provider of component 2, and collecting and analyzing data for KCEP M&E. Sub-Component 1 will be implemented by Equity Bank. All capacity building activities will be implemented by Equity Group Foundation. Access to insurance products and related capacity building and study will be implemented by an insurance company to be selected based on competitive bidding. The implementation of Sub-component 2 will build on a scoping exercise to be carried out during project preparatory activities that will map existing infrastructure and facilities, as well as gaps and potential. The Service Provider implementing Component 2 and the Financial Services Specialist will carry out a sensitization campaign in the target counties/sub-counties to inform farmers' communities and potentially interested private entrepreneurs about financing opportunities offered by the project. Every year, in accordance with project phasing, KCEP PIU will issue calls for expression of interest targeting farmers and private sector interested in benefitting from KCEP financing. Proposals will be ranked based on a set of criteria detailed in Working Paper 4, and the highest ranked proposals will be financed up to available resources for the year. A legal advisor, jointly with the Cereal Growers' Association supporting farmers' group development, will assist farmers' groups in setting up LLCs. S/he will also contribute to the establishment of public-private arrangements allowing project-supported public storage facilities to be run in an efficient and profitable way, ensuring continuous and affordable access to smallholders. The PIU civil engineer will prepare technical and financial feasibility studies and tender documents for the construction (including studies and supervision)/procurement of farmer-owned facility (with close community participation). Private sector investors/operators will draft their own financial and technical feasibility study, along a pre-determined format, and submit it to the PIU civil engineer for approval. Tenders will be launched and procurement carried out by the PIU.

Appendix 5: Institutional aspects and implementation arrangements

Overview

1. Approach**.** KCEP implementation setting is driven by four sets of concerns:

- *build on permanent stakeholders and institutions:* the projectaims at developing sustainable business models in the maize, sorghum and finger millet value chains, based on institutions, mechanisms and capacities that will be able to carry on beyond project completion. To this effect, and where it is possible, KCEP organisation builds on existing institutions involved in supporting the production and marketing of the target crops, and will provide them with the capacity building so that they can adequately fulfil their mandate;
- *build on public-private partnerships:* KCEP will support smallholders' inclusion into the three target value chains, which will involve both developing their production so that they can increase volumes and quantities in accordance with market requirements, and develop linkages with other value chain stakeholders – agro-dealers, traders, processors and financial and non-financial service providers. Project organisation is therefore building on public-private partnerships, whereby MOA structures will be collaborating with private sector players that will bring in their expertise and knowledge of business and market development;
- *pave the way to scaling up:* KCEP constitutes the first phase of a longer-term process for supporting small producers of maize, sorghum and finger millet to graduate from subsistence to commercial agriculture. Over a relatively short duration, it will provide the building blocks (a set of business models and a cost-effective approach to develop them) that will then be replicated at a larger scale. KCEP set-up is therefore geared towards achieving quick results. To this effect, partners and service providers with recognised specialised expertise will be brought in to complement existing institutions, filling capacity gaps and strengthening institutional capacities;
- *build on and coordinate with NAAIAP:* KCEP builds on NAAIAP achievements and lessons learnt, providing additional features to address shortcomings identified during NAAIAP final evaluation[25]. As KCEP will unfold, NAAIAP will also continue its activities. It is therefore key that a strong coordination be secured between the two programmes, so that knowledge and experience generated by KCEP can easily be made available to NAAIAP.

2. Main features of KCEP implementation setting are as follows:

- *MoA* is the implementing agency that has overall *responsibility for the management, coordination and oversight of the project;*
- *A Programme Implementation Unit will assist MoA in carrying out project implementation responsibilities;*
- *County Agriculture Offices will facilitate project implementation at the county level. Furthermore they will be involved in the execution of Component 1, jointly with Kenya Agricultural Research Institute (KARI) and with the Cereal Growers' Associations (CGA), and they will participate in monitoring and evaluation as well as in knowledge management;*
- *Equity Bank will partner with KCEP in the financing and implementation of Component 3, in particular for setting up and operating the e-voucher system, and for providing access to short and medium-term credit to producers and other value chain stakeholders;*
- *Service providers will be responsible for implementing Component 1 – Cereal Productivity and Quality Enhancement (namely KARI for disseminating research-based technical packages; the International Plant Nutrition Institute (IPNI) for doing soil sampling; CGA for supporting farmers' group development, providing farmers with advisory services and building the capacities of Country Agriculture Offices; and AGMARK* for building the

[25] NAAIAP, Ministry of Agriculture, Program Evaluation, Final Report, December 2011. See Appendix 3.

capacities of agrodealers) and Component 2 – Post-Harvest Management and Market Linkages (one service provider to be selected based on competitive bidding for implementing activities related to post-*harvest management, value added investments and market linkages);*

- *PROFIT, IFAD-financed Programme for Rural Outreach of Financial Innovations and Technologies, will be accompanying the implementation of Component 3 – Financial Inclusion;*
- *A Project Steering Committee gathering the* representatives of main stakeholders involved in project implementation will provide overall guidance and oversight.

3. The roles and responsibilities of each of the implementation stakeholders are further described below. The organisational chart in Annex 1 represents KCEP implementation setting.

Key Implementing Institutions and Responsibilities

Government

4. **MoA.** The Ministry of Agriculture will be the lead agency for KCEP implementation, with overall responsibility for the management, coordination and oversight of the project. KCEP will be under the authority of the Market Development Division, which is the department that is also hosting NAAIAP. MoA structures at the provincial and county level will be directly involved in KCEP implementation:

5. **County Departments of Agriculture.** County Departments of Agriculture (and their sub-divisions at sub-county and ward levels) in the eight target counties will play a key role in the implementation of Component 1. They will facilitate In collaboration with the Cereal Growers' Association (CGA), they will be responsible for:

- organising the selection of e-voucher beneficiaries, based on the community based target processing described in Appendix 2 and detailed in Working Paper 1;
- delivering advisory with frontline extension workers in the target sub-counties, based on annual participatory plans established in connection with agriculture stakeholders fora;
- participating in project planning and preparation of AWPBs, as well as in M&E activities;
- facilitating linkages and coordination with local stakeholders.

Programme Implementation Unit

6. KCEP will be managed by a Project Implementation Unit (PIU). The PIU will assist MOA in coordinating and managing the implementation of KCEP and will be fully accountable for the performance of project implementation and the use of funds.

7. **Organisation and staffing.** The PIU will be composed of one central unit, based in the Maize Area (Nakuru or Nandi), and of one sub-unit, located in the Sorghum/Millet area (likely Mbere North). The PIU will be headed by a *Project Coordinator* and will be composed of the following full-time staff:

8. *Staff for Central Unit:*

- one *Financial and Administrative Manager* who will be in charge of financial management and administration and will lead the Financial and Administrative section of the PMU;
- one Senior Accountant;
- one Procurement Officer;
- one Knowledge Management and Communication Officer, who will be responsible for developing and implementing the Project Learning System (see III D), in close collaboration with MoA and service providers, and who will supervise the Planning and M&E Officer;
- one Planning and M&E Officer;
- one Inclusive Agribusiness/Value Chain Development Specialist, who will be responsible for guiding and monitoring project stakeholders in the implementation of components 1 and 2 in the Maize Area and for supervising the sub-unit in implementing project activities in the Sorghum/Millet area;
- one Civil Engineer, who will be responsible for overseeing civil works related to the construction and refurbishment of warehouses (Component 2 – Post-Harvest Management and Market Linkages);

- one Financial Services Specialist, who will be responsible for the implementation of Component 3 - Financial Inclusion;
- support staff, including two project assistant and three drivers.

9. *Staffing for the sub-unit.* The sub-unit will be composed of the following staff:

- one *Agri*-Business Specialist;
- one agronomist;
- one M&E/KM Officer;
- one Accountant;
- two drivers.

10. All PIU positions will be recruited through competitive bidding open to external candidates, with a view to ensure the setting up of a qualified, accountable and gender-balanced team. Prior experience with gender mainstreaming will be a requirement. A specialised company will be hired to carry out the staff selection process. The final evaluation report and the contracting of the selected candidates will have to be approved by MoA and then submitted to IFAD for no objection. PIU members will be recruited for on an initial 6-month probationary period. Subject to good performance, contracts will then be established for renewable one-year periods. Detailed job descriptions will be prepared by the short-term Project Management Specialist to be recruited as soon as the Grant Agreement between the EU and IFAD will be signed (see below Preparatory activities). They will specify expected deliverables and will be updated every year. Annex 1 presents main responsibilities of key PIU staff.

11. PIU **responsibilities.** Overall responsibilities of the PIU include:

- *orientation for developing and implementing the project strategy* to ensure that all project implementation partners develop activities along a common, coherent approach in line with the Project Design Report. This will entail the provision of strategic guidance on project activities and approaches, developing strong partnerships with project partners and service providers, and ensuring synergies between the various project components;
- *the financial and administrative management* of project resources in line with the Grant Agreement and IFAD rules. This will also include the management of project accounts and their timely replenishment;
- *the planning of project activities*, the preparation of AWPBs, and the monitoring of its implementation;
- *the contracting and procurement of project-related services and supplies* in accordance with IFAD Grant Agreement and IFAD rules. This will also include: (i) the preparation of annual procurement plans, and (ii) the monitoring of the implementation of service providers' contracts and of MoUs with project partners;
- *the coordination of project activities with the various project partnersand* service *providers*;
- *the promotion of inclusive approaches* and the mainstreaming of GESI requirements in all of the project activities in accordance with the Value Chain GESI Strategy and Action Plans;
- *M&E and KM in relation to all activities.* This will include: (i) setting up and running a Project Learning System connected to MoA's systems for M&E and KM, in line with the prescriptions of the Project Design Report, including provisions regarding GESI mainstreaming; (ii) providing regular feedback to County Departments of Agriculture and to MoA Market Development Division with regard to project activities; (iii) developing knowledge management capacity, methodologies and tools and promoting sharing of value chain experiences and good practices; (iv) providing guidance to service providers and partners to set up M&E/KM systems connected to the Project Learning System; (v) preparing regular project progress report; and (vi) preparing the Project Completion Report;
- *the development of the Project Implementation Manual (PIM)*, which will be based on the outline provided in Appendix 11and will lay out the project organisation, implementation arrangements, Project Learning System, financial management system and procurement guidelines. The short-term Project Management Specialist hired as part of preparatory activities (see below) will provide assistance in drafting the PIM.

12. Furthermore, the PIU will be in charge of the following specific activities:

- *under the responsibility of the civil engineer:* (i) prepare technical and feasibility studies for warehouses to be constructed/refurbished by the project, as well as for processing facilities; (ii) prepare tender documents for studies/supervision and for civil works and organise procurement process (with Procurement Officer); (iii) oversee supervision of civil works carried out by consulting firm.

13. Under the authority of the Project Coordinator and in connection with the central unit, the Sorghum/Millet sub-unit will provide monitoring and guidance to activities carried out in the semi-arid target counties. This will include: (i) the coordination of activities, development of strong partnerships with and provision of guidance to project partners and service providers, including County Agriculture Offices; (ii) financial management in relation to locally made project expenditure; and (iii) M&E and KM.

Project Partners

14. **Equity Bank and Equity Group Foundation.** Equity Bank will be partnering with KCEP for the financing of the e-voucher system, for which it will be contributing 80% of the costs (or USD 1.745 million), including hardware, software development and staffing costs), as well as working capital loans for KCEP target groups (category), to the extent of USD 7.46 million. It will also be responsible for implementing Component 3, sub-component 1 – Financial Inclusion, in particular the delivery of e-vouchers and the implementation of the warehouse receipt system in KCEP-supported warehouses. Equity Group Foundation will be responsible for building the capacities of smallholders *Sub-component 1) and other value chain stakeholders (sub-component 2) with regard in financial literacy and business management.

15. **CGA.** The Cereal Growers' Association is a non-profit member-based national farmer organisation aiming at bringing all cereal farmers together for collective action and at offering business development services to support their farming business. It is the main farmers' association in the grain sector, and counts 30,000 members, of which 25,000 are small to medium-scale farmers. Support to small-scale farmers in particular is funded by several projects in which CGA has been engaged as an implementing agent, and which are financed by a range of donors, including USAID, the Eastern Africa Grain Council, and the European Union. CGA has a permanent staff of nine professionals.

16. CGA will be sourced directly as the major socio-professional organisation representing the interests of smallholders in the grain sector. This is in line with IFAD's corporate approach, which is embedded in the Farmers' Forum process, to relate to farmers' organisations as IFAD privileged partners and to promote them so that they become sustainable, self-financed national farmers' organisations, including through developing their membership and offering services meeting farmers' needs. Aside from having the technical expertise and management experience, CGA also offers a national outlet for disseminating the knowledge and experience that will be generated through KCEP activities, and to scale up successful business models.

17. CGA will be the lead service provider for the implementation of Component 1. In that capacity, it will be responsible for: (i) coordinating operations between research dissemination, the provision of technical advisory services and farmers' group empowerment; (ii) M&E and knowledge management for Component 1, in collaboration with the other service providers involved in implementing Component 1; and (iii) building the capacities of participating County Agriculture Offices to planning, coordinating and monitoring the delivery of extension services and linkages with research. Furthermore, CGA will provide field workers who will implement KCEP activities related to: (i) the provision of technical advisory services to farmers; and (ii) the development, empowerment and capacity building of farmers' groups. This will be achieved jointly with public extensionists and other available service providers in the target counties, in close collaboration with KARI/IPNI and AGMARK.

PROFIT

18. The Financial Services Specialist recruited as part of the PIU will collaborate with PROFIT on the implementation of Component 3.

19. The PIU will establish MoUs with Equity Bank, CGA, which will be prepared as part of the preparatory activities. MoUs will specify each party's responsibilities, clear deliverables (outputs and

outcomes) also reflecting gender and inclusion targets and indicators, and payment modalities and schedule.

Service Providers

20. **KARI.** The Kenya Agricultural Research Institute (KARI) will implement activities in Component 1 related to the adaptation and dissemination of available technologies (Component 1). KARI will provide training of trainers to scale up the dissemination and adoption of technical packages building on research outcomes.

21. **IPNI.** The International Plant Nutrition Institute (IPNI) is a global organisation mandated to develop and promote scientific information about responsible management of plant nutrition. It has developed, in collaboration with KARI, a capacity building programme on soil micro-nutrient management and water use efficiency. IPNI will work with KARI/Soil laboratory to map fertility response from the trials and demonstrations that will be carried out in each location and use results to improve KARI's training packages with regard to soil and fertility management recommendations.

22. **AGMARK.** The Agricultural Market Development Trust is an international non-profit organisation that works with rural entrepreneurs to increase agriculture productivity by improving access to inputs and farming technologies. It started its first activities in Kenya, and has been further implementing programs in Eastern, Western and Southern Africa. One of its key areas of intervention is the promotion of agro-dealers through building their business development and technical capacities, linking them to financial institutions, promoting the structuring of the profession through agro-dealers associations, and developing input subsidy programmes. In Kenya, AGMARK has partnerships with USAID, WFP, DFID, AGRA, IFDC, and European Union/World Bank through NAAIAP. In fact, AGMARK was selected by NAAIAP through a competitive bidding process to support agro-dealers trainings on business management and the provision of technical advisory services.

23. AGMARK was selected to implement KCEP activities related to building the capacities of agro-dealers (Component 1) to build on good NAAIAP experience and maintain continuity – sourcing AGMARK will enable capitalising on its methodology, including available training modules and material, and experience. Because of time constraints (KCEP must be ready to deliver vouchers by March-April 2014 at the start of the maize season), this will allow fast mobilisation and start up, with the first batch of agrodealers going through certification and training early 2014. This solution was preferred to tendering also taking into account the fact that (i) AGMARK already went through a competitive bidding process for sister programme NAAIAP, and (ii) it is the only organisation in Kenya with this type of expertise, meaning that a tendering process would either lead to selecting AGMARK again, or lead to unaffordable delays and costs to bringing a foreign organisation to Kenya and develop a new capacity building programme. AGMARK will be implementing KCEP activities in partnership with the Kenya National Agrodealers Association (KENADA).

24. **Service provider for Component 2**. Component 2 will be implemented by a specialised service provider who will be responsible for: (i) building the capacities of farmers on post-harvest handling and management, in close connection with CGA and farmers' capacity building activities developed in Component 1; (ii) sensitisation and awareness of project target communities with regard to the opportunities offered by the project with regard to the development of farmer-owned warehouses and processing facilities; (iv) capacity building for the management and certification of all warehouse facilities supported by the project, including to set up farmer-owned Limited Liability Companies owning newly constructed warehouses and to set up warehouse receipt systems; (iii)

25. **Service provider for the weather index-based crop insurance.** The access to insurance products and related training will be provided by a specialized insurance company/broker selected through a Call for Expression of Interest and the evaluation of their technical and financial proposals related to the development of weather-index based insurance for the project beneficiaries.

26. The service providers for Component 2 and for the weather index-based crop insurance will be selected based on a competitive bidding process subject to approval by both MoA and IFAD, along tender documents to be prepared as part of Preparatory activities (see below). Prior experience with gender mainstreaming and the recourse to gender-balanced teams will be part of the selection criteria. The contract will specify clear deliverables (outputs and outcomes), also reflecting gender and inclusion targets and indicators, as well as specify payment modalities and schedule. Contracts will be established for renewable one-year periods, subject to good performance.

Farmers' organisations

27. Farmers' organisations (FOs) are central stakeholders in KCEP implementation, with regard not only to production development but also to marketing, provision of support services and participation in value chain governance. The project strategy and programme of activities are geared towards ensuring that, by the end of the project, they have become professional players in their respective value chains. Furthermore, FOs will own shares in the equity of warehouses, which will be established as Limited Liability Companies, and which will enable them to participate in decision-making at board level, and thereby contribute to sustainable provision of responsive and affordable services. The strengthening of FO capacities will be one of the main responsibilities of KCEP Service Providers. The PMT will specifically provide guidance for the promotion of FOs entrepreneurial skills (through the Inclusive Agribusiness/Value Chain Development *Specialist*) and to ensure that participating FOs become inclusive and gender equitable organisations.

Project Oversight

28. A Project Steering Committee will guide overall implementation and provide general oversight. Core membership of KCEP Project Steering Committee will be the same as NAAIAP's, but will include additional members to reflect KCEP broader, value-chain based approach. This will ensure that KCEP can best take advantage of NAAIAP's experience and achievements, that its activities are not duplicating NAAIAP's and that NAAIAP can also benefit from lessons learnt and good practices developed under KCEP. KCEP Steering Committee will meet twice a year to: (i) review project progress against targets; (ii) assess management effectiveness; (ii) decide on corrective measures where appropriate; (iii) review lessons learned, good practices and innovation; (iv) approve AWPBs and review progress reports; and (v) provide overall guidance to project implementation. The Steering Committee will be chaired by MOA Permanent Secretary and should at any rate include key KCEP stakeholders, including the European Delegation, Equity Bank, the Agrodealers Association, KENFAP, KCEP Project Coordinator, main service providers involved in KCEP implementation and PROFIT Coordinator.

Phasing

29. While NAAIAP is a nation-wide programme, KCEP is conceived to be implemented at a smaller scale over a first phase of four years. During this initial period, it will document successful business models to pave the way for scaling up under a second phase, which the European Union is planning to finance by early 2014[26]. As a consequence, KCEP has been designed in such a way as to be easily brought to scale, according to a phasing in which all partners and service providers will be requested to present their technical proposals/activity plans in accordance with the following phased framework:

- *an initial stage* of about one and a half year (January 2014-June 2015), covering one maize farming/marketing cycle (March-January) and one sorghum/millet farming/marketing cycle (September-June), during which they will: (ii) set up all logistics arrangements; (ii) develop and apply a methodology for achieving KCEP objectives in their respective fields of intervention with the first groups of farmers (see Table 1); (iii) set up M&E/KM arrangements, under the guidance of the PIU, to contribute to the Project Learning System; and (iii) set up administrative, financial and management systems required to comply with the requirements of the Grant Agreement and IFAD regulations. By the end of this period, a comprehensive supervision mission will be led by IFAD to assess first results, identify business models to be further developed and documented, and decide on corrections required to improve performance;
- *a second stage* (from January 2015 for maize/June 2015 for sorghum/millet, to mid-2016, during which they will consolidate their approach of four years, extend it to the remaining part of the target group, and further document achievements. The project mid-term review will be carried out at the end of this second phase, with a view to assessing achievements, laying out deliverables in terms of documentation (business models and good practices), and providing recommendations to orient the preparation of the second phase project;

[26] The EU Delegation in Kenya has already announced that an additional EURO 10 million will be made available from EDF 10th and 11th EDF to KCEP by early 2014.

- *a final stage* (until December 2017), during which they will: (i) ensure that implementation responsibilities intended to outlive the project (access to services, inputs and markets) will be taken over by permanent stakeholders, including farmers' organisations, private sector, financial institutions and Country Agriculture Offices; and (ii) finalise the documentation of business models, lessons learnt and good practices. No new groups will be initiated in 2017, as per Table 1, so that across target areas, all farmers will have a minimum of two years of project support.

Table 1 – Phasing of beneficiaries

Areas	2014		2015		2016		2017	
	New	Total	New	Total	New	Total	New	Total
Maize	2,500	2,500	7,500	10,000	10,000	20,000	0	20,000
Sorghum/millet	7,500	7,500	12,500	20,000	0	20,000	0	20,0000
Total	**10,000**	**10,000**	**20,000**	**30,000**	**10,000**	**40,000**	**0**	**40,000**

Project Preparatory Activities

30. To ensure a quick start-up and initiate voucher delivery during the farming season starting in March/April 2014 in the maize area and in September 2014 in the sorghum/millet area, a set of preparatory activities will be carried upon signing of the Contribution Agreement between the EU and IFAD, and the Grant Agreement with GoK. These include: (i) *the recruitment of three short-term consultants*, who will launch all the activities required to set up the programme implementation structure, i.e. Project Management Specialist, procurement specialist and Financial Services Specialist; and (ii) *the hiring of a team of a consultants* who will carry out a participatory scoping study, which will identify value chain stakeholders that will participate in project implementation, mapping grain handling facilities in the targeted sub-counties, lay out business development opportunities that have potential for increasing the income of smallholders in the target sub-counties, and supply baseline data upon which to base monitoring and evaluation. Preparatory activities will be financed with IFAD start-up funds and with grant funds once disbursement conditions will be met. In January 2014, a 2-day inception workshop will be conducted by MoA and the PIU, with the participation of all relevant project stakeholders, to ensure a sound and shared understanding of the project approach and of its operating modalities.

31. Table 2 shows main project preparatory activities.

Table 2 – KCEP Preparatory Activities

Activities	Responsibilities
Planning . Preparation of detailed planning of activities (including start-up) and first draft of AWPB to be further refined once PIU is recruited and at start-up workshop	. Project Management Specialist, Agronomist and Agri-Business Specialist, with MOA
Specifying target area/groups . Inventory of registered/unregistered agrodealers . Preliminary inventory of existing warehouses . Selection of target sub-counties, also building on these inventories	. Agri-business Specialist with Equity Bank . Agri-business Specialist with EAGC . MoA to submit selection for approval of IFAD and EU
Preparing PIU set-up . Preparation of detailed terms of reference for staff . Identification of human resources agency, launching of recruitment process and staff selection . Identification and renting of office premises (central and sub-unit) . Preparation of tender documents for equipment . Preparation of PIM	. Project Management Specialist, with MoA
Preparing agreements with partners and tender documents . Preparing MoUs with Cereal Growers Association (CGA) . Preparing contract with KARI . Preparing contract with AGMARK . Preparing MoU with Equity Bank . Preparing contract with Equity Group Foundation . Short-listing of service providers(where no direct sourcing) . Preparation of tender documents for service providers	Short-term Project Management Specialist, with MOA and: . Agronomist . Agronomist . Agronomist and Agri-business Specialist . Financial services specialist . Financial services specialistand VC Specialist . Agri-business Specialist . Agri-business Specialist
Preparing terms of reference for initial studies in Component 2 . Preparing detailed terms of reference	. Agri-business Specialist

Annex 1 - Organisational Chart

Annex 2 - Main Responsibilities of Key PIU Staff

1. The **Project Coordinator** will work under the leadership of the Director of the Division of Agri-business. S/he will be responsible for: (i) overall management and coordination of KCEP activities, including the provision of strategic guidance and the oversight of implementation of KCEP activities; (ii) leading the PIU in designing and implementing the PIM, the Project Learning System and other management tools; (iii) leading the preparation of participatory AWPBs and the monitoring of their implementation; (iv) coordinating and supervising project M&E and KM activities; (v) ensuring the implementation of KCEP GESI Mainstreaming Strategy and Action Plan through all the components; (viii) coordination and supervision of project financial management, administration and procurement; (ix) preparation of the Project Completion Report; (x) conducting project completion and loan closing activities as per the Loan Agreement.

2. The **Financial and Administrative Manager** will work under the supervision of the Project Coordinator. S/he will be responsible for: (i) developing and putting into operation the project financial and procurement system; (ii) managing project funds properly, ensuring that project accounts, disbursements and replenishment procedures (withdrawal applications) are managed in accordance with the procedures stipulated by the Grant Agreement and IFAD rules; (iii) ensuring administrative management of service providers' contracts; (iv) conducting training of partners' and service providers' staff to ensure that they carry out financial reporting and procurement in accordance with IFAD rules; (v) ensuring that all procurement of project goods and services are in compliance with the Grant Agreement and IFAD rules; (vi) ensuring proper use and conservation of project assets; (vi) prepare regular financial and procurement progress reports; (vii) prepare annual financial reports for project external auditing, ensuring that these are accomplished in time and in compliance to Loan Agreement; (viii) assisting the Project Coordinator in preparing the Completion Report and in conducting project completion and loan closing activities as per the Loan Agreement.

3. The **Senior Accountant** will work under the direct supervision of the Financial and Administrative Manager. S/he will be responsible for: (i) preparation of project accounts; (ii) verification of supplier's invoices for payment, including service provider's requests for funds, and timely implementation of payment procedures; (iii) preparation and submission of periodical financial reports; (iv) preparation of Withdrawal Applications; (v) replenishment of operational account with project bank account. The **Accountant** in the Sorghum/Millet sub-unit will work under the supervision of the **Senior Accountant**, and will have similar duties at the sub-unit level.

4. The **Procurement Officer** will work under the direct supervision of the Financial and Administrative Manager. S/he will be responsible for: (i) procuring project goods and services at central level and assist/supervise decentralised procurement as appropriate; (ii) ensuring proper use and conservation of project assets; (iii) preparing annual and quarterly procurement plans; (vi) preparing regular financial and procurement progress reports.

5. The **Knowledge Management and Communication Officer** will work under the supervision of the Project Coordinator. S/he will be responsible for: (i) developing and implementing KCEP Project Learning System; (ii) develop and implement processes and guidelines to ensure that lessons learned and good practice are systematically captured, shared with project stakeholders, and used to improve project implementation; (iii) ensure documentation and wide sharing of results; (iv) conduct training of counterpart staff at central and county levels and in partners' and service providers teams, and provide assistance/guidance in implementing the Project Learning System; (v) coordinating surveys and case studies to assess achievements and intermediary impact (outcomes) of KCEP activities; (vi) coordinate the implementation of impact assessments; (vii) foster partnerships for broader knowledge-sharing and learning;

6. The **Planning and M&E Officer** will work under the supervision of the Knowledge Management and Communication Officer. S/he will be responsible for: (i) developing and running a M&E system for the collection and analysis of data on project achievements and impact, based on a set of gender disaggregated indicators of in line with the project logical framework and stakeholders' information needs; (ii) coordinating the preparation and monitoring of AWPB; (iii) ensuring that all participating institutions keep records on their activities and feed this information into the Project Learning System; (iv) developing a simple reporting system for the monitoring of project activities and preparing regular

reports on implementation progress, performance and impact of operations. The M&E Officer in the Sorghum/Millet sub-unit will work under the supervision of the **Planning and M&E Officer**, and will have similar duties at the sub-unit level focusing on the sorghum and millet value chains.

7. The **Inclusive Agribusiness/Value Chain Development Specialist** will work under the supervision of the Project Coordinator. S/he will be responsible for: (i) providing guidance to service providers on the identification, planning, implementation, monitoring and evaluation of KCEP activities for value chain support and the promotion of entrepreneurial skills in farmers' organisations, with a focus on the maize value chain; (ii) liaising with the Financial Services Expert to ensure adequate synergies between Components 2 and 3; (iii) monitoring the development of innovative business models and, in collaboration with the KM and Communication Officer and the Planning and M&E Officer, Officer, ensure related knowledge management and identify policy lessons; (iv) guide the preparation and implementation of the various studies planned in Component ; (v) participate in developing the Project Learning System in collaboration with the the KM and Communication Officer; (vi) contributing to the preparation of Annual Work Plan and Budget and progress reporting preparation. The **Agri-Business Specialist** in the Sorghum/Millet sub-unit will work under the supervision of the **Inclusive Agribusiness/Value Chain Development Specialist**, and will have similar duties at the sub-unit level focusing on the sorghum and millet value chains.

8. The **Civil Engineer** will work under the supervision of the Project Coordinator. S/he will be responsible for: (i) oversee the preparation of tender documents for the studies, supervision and construction of warehouse construction and refurbishment and the spot improvement; and contributing to the preparation of Annual Work Plan and Budget and progress reporting preparation.

9. The **Financial Services Expert** will work under the supervision of the Project Coordinator and will collaborate with PROFIT. S/he will be responsible for: (i) overall monitoring and implementation support of Component 3; (ii) liaising with the Inclusive Agribusiness/Value Chain Development Specialist and the Agri-Business Specialist ion the sub-unitto ensure adequate synergies between Components 2 and 3; (iii) monitoring the performance of the partners and service providers intervening in the component implementation; (iv) monitoring the performance of limited liability companies set up by the project; (v) in collaboration with the KM and Communication Officer and partners/service providers of component 3, developing knowledge management on innovative financial instruments; (vi) contributing to the preparation of Annual Work Plan and Budget and progress reporting preparation.

Appendix 6: Planning, M&E and learning and knowledge management

1. An integrated system for project planning, M&E, Knowledge Management and Communication will be developed with three main objectives:

- *steer project implementation:* it should provide project stakeholders with information and analysis required to: measure project outcomes; assess the relevance of the project strategy and implementation processes; assess the performance of implementing agents and service providers; detect difficulties and successes; and support decision-making to improve project performance. It should also provide information to measure project contribution to the implementation of ASDS, and to the achievement of COSOP targets;
- *support economic decisions:* it should provide value chainstakeholders, and, in particular, farmers' organisations and private sector actors, with the information and analysis they need to assess the return brought by innovation, to develop profitable activities and to adapt their strategies accordingly. To this effect it should monitor both quantitative (yields and production, margins, stocks, credit management…) and qualitative results (members'/clients' satisfaction);
- *share knowledge:* based on the above, develop lessons learnt, capture good practices and successful innovation, and share knowledge under appropriate formats to support project performance and policy dialogue, as well as to pave the way for a second, scaling up phase. Specific areas of interest in this respect comprise: (i) adapted technical packages; (ii) inclusive business models for farmers' access to services and markets; and (iii) innovative financial instruments, including the e-voucher;
- *measure impact:* assess project effects on the livelihoods of participating farmers, and particularly on women and young people, and on reducing poverty.

2. The system will be: (i) *open and easily accessible*, i.e. its use will not be restricted to project or government agencies' staff, but also provide information and learning for value chain stakeholders; (ii) *participatory*, i.e. associate project stakeholders, and specifically, producers' organisations in the definition of indicators, data collection, analysis and dissemination of results; (iii) *growing*, thus small initially and developing progressively as needs and capacities increase; (iv) *focused on analysis and learning* in support of decision-making and policy dialogue, and not merely on data production; and (v) *inclusive* so that women, poorer, and marginalised groups participate in the system.

M&E System

3. **Set-up.** A short-term international M&E/KM Consultant will be hired by the PIU to support project staff in: (i) agreeing on a shared understanding of project objectives, approaches and planned activities; (ii) agreeing on a broad framework for M&E, KM and Communication and on priority actions to implement it; and (iii) identifying quantitative and qualitative indicators on a participatory basis, building on the logical framework and on the set of IFAD's Results and Impact Management System (RIMS) indicators. The consultant will produce a detailed M&E, KM and Communication manual, together with an implementation plan for the first year. The consultation will be undertaken in coordination with: (i) the service provider who will be responsible for setting up the Poverty Assessment System (see below); and (ii) the Targeting and GESI consultation planned at project start-up to ensure that the system adequately monitors gender equality and inclusion. The M&E/KM consultant will provide technical guidance in further improving the system based on experience, through a follow-up mission in the second year. The plan will be updated every year. Main elements of the system should be as follows.

4. **Impact assessment.** An impact assessment measurement combining the status of the logical framework indicators, IFAD corporate Results and Impact Management System (RIMS) indicators and specific poverty reduction impact will be carried out using a statistically rigorous methodology at baseline, midterm and completion implemented by a specialised service provider. Rigorous impact assessment is done using *Randomised Controlled Trial* (RCT) which requires that the group that is participating in the project is compared with a control group that is not benefiting from the intervention.

5. This methodology requires that: (i) eligible smallholder farmers should be randomly assigned to one of the two groups *before* the intervention begins[27]; and (ii) the effect of the package interventions be measured on both eligible and ineligible subjects. This would be done using three groups: (i) eligible subjects in the treatment region; (ii) ineligible subjects in the treatment region; and (iii) subjects in the control region. These three groups are identical ex ante (they are all subsistence farmers) but are different ex-post. The eligible subjects in treatment region receive the treatment; the ineligible subjects in treatment regions are indirectly affected by the interventions; if the spillover effects occur only within region, the average outcome of beneficiaries in control regions is equivalent to the average outcome in treatment regions in the absence of the treatment. This option has the advantage of being more readily acceptable by eligible beneficiaries but it entails two sets of problems: (i) the significant cost of ensuring a close follow-up of the control group outside of the project area[28]; and (ii) the fact that KCEP, as most rural development projects, purposely aims at disseminating improvement (i.e. aim at "contaminating" smallholders well beyond the project area), which means that the spillover could be wider than anticipated and could affect neighboring regions, which goes against the above assumption. The size of the three beneficiary's sample groups will be 600 households each (40 clusters of 15 farmers each) for a total of 1,800 monitored households. The cost estimate is around 100 USD per households, including include sampling, monitoring and data processing.

6. **Preliminary Poverty reduction assessment**. A preliminary poverty reduction estimate has been carried out at design to arrive at an estimate of poverty reduction potential. Results suggest that 41% of participating households could potentially be exiting poverty following KCEP interventions (see Appendix 10).

7. **Project planning**. The M&E/KM cycle will start with the preparation of the project Annual Work Plan and Budget (AWPB), which will be a key instrument for implementation and operational control. It will cover detailed annual planning of activities and implementation responsibilities, physical results targeted, outputs expected, budget and procurement plan. It will be prepared jointly with project stakeholders and with the collaboration of CGA country teams, the service provider of component 2, the Ministry of Roads and Public Works, and PROFIT. The global AWPB will be collated by the Planning M&E Officer and Finance Officer (for budgeting) under the supervision of the Project Coordinator, and it will be submitted to the Project Steering Committee for final approval and submission to IFAD no objection.

8. **Data collection.** Data will be collected along adequate forms (to be proposed by the consultant) and organised along three levels: (i) *at producers' level*, information will relate to farmers and their organisations, access to inputs and services, as well as to the evolution of production and income; (ii) *at value chain level,* information will be provided on the achievements of business partnerships andaggregating and processing facilities and business partnerships; (iii) *at project level,* informationwill encompassoverall project performance and cover RIMS and COSOP indicators. KCEP stakeholders will have an active and important role in identifying and reporting data, either formally (for institutions or service providers holding a contract or an MoU with the PIU) or informally (for farmers' groups and private businesses). Information will include both quantitative data, to report against agreed indicators, and qualitative data. Tools such as case studies, the Most Significant Changes or users' surveys will be used to collect qualitative information through participatory approaches. Partners/service providers MoUs and contracts will specify their responsibilities with respect to M&E and KM. M&E Officers will provide guidance.

9. **MIS**.The flow of data will be facilitated through the utilisation of a Management Information System, which will be set up at project start to process information and present it along appropriate formats such as dashboards, charts and maps. The MIS will include a beneficiary database, which will

10. serve two purposes: (i) allowing the redemption of e-vouchers and (ii) monitoring the outcomes and impacts of KCEP. The list of eligible beneficiaries will be established based on community-based

[27]In practice, this would be difficult to implement as eligible beneficiaries with similar characteristics in a given location would all expect to be enrolled in the voucher scheme.

[28] The main beneficiary sample and the control group should ideally have the same size. The control group is more prone to drop –outs and spill-overs that would make it less representative. For that reason, it requires a continuous monitoring and adjustment process which is quite costly.

targeting and eligibility criteria (see Appendix 2) by county/sub-county agriculture offices, with the support of the Cereal Growers' Association country teams. This list will be transmitted to Equity Bank, which will enrol farmers in the e-voucher platform. In order to ensure transparency and effectiveness, the e-voucher beneficiary database will have to include a number of mandatory data[29] on beneficiaries such as: name, location, ID number and mobile phone (if available). Data collection for the first batch of beneficiaries in 2014 will have to take place during the initial phase of implementation as a pre-condition for voucher activation. The MIS will also include other relevant project data related to outcome and impact measurement such as: size of plots, yield, family consumption, agricultural output sold, type and size of agricultural loans, etc. Data to be covered by the MIS will be identified by the M&E/KM consultant. Making use of a standard banking product such as a debit card linked to a transactional/savings account will allow authorized parties to track the expenditure pattern of voucher card holders, which is an additional tool that could be used for poverty reduction measurement[30]. Moreover, the e-voucher scheme will be linked to a cell phone platform (as is the case for M-Pesa, which is already linked to the Equity Bank platform). This should allow conducting cell phone-based household surveys among beneficiaries, at a cost which is a fraction of normal household surveys. The MIS will be set up by the service provider responsible for undertaking poverty assessment (see below).

11. **Analysis**. Data from different sources will be consolidated and analysed by the PIU so as to provide information on the performance of the various components, detect problems, identify possible solutions and track good practices to share through the knowledge management system.

12. **Reporting**. Progress reports will meet GoK, IFAD and EU requirements, and will be harmonised with government procedures. Brief quarterly reports will be prepared by the PIU, mainly consisting of the record of activities, outputs and financial transactions. Consolidated biannual and annual reports will be more comprehensive, covering both technical and financial information, and include an analysis as above. Annual reports will also cover outcomes (based on annual outcome surveys below), lessons learnt, innovations and good practices, and knowledge gaps identified. The PIU will prepare a Project Completion Report (PCR) along IFAD requirements, which will also include an assessment of the achieved versus the planned impact. It will be submitted to IFAD and MoA within three months after project completion.

13. **Webpage on IFADAfrica**. The M&E system will provide information on outputs, outcomes, impacts, lessons learnt, good practices, and other key sector information to analyse performance of the project, including information regarding price and export statistics. In addition, this information will also be available through IFADAfrica, which will make available to the public key information about the project, its achievements, good practices, policy studies and other key documents. The webpage will be maintained by KCEP KM and Communication Officer.

Inception, Reviews and Surveys

14. **Inception.**An inception workshop will be organised with project stakeholders and implementing partners to: (i) ensure that all partners understand and agree on the scope and implementing modalities of the project; (ii) introduce key processes, tools, strategies and reporting needs; and (iii) act as a networking event to build relationships for future knowledge sharing.

15. **Supervision.** The project will be supervised directly by IFAD. Annual implementation support missions, followed by short follow-up missions six months later, will be organised with the participation of the government (MoA) and of the Kenya National Farmers Federation of Agricultural Producers (KENFAP). This will ensure independent participation of farmers' representatives in the supervision. They will be carried out in close collaboration with target County Agriculture Offices and with project partners and stakeholders. Supervision will not be conducted as a general inspection or evaluation, but rather as an opportunity to assess achievements and lessons jointly, to review innovations, and to reflect on improvement measures. Missions will therefore be an integral part of the KM cycle, with mission members playing a supportive and coaching role. To ensure continuity in this process, missions will be carried out by a core team of resource persons returning regularly, joined by specialists to address specific needs of a given year. Key features requiring specific attention include

[29] For compliance with the "Know your client" (KYC) rules.
[30] Expenditure pattern is often used a s a proxy for income estimate in household surveys.

the following: (i) evolution of farmers' organisations; (ii) e-voucher implementation and access to financial and non-financial services; (iii) business partnership development; (iv) business models for storage and processing facilities; (v) M&E and KM; and (vi) fiduciary compliance, and implementation of the project framework for transparency and publicity.

16. In June 2015, a comprehensive supervision mission will assess first results, identify business models to be further developed, and decide on corrections required to improve performance.

17. **Mid-term review.** A joint mid-term review will be organised by government and IFAD after 42 months (mid-2017), in close collaboration with the above-mentioned agencies and stakeholders. It will be carried out by consultants not involved in supervision missions so as to bring a fresh look at three years of project achievements and learning. The MTR will: (i) assess project achievements and interim impact, the efficiency and effectiveness of KCEP management, and the continued validity of KCEP design; (ii) identify key lessons learnt and good practices; and (iii) provide recommendations for the formulation of KCEP second phase. Specific issues to be addressed include the following: (i) the performance of the e-voucher system and its impact on supporting improved agriculture and on-farm grain handling practices; (ii) the performance of storage and processing facilities in terms of cost-effectiveness, revenues accruing to farmers, and effectiveness and impact of warehouse receipting; (iii) the performance of business partnerships in terms of revenues accruing to farmers and distribution of the value share; (iv) the performance of farmers' organisations; (v) the identification of most performing business models and opportunities for scaling up; (vi) progress in gender equity and social inclusion; (vii) recommendations to ensure the sustainability of project achievements beyond project completion.

Knowledge Management

18. **Objective.** The main purpose of knowledge management processes is to ensure that knowledge generated within the project is systematically identified, analysed, documented and shared, and that it is used to: (i) strengthen project performance and the delivery of KCEP objectives; (ii) be flexible and responsive to changing circumstances; (iii) support the dissemination of innovation to the benefit of stakeholders throughout the project area and beyond; (iv) provide information to support scaling up in a second phase; and (iv) identify important issues to convey to policy makers.

19. **Approach.** Information on successful business models and on innovative techniques promoted by the project will be disseminated to project stakeholders, so that they can strengthen their capacities and improve performance, through appropriate communication supports such as technical leaflets (also building on what is available already, notably material developed by NALEP), radio programmes, video films, case studies... Local languages will be used and printed material will be adapted to a largely illiterate audience. Reference material will also support KCEP progressive phasing, as farmers from new villages coming in every year will have access to reference material on successes and good practices. Furthermore, knowledge management will help in identifying farmers' groups in the project area that would host farmer-to-farmer extension activities. Finally, methodological documents will also capture KCEP successful approaches to build the capacities of project implementers and to facilitate replication and dissemination beyond the project area.

20. Tools and venues for knowledge sharing will be described in the M&E/KM manual. Areas in which project stakeholders intend detecting good practice and developing exchange of knowledge will be identified on an annual basis. Areas could include for example: agricultural intensification; negotiating business partnerships; service provision through agrodealers; access to credit through warehouse receipt; storage facilities, etc. Proposed good practices will be gathered through participatory methods. They will be screened and those presenting the best potential and opportunities to be replicated at a larger scale will be retained and validated by the multi-stakeholders' platforms. Successful models will be thoroughly analysed and documented and will constitute a key element to sustain the scaling up and the formulation of KCEP second phase. Extensive dissemination through appropriate supports and communication channels will then be carried out based on a communication plan, including also farmer-to-farmer extension and in-district farmers' exchanges.

21. **Peer learning groups.** The KM Officer will set up knowledge sharing/peer learning groups among key stakeholders (for example farmer groups, owners of storage/processing facilities) per value chain so that they can share knowledge and interact as a learning community on key areas of interest, such as access to productivity, post-harvest losses, access to financing or markets.

22. **Dialogue.** Multi-stakeholder dialogue will be developed on an annual/semi-annual basis in the Project Steering Committee. It will also be promoted in the County Agriculture Stakeholder Fora under the responsibility of the PIU, with a view to assess progress in implementing project activities, building on KM and analysis of M&E data. The M&E and KM Officers will be responsible for ensuring that women and youth are participating in the dialogue as equal partners, and that issues specifically related to women and youth are being adequately addressed.

23. **KM Framework and Implementation Plan.** In consultation with project stakeholders and in collaboration with the PIU team, the same consultant hired to design the M&E system will prepare a detailed KM and Communication framework (as part of the M&E/KM manual), including objectives, responsibilities and methodology, together with an implementation plan for the first year. The framework will also include a strategy on communication, which will outline how knowledge will be disseminated and will identify most appropriate channels (including radio, video, printed material…) according to the target audience. The M&E/KM consultant will further provide technical guidance in implementing the system and further improving it based on experience, through a follow-up mission in the second year. The framework will be updated every year.

Appendix 7: Financial management and disbursement arrangements

I. Introduction.

1. Appropriate and accurate Financial Management systems are established as a key element for the achievement of the project objectives and are intended to contribute to the efficiency, effectiveness and economy in the management and reporting of the project financial resources. These systems will accommodate financial planning, through Annual Work Planning and Budgeting process (AWPBs) (see also Annex VI) financial data capturing and accounting system, financial management, monitoring and reporting. These systems will fully comply and work within the existing GoK Financial control and management Regulations and Procedures as contained in the 2004 Act of the Laws of Kenya, as well as Treasury circulars governing the management of the Donor Funds Nos. 18/98 of 22nd February 1999, and 3/2000 of 1st March 2000. In addition, the systems and procedures will ensure compliance with the IFAD Audit guidelines and other financial reporting requirements as contained in the Financing Agreement and the IFAD letter to the Borrower (LTB).

II. Financial Management Arrangements.

2. The financial management arrangements for the Project will be put in place along the lines of previous IFAD funded Projects implemented by MOA such as: The Smallholder Horticulture Marketing Programme - SHOMAP. The proposed financial management arrangements for KCEP will draw from the best practices observed in this project and will be tailored to suit the specific requirements of KCEP.

3. Books of accounts. The project will maintain accounts and records in accordance with generally accepted and consistently applied accounting practices adequate to reflect the operations, resources and expenditures related to the project until the Financing Closing Date, and shall retain such accounts and records for at least ten (10) years thereafter.

4. It is agreed that the project will procure a financial management software which will be customised to meet the purposes of the Project in terms of financial reporting. The procurement process must be done also taking into consideration the existing experiences from ongoing donor funded Projects with the financial management software they use. The software will be installed at PIU level and also at sub-Unit level. The software shall be integrated, on-line and synchronised among PIU and sub-Unit. The Project shall also consider the possibility to install the software at the Service Providers for a better integrated accounting and also to better plan and monitor the Project's funds. Expenditures will be recognised by the project as they are really incurred rather than when funds are advanced to partners. PIU is recommended to include in the procurement tender/contract provisions for the financial management software an ad-hoc training programme and technical assistance for a consistent period (at least the first 6 months and periodically as needed) for all the concerned staff.

5. The needed requirements for the software are the ability to analyze/provide:

- Expenditures by components & categories per legal agreement;
- Expenditures by Financier;
- Financial Statements according to the used accounting policy (cash basis) ;
- Advances utilisation by Service Providers & staff duly aged to facilitate follow-up;
- Bank balances held by service providers;
- Commitments beyond actual billings/ invoices;
- Budgetary control information to ensure expenditures do not exceed set limits;
- Bank reconciliation using the system;
- Receivables in form of replenishment applications in transit & any refunds that may be due from Government;
- Withdrawal applications/SOEs (Statement of Expenditures) report (Form 102) automatically produced by the system;
- Contract & Procurement plan monitoring;

- Integrated accounting putting on line PIU, Sub-Units and, in case, Service Providers;
- All financial reporting in IFAD's standard reporting formats.

6. The books of accounts will be consolidated and maintained centrally at the PIU, will be based on the double entry system of book keeping and will use the IPSAS cash basis of accounting. The software will accurately record transactions and balances related to the project and will capture financial transactions at all levels of implementation.

7. Financial Personnel KCEP accounting/financial management will be carried out by dedicated staff. Considering the imminent start of the project implementation MOA-Permanent Secretary will second key staff from the Ministry to the Project for the first year of implementation. It is recommended that a capacity assessment for accounting and financial management skills is required for the to-be seconded key staff before they are actually seconded At the same time, the recruitment process will take place in order to have all finance staff of the project on board by the end of the 1st year of implementation. The secondees will be allowed to apply to the Project positions. A specific No Objection shall be submitted to IFAD to the appointment of the Finance Officer. Detailed ToRs of Financial Management staff are attached in Attachment 2.

8. FM/Procurement SupportIFAD will provide ongoing financial management support to the project by i) sending a Financial Management and Procurement Specialist to the project at periodic intervals, and ii) through Kenya-IFAD Country Office. Such support is envisaged especially in the first year of project implementation and thereafter only when requested by the PC and/or IFAD Supervision Missions/CPM. The level of support to be provided to the Project will be decided by IFAD in consultation with the Project Coordinator. Implementation support in the areas of financial management and procurement will specifically help the project cope with preparation of Withdrawal Applications, Designated Account Reconciliations and will also conduct prior review of procurement transactions/documentation on behalf of IFAD. The main role of the Specialist is that of a mentor and facilitator. At the same time he/she will protect IFAD's interests and will try to ensure efficient utilization of economic resources and the full respect of the procedures.

9. Funds flowThe Borrower/Recipient shall make the proceeds of the Financing available to the Project Parties upon terms and conditions specified in the Financing Agreement or otherwise approved by the Fund for the purpose of carrying out the Project. IFAD will disburse funds for the project to the Designated Account (DA) in USD (see Letter to the Borrower for definition of Designated Accounts) maintained with the Central Bank of Kenya (CBK)or with a Commercial Bank acceptable to IFAD managed and monitored by the CBK; then the funds will flow from the DA to the PIU Project Account, in local currency Kenya Shillings for funding the programme activities. From the PIU the funds will be transferred predominantly ii) to the two Project branches; ii) to Equity Bank, which will have a dedicated account for KCEP funds, for financing the agricultural "Vouchers" according to the ad-hoc Memorandum of Understanding which will be established between Equity Bank and the Project and iii) to the identified Service Providers according to the ad-hoc Memorandum of Understanding which will be established with the Project on PBA basis. See attached flow of funds chart in Appendix 1. Equity Bank has been selected based on their strong experience in similar activities.

10. It has been observed that the disbursement process for existing Projects is complex as it includes many steps and many people/entities. The transfer of money from the DA to the Project Account can take from 3 to 10 weeks. A Donor PFM Working Group was created and is in place as a platform to review the bottlenecks in the in-country fund-flow process. IFAD Kenya Office CFS representative will be part of the Donor PFM Working Group.

11. The PIU shall plan very accurately the needs of fundsin accordance with the approved AWPBs and make timely requests for funds to MOA taking into considerations the delays of the process.

12. Financial Statements :The Borrower/Recipient shall deliver to the Fund detailed financial statements of the operations, resources and expenditures related to the Project for each Fiscal Year prepared in accordance with standards and procedures acceptable to the Fund (IPSAS cash basis standards have been using in other IFAD Projects) and deliver such financial statements to the Fund within four (4) months of the end of each Fiscal Year. In addition, the borrower/recipient will submit every 6 months the consolidated, audited financial statements.

13. Financial Reports: The following reports / other financial information need to be furnished:

(a) Before each Project Year, the Lead Project Agency shall, if required, submit the draft Project AWPB to the oversight body designated by the Borrower/Recipient for its review. When so reviewed, the Lead Project Agency shall submit the draft Project AWPB to the Fund for comments no later than sixty (60) days before the beginning of the relevant Project Year.

(b) The Lead Project Agency, or other party so designated in the relevant Agreement, shall furnish to the Fund quarterly reports on the Project, in such form and substance as the Fund shall reasonably request. At a minimum, such reports shall address (i) quantitative and qualitative progress made in implementing the Project and achieving its objectives, (ii) problems encountered during the reporting period, (iii) steps taken or proposed to be taken to remedy these problems, (iv) the proposed programme of activities and the progress expected during the following reporting period and (v) reconciliation of DA and PA.

(c) The Borrower/Recipient and the Project Parties shall promptly furnish to the Fund such other reports and information as the Fund shall reasonably request on any financial matter relating to the Financing or the Project or any Project Party.

(d) The Borrower/Recipient shall promptly inform the Fund of any condition that interferes with, or threatens to interfere with, the maintenance of Loan Service Payments.

(e) The Project Member State shall promptly furnish to the Fund all information that the Fund may reasonably request with respect to financial and economic conditions in its territory, including its balance of payments and its external debt.

14. Since GOK 2013-2014 National Budget has already been approved, KCEP Funds will be incorporated into the National Budget through an ad-hoc amendment as per Public Financial Management Act (PFMA) 2012 and the Kenya Constitution 2010 (art. 223).

15. The Fund will carry out financial reporting to the European Union (the donor of large part of the project funding) according to the Terms of the Contribution Agreement to be signed between EU and IFAD.

16. <u>EU Disbursement Schedule</u>: EU grants are disbursed to IFAD in tranches as per disbursement schedule included in the Contribution agreement. The last tranche of the grant (generally around 3-5%) will be disbursed upon justification of 100% of eligible expenditure. This will require pre-financing of this last tranche. In order to use the full amount of the EU Grant, it is suggested that i) IFAD will negotiate with GoK to pre-finance the last tranche, as IFAD is not allowed to do so; (ii) the last tranche of the EU grant be negotiated at the lowest possible amount; and (iii) the Project will prepare accurate cash flow plans to mitigate cash flow problems towards the end of project implementation.

17. As the EU grant is denominated in EURO and the exchange rate used in the costing of the programme was 1.30 USD/€, the value in USD of the EU grant will have to be frequently checked to assess the impact on the overall grant allocation and on the balance to be used under KCEP. To this end, each AWPB shall be prepared considering the actual USD balance of EU grant funds.

18. <u>Taxation</u>: All taxes and duties on Project activities will be funded by the Government of Kenya and will count towards its counterpart funding contribution.

19. **<u>Audit:</u>** The Borrower shall:

(a) each Fiscal Year, have the accounts relating to the Project audited in accordance with auditing standards acceptable to the Fund and the Fund's *Guidelines on Project Audits (for Borrowers' Use)*by independent auditors acceptable to the Fund. In this connection, an audit by the National Auditor General will be considered to meet the requirements if they use International Standards of Auditing and follow IFAD approved Audit Terms of Reference;

(b) within six (6) months of the end of each Fiscal Year, furnish to the Fund a certified copy of the audit *report*. The Borrower shall submit to the Fund the reply to the management letter of the auditors within one month of receipt thereof;

(c) if the Borrower does not timely furnish any required audit report in satisfactory form and the Fund *determines* that the Borrower is unlikely to do so within a reasonable period, the Fund may engage independent auditors of its choice to audit the accounts relating to the Project. The Fund may finance the cost of such audit by withdrawal from the DA;

(f) Provide three separate audit opinions (on the financial statements, on the SOEs, and on the Designated Account), a management letter, and any additional reports required by IFAD; an additional opinion will be required on funds used for "e-vouchers activity" managed by Equity Bank.

20. For KCEP Project, the external audit will be carried out by the National Auditor General as independent auditor for statutory audit.

21. The audit will be shared with the EU based on the Terms of the Contribution Agreement to be signed between EU and IFAD.

22. **Internal Audit** According to IFAD best practices, it is suggested to MOA to identify a resource person which will be charged of KCEP internal audit even on a periodical/part time basis in order to assure, especially in the first phase of implementation the proper respect of the procedures and guidelines.

23. **Withdrawals from the DA**: Between the date of entry into force of the Financing Agreement and the Financing Closing Date, the Borrower/Recipient may request withdrawals from the DA of amounts paid or to be paid for Eligible Expenditures. The Fund shall notify the Borrower/Recipient of the minimum amount for withdrawals. No withdrawal shall be made from the DA until the first AWPB has been approved by the Fund and the Fund has determined that all other conditions specified in the Financing Agreement as additional general conditions precedent to withdrawal have been fulfilled. By exception, and as specifically agreed in advance and incorporated in The Financing Agreement, withdrawals to meet the costs of starting up the Project may be made from the date of entry into force of the Agreement but before the satisfaction of the general conditions precedent to withdrawal, subject to any limits established in the Financing Agreement.

24. **Eligible Expenditure**The Financing shall be used exclusively to finance expenditures meeting each of the following eligibility requirements:

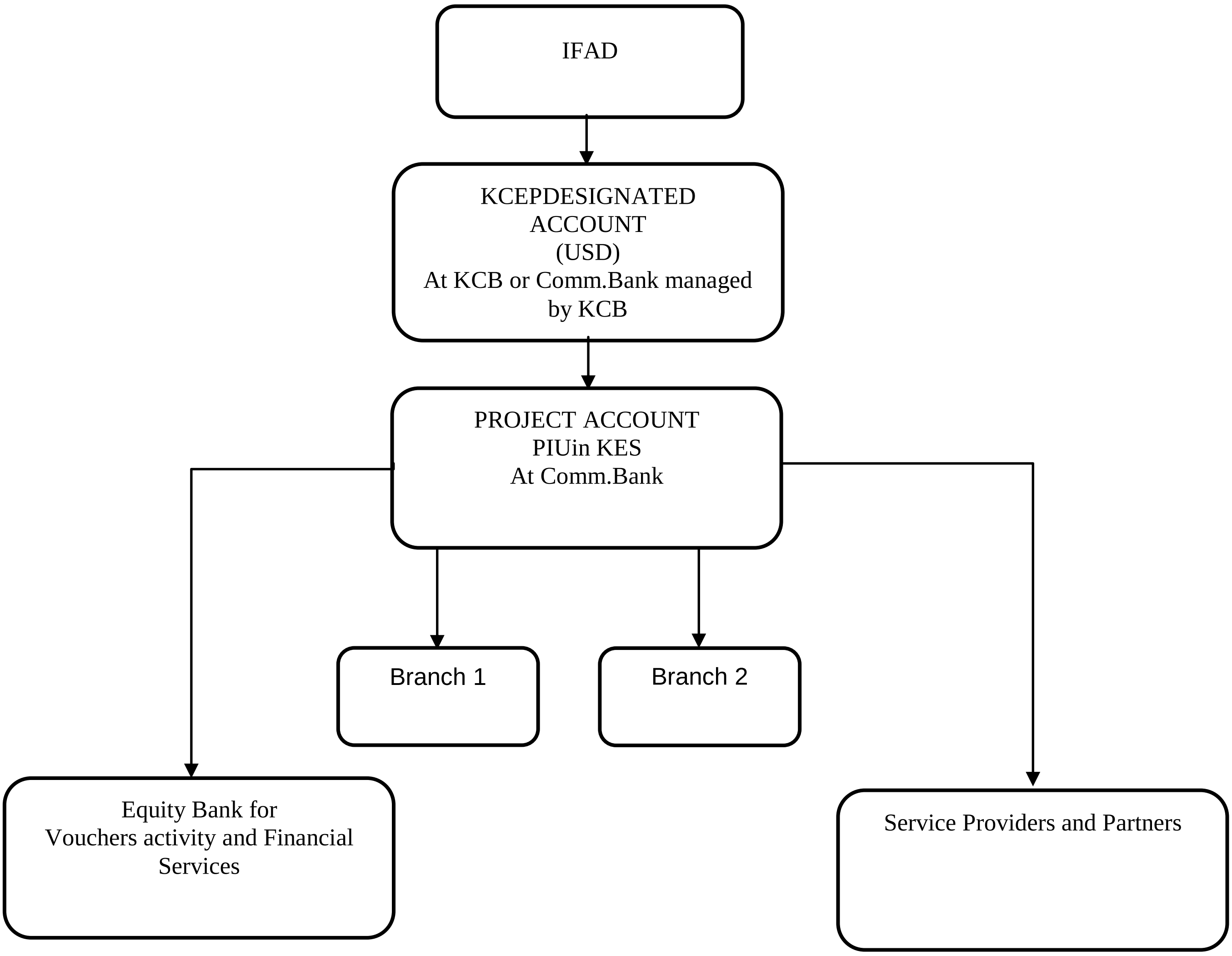
a) The expenditure shall meet the reasonable cost of goods, works and services required for the Project and covered by the relevant AWPB produced in or supplied from any country and procured in conformity with the Fund's Procurement Guidelines.
b) The expenditure shall be incurred during the Project Implementation Period, except that expenditures to meet the costs of winding up the Project may be incurred after the Project Completion Date and before the Financing Closing Date.
c) If the Agreement allocates the amount of the Financing to categories of Eligible Expenditures and specifies the percentages of such Eligible Expenditures to be financed by the Financing, the expenditure must relate to a category whose allocation has not been depleted, and shall be eligible only up to the percentage applicable to such category.
d) The Fund may from time to time exclude certain types of expenditure from eligibility.
e) Any payment prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, shall not be eligible for financing by the Financing.

25. Any payments to a person or an entity, or for any goods, works or services, if making or receiving such payment constitutes a coercive, collusive, corrupt or fraudulent practice by any representative of the Borrower/Recipient or any Project Party, shall not be eligible for financing by the Financing.

26. The Project should note **IFAD's Anti-corruption policy** where zero-tolerance applies where it has determined, through an investigation performed by the Fund, the borrower or another competent entity, that fraudulent, corrupt, collusive or coercive actions have occurred in projects financed through its loans and grants, and it shall enforce a range of sanctions in accordance with the provisions of applicable IFAD rules and regulations and legal instruments. 'Zero tolerance' means that IFAD will pursue all allegations falling under the scope of this policy and that appropriate sanctions will be applied where the allegations are substantiated. This policy applies to IFAD-funded activities. The Fund will continue to improve its internal controls, including controls inherent in or pertaining to its project activities, so as to ensure that it is effective in preventing, detecting and investigating fraudulent, corrupt, collusive and coercive practices. The Fund shall take all possible actions to

protect from reprisals individuals who help reveal corrupt practices in its project or grant activities and individuals or entities subject to unfair or malicious allegations.

ATTACHMENT 1. FLOW OF FUNDS CHART



ATTACHEMENT 2. ToRs OF FINANCIAL MANAGEMENT STAFF

Financial and Administrative Manager

Duration: 2 years renewable based upon positive performance assessment on a full-time basis with a probation period of 6 months.

Qualifications: A professional accounting qualification, higher degree in economics, management or business administration, or a specialised degree in accounting and finances from a recognized high school; practical experience of at least 8 years in project financial management and accounting procedures in or with internationally financed projects (with IFAD will be an added advantage); a good knowledge of computer applications in the above related matters. Fluent (reading, writing and speaking) in English and in Kiswahili.

Location: Nairobi with occasional visits in the country and the region.

Main duties: Under the direct supervision and authority of the Project Coordinator, the Financial and Administrative Managerwill manage the departments of finance, accounting and audit of KCEP with the assistance of one Accountant and one Procurement Officer and in close collaboration with the M&E Officer. The specific duties are:

- Finances:
  - Timely production of all financial statements as per recommended formats required by the financing agreements and by the national legislation;
  - Management of project bank accounts;
  - Payment of suppliers’ invoices upon approval by the technical officers and management;
  - Approval of payments by cheques, petty cash or any other legal method;
  - Daily, weekly and monthly follow-up of the project bank accounts in view of timely and sufficient replenishments of funds to avoid any disruption of the activities of the project;
  - Preparation of withdrawals applications of project funds from the loan/grant accounts of project financiers as per directives and methods duly approved and directed by them.
- Accounting:
  - Management of the department of accounting to ensure timely monthly, quarterly and annual production of financial statements run by the procured financial management software;
  - Presentation of accounts in accordance with national and international standards generally accepted and detailing accounts per nature, origin, destination, budget, location of the resources and expenditures;
  - Strict, regular follow-up of the justification of expenditure to be provided by Project Partners, including external service providers;
  - Close collaboration with the other chief accountants of IFAD-supported projects for the establishment a cost effective system of protection of the Project assets and an efficient system of distribution of fuel and office consumables;
  - Close collaboration with the KCEP M&E Officer for the establishment of the M&E system and the connection between this system and the accounting system;
  - Supervising the KCEP Account.
- Auditing:
  - Prepare for and facilitate independent audit missions as required by the financing agreements and the national legislation and ensure the follow-up to the recommendations of these missions;
  - Collaborate with the eventual Internal Auditor with a view to improving the accountability, transparency and efficiency of the project operations.
- Any other assignment or relevant duties in the field of his/her competences as may be reasonably assigned.

Outputs (expected results):

1. Project funds always available and disbursed for eligible expenditures and managed as per financier rules and national legislation.
2. Financial Statements and audit reports issued timely and reflecting the actual situation of resources and uses of project funds with indicators of project performance
3. Excellent relations with all project partners at international, national, provincial and county levels; effective and efficient assistance to the various project partners, for all project components;
4. Cost effective systems of protection of the assets, including production of statistical accounting information for the M&E system.

Accountant

Duration:2 yearsrenewable based upon positive performance assessment on a full time basis with a probation **period** of 6 months.

Location: Nairobi with **occasional** visits in the country

Qualifications: At least a specialised degree in accounting and finances from a recognized high school; practical experience of at least 5 years in a project financial management unit and acquainted with accounting procedures in the public administration sector in or with internationally financed projects; a previous experience with IFAD procedures and financial regulations would be an added advantage; a good knowledge of computer applications in accounting such as TOMPRO, PASTEL, SUN would be essential. Fluent (reading, writing and speaking) in English and in Kiswahili. A professional accounting qualification is desirable.

Used to work under pressure and meet crucial deadlines.

Main Duties: Under the direct supervision of the FAM, the Accountant will have the following specific tasks:

1. Verification of supplier's invoices for payment;
2. Timely posting of all project accounting vouchers on the accounting software;
3. Exercise proper custody of all posted vouchers and other accounting documents;
4. Verification and checking of bank statements and accounting software printouts;
5. Supervise and direct the accounting and logistical functions, to ensure efficiency;
6. preparation and submission of periodical financial reports on deadlines (GOK and IFAD formats);
7. preparation of Withdrawal Applications;
8. Regular spot check of petty cash fund and other reconciliation reports;
9. Timely replenishment of operational account with project bank account;
10. Authorisation of payment vouchers;
11. deputise for the FAM in his absence;
12. Facilitate financial audits and implementation support missions;
13. Regular follow up of smooth functioning of the accounting software, and make contact with ITC staff and software suppliers;
14. Submission of account printouts by components to the heads of components for analysis and comments;
15. Give advice to management on accounting and administration matters;
16. Liaise with bankers for bank matters;
17. Any other relevant duties as may reasonably be assigned by the FMA.

Appendix 8: Procurement

1. **Procurement Regulations applicable to KCEP**: IFAD's procurement guidelines specify that national procurement systems will be used under the conditions that the systems are assessed as satisfactory or better. The project will adopt the Kenya Public Procurement and Disposal Act 2005, the Public Procurement Regulations 2006, and the IFAD Procurement Guidelines 2010. National systems will apply to all procurement except international competitive bidding (ICB) for contracts above an agreed threshold. The IFAD guidelines state that ICB procurement will follow the procedures recommended by the World Bank. Kenyan national procurement systems under the oversight of the Public Procurement Oversight Authority can be relied upon to undertake procurement below the agreed ICB thresholds. Community procurement arrangements will be developed in order to delegate more implementation responsibilities away from the PMU. The guidelines for community procurement in the WB and other projects will be adapted for this purpose.

2. Each Annual Procurement Plan will identify procedures which must be implemented by the Borrower in order to ensure consistency with the IFAD Procurement Guidelines. IFAD may require that all bidding documents and contracts and other records for procurement of goods, works and services financed by the Loans/Grants are:

(i) Available for full inspection by the Fund of all bid documentation and related records;
(ii) Maintained for three years after completion of the bid or contract; and
(iii) IFAD may also require that the project cooperate with agents or representatives of the Fund carrying out an audit or investigation into procurement issues.

3. IFAD may attach Standard Bidding Documents (SBD) to the Financing Agreement / Letter to the Borrower, so that these are used for undertaking procurement under this project and consistency with IFAD Procurement Guidelines is ensured. Concepts relating to Accountability, Competition, Fairness, Transparency, Efficiency, Effectiveness & Economy and Value for Money contained in IFAD's Procurement Guidelines and which are central to IFAD's Procurement Philosophy are discussed below.

4. The Procurement Process involvesthe purchasing, acquiring, hiring or obtaining of goods, works and services by any contractual means and can be defined in more detail as procurement of goods, procurement of works and procurement of services. The procurement cycle consists of General Procurement Notice, Tender Document Preparation, Pre-Qualification, Advertisement, Receipt of Tenders, Public opening of Tenders, Evaluate of Tenders, Award of Contract, Issue of Work Order or Purchase Order and Performance of contract.

5. Responsibilities of the Borrower/ Recipient officials :Borrower/recipient officials engaged in procurement activity have a duty to:

a. Maintain and enhance the reputation of the borrower/recipient country by:

- Maintaining the highest standards of honesty and integrity in all professional relationships;
- Developing the highest possible standards of professional competence;
- Maximizing the use of IFAD funds and other resources for which they are responsible for the purposes for which these funds and resources were provided to the borrower/recipient country; and
- Complying with both the letter and the spirit of:
- The financing agreement;
- The laws and regulations of the borrower/recipient country;
- Accepted professional ethics; and
- Contractual obligations;

b. Declare any personal interest that may affect, or might reasonably be deemed by others to affect, impartiality in any matter relevant to their duties (conflict of interest). In a situation of this nature, the official concerned should not participate in any way in the procurement process, to avoid misprocurement; and

c. Respect the confidentiality of information gained in the course of duty and not use such information for personal gain or for the unfair benefit of any bidder, supplier or contractor. Information given in the course of their duties shall be true, fair and not designed to mislead.

6. **Procurement Planning:** Accurate and realistic planning and prioritization of needs is an essential prerequisite to effective procurement and a key tool for monitoring project implementation.

7. At the time of negotiation of each project, the borrower/recipient, in consultation with IFAD, must establish an 18-month procurement plan, which must include, as a minimum:

a. A brief description of each procurement activity to be undertaken during that period;
b. The estimated value of each activity;
c. The method of procurement to be adopted for each activity; and
d. The method of review IFAD will undertake for each activity (section III.H of IFAD Procurement Guidelines) guidelines).

8. Where national procurement plan templates exist and are agreed by IFAD as suitable, then such templates should be used. If no such templates exist, IFAD will adopt those from other international financing institutions with which the borrower/recipient is familiar and which are in use for other projects. Borrowers/recipients are required to keep plans updated frequently to reflect changes to the project or timescales.

9. IFAD's review of and no objection to procurement plans is compulsory under all financing agreements directly supervised by IFAD. KCEP is one such agreement.

10. **IFAD monitoring and review** To ensure that the procurement process is carried out in conformity with IFAD procurement Guidelines and with the agreed procurement plan, IFAD will review arrangements for procurement of goods, works and services proposed by the borrower/recipient, including:

a. Contract packaging;
b. Applicable procedures and procurement methods;
c. Bidding documentation;
d. Composition of bid evaluation committees;
e. Bid evaluations and award recommendations; and
f. Draft contracts and contract amendments.

11. The extent to which these review procedures will be applied to each project or programme will be contained in the letter to the borrower/recipient and the procurement plan.

12. For full details on the review processes, refer to the Procurement Handbook.

13. **Misprocurement**: IFAD will not finance expenditures for goods, works or consulting services that have not been procured in accordance with IFAD Procurement Guidelines and the financing agreement. In such cases, IFAD may, in addition, take other remedial action under the financing agreement, including cancellation of the amount in question from the loan and/or grant account by declaring it ineligible. Even if the contract was awarded following IFAD's "no objection" statement, the Fund may still declare misprocurement if it concludes that this statement was issued on the basis of incomplete, inaccurate or misleading information furnished by the borrower/recipient, or that the terms and conditions of the contract had been modified without IFAD's approval.

14. **KCEP Specific arrangements.** The PMU, with the support of the Special Procurement Committee (see par. below), will prepare tender documentation and terms of reference for the competitive procurement of both goods and services. Service providers and implementing partners will be responsible for their operational expenditures and for the funds managed by them, as well as receiving and recording all goods procured by the PMU.

15. Establishment of a KCEP Special Procurement Committee (SPC). An ad-hoc Committee will be established by MOA in order to i) fast track each step of KCEP procurement processes; ii) monitoring on the overall procurement processes of the Project putting in place corrective actions when needed; iii) reporting to KCEP-PIU and MOA eventual anomalies in procurement processes; iv) cooperate with KCEP in planning procurement processes and in preparing procurement documentation in order to assure the right timing of the processes and that tender documents are accurately prepared; follow up

on the requests of Non Objections to avoid delays in treatment. Quarterly meetings will be organized between SPC, the PMU and the PS.

16. Procurement of vehicles and motorcycles. It is suggested that all project vehicles and motorcycles will be procured through United Nations as per IFAD best practices.

17. E-vouchers payment system. This activity will be carried out through the Project financial partner/co-financing, Equity Bank.

18. **Use of performance-based contracts for Service Providers.** For Contracts/MoU between PMU and the Service Providers, it is suggested that performance-based contracts in the delivery of hardware and software goods and services will be adopted. Such contracts will focus on outputs and outcomes of service provision, with clear milestones, with triggers for contract extension linked to achievements. There will be no automatic extensions in time or scope. All contracts/MOUs will include the payment schedules with performance incentives and penalties, monitoring and quality assessment, and value-for-money assessment. They will also define the key responsibilities of the partners at national and field levels, and will be jointly monitored and supervised. This is not dissimilar to current government personnel procedures which incorporate performance based assessment.

19. **Review of Procurement Decisions by IFAD** For the purposes paragraph 81 of IFAD's Procurement Guidelines, the Borrower and IFAD will agree on the thresholds for IFAD prior review of procurement decisions. The following thresholds are suggested and will be confirmed in the letter to the borrower:

- the award of any contract for civil works above US Dollars Fifty Thousand Only (USD 50,000) shall be subject to prior review by the IFAD Country Director (CD) or his authorized representative on behalf of the Fund;
- the award of any contract for goods and equipment above US Dollars Thirty Thousand Only (USD 30,000) shall be subject to prior review by the IFAD Country Portfolio Manager (CPM) or his authorized representative on behalf of the Fund;
- the award of any contract for consulting or other services above US Dollars Fifteen Thousand Only (USD 15,000) shall be subject to prior review by the IFAD Country Portfolio Manager (CPM) or his authorized representative on behalf of the Fund;

20. The aforementioned may be modified from time to time as notified by the Fund to the Borrower / Recipient.

Conclusion.

1. According to the experience for Projects lead by MoA, the main concern on procurement, is the long duration of the procurement processes which is mainly due to: i) several steps of approval along the process, ii) many approval steps without the provision of a Delegation of Authority; iii) tender documentation insufficiently accurately prepared and iv) lack of planning procurement processes. In this regard, will be crucial the active role of the Procurement Special Committee and the pro-active approach of the PMU in terms of activity planning and accuracy of procurement documentation.

Appendix 9: Programmecost and financing

A. Main Assumptions

1. **Introduction.** This Annexe describes the assumptions underlying the derivation of costs, estimated costs and financing plan for the programme. KCEP programme costs are based on 2013 rates and estimates by the mission.

2. **Programme Period.** KCEP will be financed over a four-year period starting from beginning 2014 with a preparatory period (from October 2013 to December 2013).

3. **Inflation.** The base rate of inflation has been set at 3 percent up to programme start-up and at 4 per cent for the whole duration of the programme (source: Central Bank of Kenya). For international foreign inflation, September 2012 value of Manufactures Unit Value Index was applied, see the Table 1 below.

Table 1: Domestic/International Inflation (%)

	Up to programme start	2014	2015	2016	2017
Domestic Inflation Rate	3	4	4	4	4
International Inflation Rate	0	1.9	1.9	1.9	1.9

4. **Exchange Rate.** The exchange rate was fixed at 1USD = 84Ksh as per average situation in 2013. Programme costs are presented in both Khs and USD. The loan is denominated in €. An exchange rate of 1.3 USD/€ was used[31].

5. **Physical and price contingencies**. The EU does not recognise price contingencies and only allows the use of physical contingencies for unforeseen events and based on a specific authorisation. For these reasons, both type of contingencies were not explicitly included in the costing of KCEP and unit cost and quantities were increased accordingly to account for them.

6. **Taxes and Duties**. Most items procured under the Programme would be purchased locally. The Government of Kenya will finance the cost of all taxes on goods and services procured under the Programme.

7. **Expenditure Accounts.** KCEP expenditure accounts will be the following:

A. Civil Works
B. Equipment and Material
C. TA, Training and Studies
D. Financial Services
E. Recurrent Costs

8. **Programme Structure.** The Programme has three components, as follows:

(a) Enhancing productivity and quality;
(b) Post-harvest management and market linkages;
(c) Financial inclusion

9. **Programme Organisation and Management.** Theoverall responsibility for the management and implementation of the Programme will be at the Programme Implementation Unit under the supervision of the Ministry of Agriculture.

[31]As the EU grant is denominated in EURO and the exchange rate used in the costing of the programme was 1.30 USD/€, the value in USD of the EU grant will have to be frequently checked to assess the impact on the overall grant allocation and on the balance to be used under KCEP. To this end, each AWPB shall be prepared considering the actual USD balance of EU grant funds.

B. Programme Costs

10. The total investment and recurrent Programme costs is estimated at USD 39.1 million (Khs 3.3 billion). The foreign exchange component is estimated at USD 6.9 million. Taxes make up approximately USD 1.7 million (4 percent of the total Programme costs). Summary tables and detailed cost tables are presented in Appendix 9.

11. **Start-up costs.** The costs for start-up activities have been estimated to be USD 163,000. For details refers to par. 84 and to Appendix 5. This amount will be funded by IFAD start-up funds (available before entry into force of KCEP) and by the EU grant in accordance with the Terms of the Agreements, which will be signed between EU and IFAD and between GoK and IFAD.

Programme Costs by Component (USD '000)

	(Ksh '000)			(US$ '000)			% Foreign	% Total Base
	Local	Foreign	Total	Local	Foreign	Total	Exchange	Costs
1. Preparatory and implementation support activities	150 889.2	161 658.0	312 547.2	1 796.3	1 924.5	3 720.8	52	10
2. Cereal Productivity Enhancement	311 679.5	4 200.0	315 879.5	3 710.5	50.0	3 760.5	1	10
3. Post-harvest Management and Market Linkages	342 652.5	7 476.0	350 128.5	4 079.2	89.0	4 168.2	2	11
4. Financial Inclusion	1 614 744.4	394 916.9	2 009 661.3	19 223.1	4 701.4	23 924.5	20	61
5. Project Management	286 655.3	12 976.3	299 631.6	3 412.6	154.5	3 567.0	4	9
Total BASELINE COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100
Physical Contingencies	-	-	-	-	-	-	-	-
Price Contingencies	-	-	-	-	-	-	-	-
Total PROJECT COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100

Programme Costs by expenditure account (USD '000)

	(Ksh '000)			(US$ '000)			% Foreign	% Total Base
	Local	Foreign	Total	Local	Foreign	Total	Exchange	Costs
I. Investment Costs								
A. Works	68 460.0	-	68 460.0	815.0	-	815.0	-	2
B. Equipment & Materials	1 276 989.6	399 188.9	1 676 178.5	15 202.3	4 752.2	19 954.5	24	51
C. TA, Training, Studies and w orkshops	646 076.8	48 747.8	694 824.5	7 691.4	580.3	8 271.7	7	21
D. Grants	460 551.0	-	460 551.0	5 482.8	-	5 482.8	-	14
Total Investment Costs	2 452 077.4	447 936.6	2 900 014.0	29 191.4	5 332.6	34 524.0	15	88
II. Recurrent Costs								
A. Salaries and allow ances	231 235.2	-	231 235.2	2 752.8	-	2 752.8	-	7
B. Operating costs	23 308.2	133 290.6	156 598.8	277.5	1 586.8	1 864.3	85	5
Total Recurrent Costs	254 543.4	133 290.6	387 834.0	3 030.3	1 586.8	4 617.1	34	12
Total BASELINE COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100
Physical Contingencies	-	-	-	-	-	-	-	-
Price Contingencies	-	-	-	-	-	-	-	-
Total PROJECT COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100

12. **Disbursement Accounts and Financing Rules.** KCEP financiers are: European Union (EU), Equity Bank (partner), Private Sector, the beneficiaries and Government of Kenya. The disbursement accounts and the financing rules adopted for each of the disbursement accounts are summarised in Table 5.

Disbursement Accounts and Financing Rules

Description	Financing Rules
1. Civil Works	EU Grant (100%)
2. Equipment and Material	EU Grant (100%)
3. TA, training and studies	EU Grant (100%)
4. Financial services (average)	EU Grant (30%); Private sector (50%); Benef. (20%)
5. Recurrent Costs	EU Grant (100%)

C. Financing

13. The whole Programme is estimated to have an overall cost of US$ 39.1 million (total investment and recurrent programme costs) of which: USD 23.9 million (59% of total programme costs) from an EU Grant; USD 3.7 million (10% of total programme cost) from Equity Bank; 4.7 million (12% of total programme costs) from private sector; USD 4.6 million (12% of total programme costs) from the beneficiaries; and the Government Kenya contribution is estimated at USD 3.1million (8% of total programme costs) to cover taxes and duties foregone. The EU has announced that in addition to current funding of Euro 17.6 million, a further allocation of Euro 10 million is in the pipeline for 2014. Upon confirmation, resources will be allocated to construction and rehabilitation of storage facilities, road spot improvements and other eligible activities programmed under the KCEP. The tables below provide a summary by Programme components and expenditure accounts of the proposed financing arrangement and other summary financing tables are provided in attachment 1.

Financing Plan by Components (USD ‘000)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total			Local (Excl.	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	Taxes)	Taxes
1. Preparatory and implementation support activities	3 255.2	87.5	-	-	-	-	226.8	6.1	75.0	2.0	163.8	4.4	3 720.8	9.5	1 924.5	1 632.5	163.8
2. Cereal Productivity Enhancement	3 087.0	82.1	-	-	-	-	71.8	1.9	-	-	601.7	16.0	3 760.5	9.6	50.0	3 108.8	601.7
3. Post-harvest Management and Market Linkages	3 216.7	77.2	350.6	8.4	-	-	46.2	1.1	-	-	554.7	13.3	4 168.2	10.6	89.0	3 412.3	666.9
4. Financial Inclusion	9 875.4	41.3	4 282.0	17.9	3 740.3	15.6	4 354.6	18.2	-	-	1 672.2	7.0	23 924.5	61.1	4 701.4	19 030.9	192.2
5. Project Management	3 447.0	96.6	-	-	-	-	-	-	-	-	120.0	3.4	3 567.0	9.1	154.5	3 292.6	120.0
Total PROJECT COSTS	22 881.4	58.5	4 632.6	11.8	3 740.3	9.6	4 699.4	12.0	75.0	0.2	3 112.4	8.0	39 141.0	100.0	6 919.4	30 477.1	1 744.6

Financing Plan by Expenditure Accounts (USD ‘000)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total			Local (Excl.	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	Taxes)	Taxes
I. Investment Costs																	
A. Works	684.6	84.0	-	-	-	-	-	-	-	-	130.4	16.0	815.0	2.1	-	684.6	130.4
B. Equipment & Materials	10 140.0	50.8	4 160.0	20.8	3 740.3	18.7	-	-	-	-	1 914.3	9.6	19 954.5	51.0	4 752.2	14 768.0	434.3
C. TA, Training, Studies and w orkshops	6 482.5	78.4	350.6	4.2	-	-	344.8	4.2	75.0	0.9	1 018.8	12.3	8 271.7	21.1	580.3	6 560.4	1 131.0
D. Grants	1 006.1	18.4	122.0	2.2	-	-	4 354.6	79.4	-	-	-0.0	-	5 482.8	14.0	-	5 482.8	-
Total Investment Costs	18 313.2	53.0	4 632.6	13.4	3 740.3	10.8	4 699.4	13.6	75.0	0.2	3 063.5	8.9	34 524.0	88.2	5 332.6	27 495.7	1 695.7
II. Recurrent Costs																	
A. Salaries and allow ances	2 752.8	100.0	-	-	-	-	-	-	-	-	-	-	2 752.8	7.0	-	2 752.8	-
B. Operating costs	1 815.4	97.4	-	-	-	-	-	-	-	-	48.9	2.6	1 864.3	4.8	1 586.8	228.6	48.9
Total Recurrent Costs	4 568.2	98.9	-	-	-	-	-	-	-	-	48.9	1.1	4 617.1	11.8	1 586.8	2 981.4	48.9
Total PROJECT COSTS	22 881.4	58.5	4 632.6	11.8	3 740.3	9.6	4 699.4	12.0	75.0	0.2	3 112.4	8.0	39 141.0	100.0	6 919.4	30 477.1	1 744.6

Attachment 1: Summary Cost Tables

Attachment 1: Summary Cost Tables

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Table 1: Components Programme Cost Summary (Khs/USD)

	(Ksh '000)			(US$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
1. Preparatory and implementation support activities	150 889.2	161 658.0	312 547.2	1 796.3	1 924.5	3 720.8	52	10
2. Cereal Productivity Enhancement	311 679.5	4 200.0	315 879.5	3 710.5	50.0	3 760.5	1	10
3. Post-harvest Management and Market Linkages	342 652.5	7 476.0	350 128.5	4 079.2	89.0	4 168.2	2	11
4. Financial Inclusion	1 614 744.4	394 916.9	2 009 661.3	19 223.1	4 701.4	23 924.5	20	61
5. Project Management	286 655.3	12 976.3	299 631.6	3 412.6	154.5	3 567.0	4	9
Total BASELINE COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100
Physical Contingencies	-	-	-	-	-	-	-	-
Price Contingencies	-	-	-	-	-	-	-	-
Total PROJECT COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100

Table 2: Expenditure Accounts Programme Cost Summary (Khs/USD)

	(Ksh '000)			(US$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs								
A. Works	68 460.0	-	68 460.0	815.0	-	815.0	-	2
B. Equipment & Materials	1 276 989.6	399 188.9	1 676 178.5	15 202.3	4 752.2	19 954.5	24	51
C. TA, Training, Studies and w orkshops	646 076.8	48 747.8	694 824.5	7 691.4	580.3	8 271.7	7	21
D. Grants	460 551.0	-	460 551.0	5 482.8	-	5 482.8	-	14
Total Investment Costs	2 452 077.4	447 936.6	2 900 014.0	29 191.4	5 332.6	34 524.0	15	88
II. Recurrent Costs								
A. Salaries and allow ances	231 235.2	-	231 235.2	2 752.8	-	2 752.8	-	7
B. Operating costs	23 308.2	133 290.6	156 598.8	277.5	1 586.8	1 864.3	85	5
Total Recurrent Costs	254 543.4	133 290.6	387 834.0	3 030.3	1 586.8	4 617.1	34	12
Total BASELINE COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100
Physical Contingencies	-	-	-	-	-	-	-	-
Price Contingencies	-	-	-	-	-	-	-	-
Total PROJECT COSTS	2 706 620.8	581 227.2	3 287 848.1	32 221.7	6 919.4	39 141.0	18	100

Table 3A: Expenditure Accounts by Components – Total Including Contingencies ('000 Khs)

	Preparatory and implementation support activities	Cereal Productivity Enhancement	Post-harvest Management and Market Linkages	Financial Inclusion	Project Management	Total
I. Investment Costs						
A. Works	-	-	68 460.0	-	-	68 460.0
B. Equipment & Materials	8 820.0	109 859.4	39 060.0	1 488 938.3	29 500.8	1 676 178.5
C. TA, Training, Studies and w orkshops	178 206.0	206 020.1	242 608.5	60 172.0	7 818.0	694 824.5
D. Grants	-	-	-	460 551.0	-	460 551.0
Total Investment Costs	187 026.0	315 879.5	350 128.5	2 009 661.3	37 318.8	2 900 014.0
II. Recurrent Costs						
A. Salaries and allow ances	-	-	-	-	231 235.2	231 235.2
B. Operating costs	125 521.2	-	-	-	31 077.6	156 598.8
Total Recurrent Costs	125 521.2	-	-	-	262 312.8	387 834.0
Total PROJECT COSTS	312 547.2	315 879.5	350 128.5	2 009 661.3	299 631.6	3 287 848.1
Taxes	13 755.8	50 540.7	56 020.6	16 148.6	10 079.5	146 545.2
Foreign Exchange	161 658.0	4 200.0	7 476.0	394 916.9	12 976.3	581 227.2

**Table 3B: Expenditure Accounts by Components – Total Including Contingencies
('000 USD)**

	Preparatory and implementation support activities	Cereal Productivity Enhancement	Post-harvest Management and Market Linkages	Financial Inclusion	Project Management	Total
I. Investment Costs						
A. Works	-	-	815.0	-	-	815.0
B. Equipment & Materials	105.0	1 307.9	465.0	17 725.5	351.2	19 954.5
C. TA, Training, Studies and w orkshops	2 121.5	2 452.6	2 888.2	716.3	93.1	8 271.7
D. Grants	-	-	-	5 482.8	-	5 482.8
Total Investment Costs	2 226.5	3 760.5	4 168.2	23 924.5	444.3	34 524.0
II. Recurrent Costs						
A. Salaries and allow ances	-	-	-	-	2 752.8	2 752.8
B. Operating costs	1 494.3	-	-	-	370.0	1 864.3
Total Recurrent Costs	1 494.3	-	-	-	3 122.8	4 617.1
Total PROJECT COSTS	3 720.8	3 760.5	4 168.2	23 924.5	3 567.0	39 141.0
Taxes	163.8	601.7	666.9	192.2	120.0	1 744.6
Foreign Exchange	1 924.5	50.0	89.0	4 701.4	154.5	6 919.4

Table 4: Programme Components by Year – Totals Including Contingencies
(‘000 Khs and ’000 USD)

	Totals Including Contingencies (Ksh '000)					Totals Including Contingencies (US$ '000)				
	2014	2015	2016	2017	Total	2014	2015	2016	2017	Total
1. Preparatory and implementation support activities	93 576.0	57 750.0	80 430.0	80 791.2	312 547.2	1 114.0	687.5	957.5	961.8	3 720.8
2. Cereal Productivity Enhancement	92 562.5	112 247.9	87 269.4	23 799.7	315 879.5	1 101.9	1 336.3	1 038.9	283.3	3 760.5
3. Post-harvest Management and Market Linkages	92 973.5	141 927.0	95 889.4	19 338.6	350 128.5	1 106.8	1 689.6	1 141.5	230.2	4 168.2
4. Financial Inclusion	459 949.0	735 993.9	614 190.4	199 528.0	2 009 661.3	5 475.6	8 761.8	7 311.8	2 375.3	23 924.5
5. Project Management	99 921.0	66 346.2	67 018.2	66 346.2	299 631.6	1 189.5	789.8	797.8	789.8	3 567.0
Total PROJECT COSTS	838 981.9	1 114 265.0	944 797.4	389 803.8	3 287 848.1	9 987.9	13 265.1	11 247.6	4 640.5	39 141.0

**Table 5: Expenditure Accounts by Year – Totals Including Contingencies
('000 Khs and '000 USD)**

	Totals Including Contingencies (Ksh '000)					Totals Including Contingencies (US$ '000)				
	2014	2015	2016	2017	Total	2014	2015	2016	2017	Total
I. Investment Costs										
A. Works	29 673.0	38 787.0	-	-	68 460.0	353.3	461.8	-	-	815.0
B. Equipment & Materials	399 963.7	557 188.3	510 708.2	208 318.3	1 676 178.5	4 761.5	6 633.2	6 079.9	2 480.0	19 954.5
C. TA, Training, Studies and w orkshops	201 366.0	206 402.5	202 170.0	84 886.0	694 824.5	2 397.2	2 457.2	2 406.8	1 010.5	8 271.7
D. Grants	110 901.0	214 809.0	134 841.0	-	460 551.0	1 320.3	2 557.3	1 605.3	-	5 482.8
Total Investment Costs	741 903.7	1 017 186.8	847 719.2	293 204.3	2 900 014.0	8 832.2	12 109.4	10 091.9	3 490.5	34 524.0
II. Recurrent Costs										
A. Salaries and allow ances	57 808.8	57 808.8	57 808.8	57 808.8	231 235.2	688.2	688.2	688.2	688.2	2 752.8
B. Operating costs	39 269.4	39 269.4	39 269.4	38 790.6	156 598.8	467.5	467.5	467.5	461.8	1 864.3
Total Recurrent Costs	97 078.2	97 078.2	97 078.2	96 599.4	387 834.0	1 155.7	1 155.7	1 155.7	1 150.0	4 617.1
Total PROJECT COSTS	838 981.9	1 114 265.0	944 797.4	389 803.8	3 287 848.1	9 987.9	13 265.1	11 247.6	4 640.5	39 141.0

Table 6: Programme Components by Financiers
(USD million)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total			Local	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	(Excl. Taxes)	Taxes
1. Preparatory and implementation support activities	3 255.2	87.5	-	-	-	-	226.8	6.1	75.0	2.0	163.8	4.4	3 720.8	9.5	1 924.5	1 632.5	163.8
2. Cereal Productivity Enhancement	3 087.0	82.1	-	-	-	-	71.8	1.9	-	-	601.7	16.0	3 760.5	9.6	50.0	3 108.8	601.7
3. Post-harvest Management and Market Linkages	3 216.7	77.2	350.6	8.4	-	-	46.2	1.1	-	-	554.7	13.3	4 168.2	10.6	89.0	3 412.3	666.9
4. Financial Inclusion	9 875.4	41.3	4 282.0	17.9	3 740.3	15.6	4 354.6	18.2	-	-	1 672.2	7.0	23 924.5	61.1	4 701.4	19 030.9	192.2
5. Project Management	3 447.0	96.6	-	-	-	-	-	-	-	-	120.0	3.4	3 567.0	9.1	154.5	3 292.6	120.0
Total PROJECT COSTS	22 881.4	58.5	4 632.6	11.8	3 740.3	9.6	4 699.4	12.0	75.0	0.2	3 112.4	8.0	39 141.0	100.0	6 919.4	30 477.1	1 744.6

Table 7: Disbursement Accounts by Financiers (USD million)

	European Union		Beneficiaries		Equity Bank		Private Sector		IFAD		GoK		Total			Local	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	(Excl. Taxes)	Taxes
1. Works	684.6	84.0	-	-	-	-	-	-	-	-	130.4	16.0	815.0	2.1	-	684.6	130.4
2. Equipment and Materials	10 140.0	50.8	4 160.0	20.8	3 740.3	18.7	-	-	-	-	1 914.3	9.6	19 954.5	51.0	4 752.2	14 768.0	434.3
3. TA, Training, Studies and w orkshop	6 482.5	78.4	350.6	4.2	-	-	344.8	4.2	75.0	0.9	1 018.8	12.3	8 271.7	21.1	580.3	6 560.4	1 131.0
4. Grants	1 006.1	18.4	122.0	2.2	-	-	4 354.6	79.4	-	-	-0.0	-	5 482.8	14.0	-	5 482.8	-
5. salaries and allow ances	2 752.8	100.0	-	-	-	-	-	-	-	-	-	-	2 752.8	7.0	-	2 752.8	-
6. Operating costs	1 815.4	97.4	-	-	-	-	-	-	-	-	48.9	2.6	1 864.3	4.8	1 586.8	228.6	48.9
Total PROJECT COSTS	22 881.4	58.5	4 632.6	11.8	3 740.3	9.6	4 699.4	12.0	75.0	0.2	3 112.4	8.0	39 141.0	100.0	6 919.4	30 477.1	1 744.6

Attachment 2: Detailed Cost Tables

Table 1: Programme Preparation and Implementation activities – Detailed costs

	Unit	Quantities 2014	2015	2016	2017	Total	Unit Cost (US$ '000)	Base Cost (US$ '000) 2014	2015	2016	2017	Total
I. Investment Costs												
A. Project preparatory activities /a												
1. Project Implementation Specialist	person-month	2	-	-	-	2	25	50.0	-	-	-	50.0
2. Financial services Specialist	person-month	1	-	-	-	1	10	10.0	-	-	-	10.0
3. Procurement Specialist	person-month	1	-	-	-	1	15	15.0	-	-	-	15.0
4. Scoping study /b	person-month	4	-	-	-	4	22	88.0	-	-	-	88.0
Subtotal								163.0	-	-	-	163.0
B. Implementation support /c	person-year	1	1	1	1	4	220	220.0	220.0	220.0	220.0	880.0
C. Supervision missions /d	supervision mission	2	2	2	2	8	20	40.0	40.0	40.0	40.0	160.0
D. Monitoring & Evaluation and Knowledge Management												
1. M&E and KM consultant	Person-month	2	1	-	-	3	25	50.0	25.0	-	-	75.0
2. Database establishment and training /e	lumpsum							30.0	1.5	1.5	1.5	34.5
3. Impact assessment (including poverty) /f	lumpsum	1	-	1	1	3	180	180.0	-	180.0	180.0	540.0
4. Mid term review and PCR	lumpsum	-	-	1	1	2	110	-	-	110.0	110.0	220.0
5. IFAD regional implementation workshop /g	number	1	-	-	-	1	25	25.0	-	-	-	25.0
6. Publications	lumpsum	1	1	1	1	4	1	1.0	1.0	1.0	1.0	4.0
7. Project inception and final workshops	lumpsum	1	-	-	1	2	10	10.0	-	-	10.0	20.0
Subtotal								296.0	27.5	292.5	302.5	918.5
E. Visibility activities	lumpsum							20.0	25.0	30.0	30.0	105.0
Total Investment Costs								739.0	312.5	582.5	592.5	2 226.5
II. Recurrent Costs												
A. IFAD administrative fees	lumpsum							375.0	375.0	375.0	369.3	1 494.3
Total Recurrent Costs								375.0	375.0	375.0	369.3	1 494.3
Total								1 114.0	687.5	957.5	961.8	3 720.8

\a Implemented through IFAD HQ during September - November 2013
\b Including the following analyses in 16 sub-counties where KCEI will intervene: VC analysis, mapping of grain facilities, processing capacity gap analysis and identification of service providers. Implemented by two teams of 2 persons each.
\c Full time staff based in ICO Nairobi
\d Two supervision/implementation support missions per year managed by IFAD
\e from Year 2 only maintenance
\f Includes baseline, midterm and final assessment using RCT with 1,800 HH sample (600 HH with full treatment, 600 HH with treated control and 600 HH control group). 30% of the cost funded by international service provider
\g participation of PIU

Table 2: Enhancing Productivity and Quality – Detailed Costs

		Quantities					Unit Cost (US$ '000)	Base Cost (US$ '000)				
	Unit	2014	2015	2016	2017	Total		2014	2015	2016	2017	Total
I. Investment Costs												
A. Supply of services												
1. Adaptation & dissemination of technical technologies												
a. Inventory of the existing technologies responding to farmers' demand	study	1	-	-	-	1	5	5.0	-	-	-	5.0
b. Development and updating of extension materials and guidelines	lumpsum	1	-	-	-	1	30	30.0	-	-	-	30.0
c. Training of trainers (extension w orkers, lead farmers, PSP, etc.) /a	lumpsum	9	9	9	-	27	10	90.0	90.0	90.0	-	270.0
d. On-site trials and demonstrations /b	lumpsum	50	50	50	-	150	1	50.0	50.0	50.0	-	150.0
e. Identification and capitalisation meetings	lumpsum	1	-	-	1	2	10	10.0	-	-	10.0	20.0
f. Dissemination of results (leaflets, publications, etc.)	lumpsum	-	-	1	1	2	20	-	-	20.0	20.0	40.0
Subtotal								185.0	140.0	160.0	30.0	515.0
2. Mapping of soil fertility and soil nutrients requirement /c	lumpsum	1	-	-	-	1	57,7	57.7	-	-	-	57.7
3. Specialized international technical assistance IPNI	lumpsum	1	1	-	-	2	100	100.0	100.0	-	-	200.0
4. M&E impact assessment on yields and technology adoption	lumpsum	-	-	-	1	1	25	-	-	-	25.0	25.0
5. Technical advisory services (CGA) /d												
a. CGA coordinators	p/m	8	8	8	8	32	6,9	55.2	55.2	55.2	55.2	220.8
b. laptop + printer coordinators	lumpsum	8	-	-	-	8	1,7	13.6	-	-	-	13.6
c. CGA front-line extension w orkers	p/m	11	33	33	11	88	3,5	38.5	115.5	115.5	38.5	308.0
d. insurance	nb	25	58	66	33	182	0,1	2.5	5.8	6.6	3.3	18.2
e. Motorbike + helmets	nb	25	33	33	-	91	4,8	120.0	158.4	158.4	-	436.8
f. Fuel extension w orkers & coordinators	lumpsum	30	75	74	30	209	1,6	48.0	120.0	118.4	48.0	334.4
g. ToT (lead farmers of FO's)	lumpsum	7	13	7	-	27	4,8	33.6	62.4	33.6	-	129.6
h. Trainting material	lumpsum	1	1	1	1	4	11,5	11.5	11.5	11.5	11.5	46.0
i. Demo plots in field (at farmers' group level)	lumpsum	666	1 663	1 329	332	3 990	0,115	76.6	191.2	152.8	38.2	458.9
j. Exchange visits in farmers' groups performing w ell (at w ard/ sub-county level)	lumpsum	7	13	7	-	27	0,34	2.4	4.4	2.4	-	9.2
Subtotal								401.9	724.5	654.4	194.7	1 975.4
6. Inventory of existing service providers in all of the target sub-counties /e	month	1	-	-	-	1	17,25	17.3	-	-	-	17.3
7. Capacity building for agro-dealers in Business management (business plan), technical modules (inputs), output marketing /f	lumpsum	1	1	-	-	2	88	88.0	88.0	-	-	176.0
8. Field days (fd) /g	lumpsum	1	1.5	1	-	3.5	24	24.0	36.0	24.0	-	84.0
9. Demo plot establishment /h	lumpsum	1.5	1.5	1	-	4	16	24.0	24.0	16.0	-	64.0
10. Exhibitions and trade fairs /i	lumpsum	1	1	1	-	3	76	76.0	76.0	76.0	-	228.0
Subtotal								973.8	1 188.5	930.4	249.7	3 342.4
B. Demand of services												
1. Survey to identify farmers' groups (subsistence and market oriented) /j	p/m	1	-	-	-	1	12	12.0	-	-	-	12.0
2. Training farmers on farmer organizational development /k												
a. ToT on organizational development	number	1	-	-	-	1	8	8.0	-	-	-	8.0
b. Grassroots Level Trainings (GLTs) on organizational development (leadership, governance, financial management, etc.)	number	100	200	200	100	600	0,133	13.3	26.6	26.6	13.3	79.8
c. Peer exchange visits for mutual learning	number	6	6	6	6	24	0,65	3.9	3.9	3.9	3.9	15.6
Subtotal								25.2	30.5	30.5	17.2	103.4
3. Assist farmers to undertake bulk procurement of inputs /l												
a. Survey to identify inputs requirements and access points	mandays	20	-	-	-	20	0,35	7.0	-	-	-	7.0
b. Sensitization meetings to link farmer groups to agro-dealers	number	10	10	10	2	32	0,3	3.0	3.0	3.0	0.6	9.6
c. ToT on negotiation skills	number	1	1	1	-	3	5,75	5.8	5.8	5.8	-	17.3
d. Grassroots Level Trainings (GLTs) on negotiation skills and market intelligence	number	100	200	200	100	600	0,133	13.3	26.6	26.6	13.3	79.8
Subtotal								29.1	35.4	35.4	13.9	113.7
4. Build farmers capacities to participate to stakeholder fora /m	lumpsum	333	665	332	-	1 330	0,058	19.3	38.6	19.3	-	77.1
5. Develop and print training manuals /n	number	150	200	200	150	700	0,017	2.6	3.4	3.4	2.6	11.9
6. CGA technical assistance /o	lumpsum							40.0	40.0	20.0	-	100.0
Subtotal								128.1	147.8	108.5	33.7	418.1
Total								1 101.9	1 336.3	1 038.9	283.3	3 760.5

\a Including hiring of venue, DSA researchers, drivers and participants (80 per trainings)
\b Done at county or sub-regional research centre level include inputs, labour, etc.
\c lumpsum including: fuel, DSA, soil sample analysis, full board participants, venue, etc.
\d All related costs include 15% of overhead costs
\e All related costs include 15% of overhead costs
\f Assumption is 25 agro-dealers trainees per session of 6 days & conduct 12 sessions = 300 SP lumpsum includes: venue, DSA, printings, training fees, honoraria, etc. All related costs include 15% of overhead costs
\g Estimate 10 field days per year. Total 2500 beneficiaries attend, includes: trasnportation, publicity, materials, refreshments. All related costs include 15% of overhead costs
\h Estimate 60 demo plots per year total beneficiaries 15000, includes: inputs, labour and communication costs. All related costs include 15% of overhead costs
\i Estimate 20 exhibitions per year. Total 10,000 beneficiaries per year, ibid field days. All related costs include 15% of overhead costs
\j including 15% of everhead costs
\k These costs include 15% of everhead costs
\l These costs include 15% of overhead costs
\m include 15% of overhead costs
\n include 15% of overhead costs
\o Mixed international and national.

Table 3: Post-Harvest Management and Market Linkages – Detailed Costs

	Unit	Quantities 2014	2015	2016	2017	Total	Unit Cost (US$ '000)	Base Cost (US$ '000) 2014	2015	2016	2017	Total
I. Investment Costs												
A. POST HARVEST HANDLING AND MANAGEMENT												
1. Training and capacity development												
a. Farmer training on on-farm grain management	2 groups	250	375	375	-	1 000	0,715	178.8	268.1	268.1	-	715.0
b. Demonstration of on-farm grain handling technologies /a	Kit	250	375	375	-	1 000	0,44	110.0	165.0	165.0	-	440.0
c. Training and capacity building for w arehouse certification /b	w arehouse	10	25	25	-	60	1,2	12.0	30.0	30.0	-	72.0
d. Demonstration on solar/mechanical drying equipment /c	unit	4	5	5	6	20	4,5	18.0	22.5	22.5	27.0	90.0
Subtotal								318.8	485.6	485.6	27.0	1 317.0
2. Produce aggregation and warehousing												
a. Sensitization and aw areness campaigns /d	lumpsum							5.0	5.0	5.0	-	15.0
b. Equipping farmer-ow ned collection centres /e	kit/centre	25	50	25	-	100	3,75	93.8	187.5	93.8	-	375.0
c. Construction and certification of farmer-ow ned w arehouses /f	Facility	3	3	-	-	6	86,75	260.3	260.3	-	-	520.5
d. Refurbishment and certification of existing w arehouses /g	Facility	6	13	-	-	19	15,5	93.0	201.5	-	-	294.5
e. Certification of exisitng privately-ow ned storage facilities /h	Facility	1	4	5	-	10	5,5	5.5	22.0	27.5	-	55.0
Subtotal								457.5	676.3	126.3	-	1 260.0
3. Cost sharing support for 1st year w arehouse operations /i	lumpsum							115.6	290.2	292.2	3.2	701.2
Subtotal								891.8	1 452.1	904.0	30.2	3 278.2
B. MARKET LINKAGES and VALUE ADDITION												
1. Capacity building for market linkages and value addition /j												
a. Market linkages capacity building - training and coaching /k	lumpsum							200.0	200.0	200.0	200.0	800.0
b. Initiatives for building commercial partnerships /l	storage facility	10	25	25	-	60	1,5	15.0	37.5	37.5	-	90.0
Subtotal								215.0	237.5	237.5	200.0	890.0
2. Spot improvement of access roads /m												
a. Design and management of w orks /n	lumpsum	1	-	-	-	1		-	-	-	-	-
b. Financing for spot improvements w orks	spots	-	8	8	4	20		-	-	-	-	-
Subtotal								-	-	-	-	-
Subtotal								215.0	237.5	237.5	200.0	890.0
Total								1 106.8	1 689.6	1 141.5	230.2	4 168.2

\a Linked to farmer training (see above). Demonstration kit on appropriate grain drying and storage technologies based on collapsible drier case for 10 bags @ US$ 240 and metal silos for 10 bags @ US$ 200 (can be adapted)
\b Pre-certification training for all personnel running w arehouse. This is mandatory for w arehouses to qualify for certification.
\c Established in strategically located collection centers and storage facilities throughout the project area.
\d On the usefulness and feasibility of reducing sale of produce at harvest, storing in propoer conditions thus reducing losses and accessing w arehouse receipt systems
\e The kit for farmer grain collection centres (near production areas) comprises manual w eighing machine (250kg), moisture metre, 2 tapaulins and a manual grain sieve. Each collection centre serves up to 10 farmer groups.
\f A total of 15 facilities are planned to be constructed of w hich 6 under this EU grant and 9 under the top up grant of EURO 10 M to be made available in 2014
\g A total of 35 facilities are planned to be refurbished of w hich 19 under this EU grant and 16 under the top up grant of EURO 10 M to be made available in 2014. This provision is made for refurbishment of existing publicly ow ned w arehouses in the targeted a
\h Entirely funded by private sector
\i A provision is made for supporting the operations of w arehouses during the first year w hen it is anticipated that most facilities w ill not be able to achieve more than 50% of their capacity. This operation cost w ill be shared on 50% basis betw een KCEP and
\j For farmer groups and private investors
\k Implemented by SP for cat 1 and 2 beneficiaries. Includes (a) the development of business partnerships betw een FOs and buyers; (b) strengthening of FOs to manage relationship w ith markets; and (c) technical capicity building for processing.
\l Carried out at each of the 60 storage facilities and consisting of a series of meetings betw een FOs (cat 1 and 2) and buyers.
\m This activity w ill be financed under the TOP UP EU GRANT of EURO 10 M to be made available in 2014
\n Design and management of w orks requiring structure engineer for roads and architect as w ell as mechanical/electric engineer for storage facilities outsourced through private service provider. estimated at 10% of w ork cost

Table 4: Financial Inclusion – Detailed Costs

	Unit	Quantities 2014	2015	2016	2017	Total	Unit Cost (US$ '000)	Base Cost (US$ '000) 2014	2015	2016	2017	Total
I. Investment Costs												
A. Access to services												
1. Establishment and implementation of e-cards and e-vouchers /a												
a. Share funded by EU grant	lumpsum							233.8	137.6	68.8	-	440.2
b. Share funded by Equity Bank /b	lumpsum							1 986.5	1 169.1	584.6	-	3 740.3
Subtotal								2 220.3	1 306.7	653.4	-	4 180.5
2. Voucher package for maize												
a. Voucher package - maize year 1	Beneficiary	2 500	7 500	10 000	-	20 000	0,163	407.5	1 222.5	1 630.0	-	3 260.0
b. Voucher package - maize year 2	Beneficiary	-	2 500	7 500	10 000	20 000	0,041	-	102.5	307.5	410.0	820.0
c. Beneficiary contribution - maize year 1	Beneficiary	2 500	7 500	10 000	-	20 000	0,022	55.0	165.0	220.0	-	440.0
d. Beneficiary contribution - maize year 2	Beneficiary	-	2 500	7 500	10 000	20 000	0,073	-	182.5	547.5	730.0	1 460.0
e. GoK contribution - maize year 1 /c	Beneficiary	2 500	7 500	10 000	-	20 000	0,031	77.5	232.5	310.0	-	620.0
f. GoK contribution - maize year 2	Beneficiary	-	2 500	7 500	10 000	20 000	0,008	-	20.0	60.0	80.0	160.0
Subtotal								540.0	1 925.0	3 075.0	1 220.0	6 760.0
3. Voucher package for sorghum												
a. Voucher package - sorghum year 1	Beneficiary	4 950	8 250	-	-	13 200	0,123	608.9	1 014.8	-	-	1 623.6
b. Voucher package - sorghum year 2	Beneficiary	-	4 950	8 250	-	13 200	0,044	-	217.8	363.0	-	580.8
c. Voucher package - sorghum year 3	Beneficiary	-	-	4 950	8 250	13 200	0,022	-	-	108.9	181.5	290.4
d. Beneficiary contribution - sorghum year 1	Beneficiary	4 950	8 250	-	-	13 200	0,016	79.2	132.0	-	-	211.2
e. Beneficiary contribution - sorghum year 2	Beneficiary	-	4 950	8 250	-	13 200	0,035	-	173.3	288.8	-	462.0
f. Beneficiary contribution - sorghum year 3	Beneficiary	-	-	4 950	8 250	13 200	0,062	-	-	306.9	511.5	818.4
g. GoK contribution - sorghum year 1 /d	Beneficiary	4 950	8 250	-	-	13 200	0,023	113.9	189.8	-	-	303.6
h. GoK contribution - sorghum year 2	Beneficiary	-	4 950	8 250	-	13 200	0,008	-	39.6	66.0	-	105.6
i. GoK contribution - sorghum year 3	Beneficiary	-	-	4 950	8 250	13 200	0,004	-	-	19.8	33.0	52.8
Subtotal								801.9	1 767.2	1 153.4	726.0	4 448.4
4. Voucher package for millet												
a. Voucher package - millet year 1	Beneficiary	2 550	4 250	-	-	6 800	0,123	313.7	522.8	-	-	836.4
b. Voucher package - millet year 2	Beneficiary	-	2 550	4 250	-	6 800	0,044	-	112.2	187.0	-	299.2
c. Voucher package - millet year 3	Beneficiary	-	-	2 550	4 250	6 800	0,022	-	-	56.1	93.5	149.6
d. Beneficiary contribution - millet year 1	Beneficiary	2 550	4 250	-	-	6 800	0,016	40.8	68.0	-	-	108.8
e. Beneficiary contribution - millet year 2	Beneficiary	-	2 550	4 250	-	6 800	0,035	-	89.3	148.8	-	238.0
f. Beneficiary contribution - millet year 3	Beneficiary	-	-	2 550	4 250	6 800	0,062	-	-	158.1	263.5	421.6
g. GoK contribution - millet year 1 /e	Beneficiary	2 550	4 250	-	-	6 800	0,023	58.7	97.8	-	-	156.4
h. GoK contribution - millet year 2	Beneficiary	-	2 550	4 250	-	6 800	0,008	-	20.4	34.0	-	54.4
i. GoK contribution - millet year 3	Beneficiary	-	-	2 550	4 250	6 800	0,004	-	-	10.2	17.0	27.2
Subtotal								413.1	910.4	594.2	374.0	2 291.6
5. Capacity building for smallholders	lumpsum	1	1	1	1	4	131,4	90.0	221.4	172.8	41.4	525.6
6. Feasibility study for insurance products /f	study	1	-	-	-	1	15	15.0	-	-	-	15.0
7. Study for adapted savings product for beneficiaries /g	person-month	3	-	-	-	3	15	45.0	-	-	-	45.0
Subtotal								4 125.3	6 130.6	5 648.7	2 361.4	18 266.1
B. Value Chain Financing												
1. Legal advisor /h	person-month	3	3	3	-	9	15	45.0	45.0	45.0	-	135.0
2. Shelling/threshing facilities												
a. Farmers' group owned /i	facility	4	8	4	-	16	36,25	145.0	290.0	145.0	-	580.0
b. Private investor owned /j	facility	6	13	6	-	25	36,25	217.5	471.3	217.5	-	906.3
Subtotal								362.5	761.3	362.5	-	1 486.3
3. Milling Facilites												
a. Located at Farmers' owned storage facilities /k	facility	1	1	-	-	2	100	100.0	100.0	-	-	200.0
b. Private investor owned /l	facility	1	2	2	-	5	160	160.0	320.0	320.0	-	800.0
c. Upgrading of existing milling facilities /m	facility	5	10	5	-	20	31,25	156.3	312.5	156.3	-	625.0
d. Working capital loan	lumpsum	1	1	1	-	3	445,5	346.5	643.5	346.5	-	1 336.5
Subtotal								762.8	1 376.0	822.8	-	2 961.5
4. Cleaning/polishing/packing facilities												
a. Located at Farmers' owned storage facilities /n	facility	-	1	1	-	2	75	-	75.0	75.0	-	150.0
b. Private investor owned /o	facility	2	4	4	-	10	75	150.0	300.0	300.0	-	750.0
Subtotal								150.0	375.0	375.0	-	900.0
5. Capacity building for entrepreneurs	lumpsum	1	1	1	1	4	43,933	30.0	73.9	57.9	13.9	175.7
Subtotal								1 350.3	2 631.2	1 663.1	13.9	5 658.5
Total								5 475.6	8 761.8	7 311.8	2 375.3	23 924.5

\a IFAD share of the roll-out of the e-platform including: POS devices for agrodealers, enrollment kit, satelite connection for agro-dealers, software customization (POS, magnetic cards, system integration) and solar panels. See table 2a in WP 4
\b See table 2b in WP 4
\c VAT on voucher only (not on beneficiary contribution as in that case VAT is paid by beneficiaries)
\d VAT on voucher only (not on beneficiary contribution as in that case VAT is paid by beneficiaries)
\e VAT on voucher only (not on beneficiary contribution as in that case VAT is paid by beneficiaries)
\f To develop better suited insurance products for beneficiaries
\g Taking into consideration the use of the e-platform
\h Support for establishing Limited Liability Companies linked to each storage facility
\i Including facilities and equipments funded at 85% on EU grant and 15% by beneficiaries
\j Including facilities and equipments funded at 10% on EU grant and 90% by private sector.
\k Including facilities and equipments funded at 20% on EU grant, 10% by beneficiaries and 70% by private sector
\l Including facilities and equipments funded at 10% on EU grant and 90% by private sector.
\m Including facilities and equipments funded at 10% on EU grant and 90% by private sector.
\n Including facilities and equipments funded at 20% on EU grant, 10% by beneficiaries and 70% by private sector
\o Including facilities and equipments funded at 10% on EU grant and 90% by private sector.

Table 5: Programme Management – Detailed Costs

	Unit	Quantities 2014	2015	2016	2017	Total	Unit Cost (US$ '000)	Base Cost (US$ '000) 2014	2015	2016	2017	Total
I. Investment Costs												
A. PMU Office												
1. Goods and Equipment												
a. Desk computers	number	3	-	-	-	3	1	3.0	-	-	-	3.0
b. Laptop computers	number	7	-	-	-	7	1	7.0	-	-	-	7.0
c. Printers	number	10	-	-	-	10	0,2	2.0	-	-	-	2.0
d. Copy machine and scanner	number	3	-	-	-	3	0,4	1.2	-	-	-	1.2
e. Vehicles /a	number	3	-	-	-	3	30	90.0	-	-	-	90.0
f. Office furniture	set	1	-	1	-	2	8	8.0	-	8.0	-	16.0
g. Accounting softw are /b	lumpsum	1	1	1	1	4	9	30.0	2.0	2.0	2.0	36.0
Subtotal								141.2	2.0	10.0	2.0	155.2
2. Project planning and oversight												
a. Project Steering Committee meetings /c	meeting	2	2	2	2	8	3,571	7.1	7.1	7.1	7.1	28.6
3. Targeting and gender equality and social inclusion (GESI)												
a. Targeting and GESI strategy - international consultant	person-month	1.5	-	-	-	1.5	25	37.5	-	-	-	37.5
b. Targeting and GESI study - local consultant	person-month	2	-	-	-	2	10	20.0	-	-	-	20.0
c. GESI w orkshop	w orkshop	1	-	-	-	1	7	7.0	-	-	-	7.0
Subtotal								64.5	-	-	-	64.5
Subtotal								212.8	9.1	17.1	9.1	248.3
B. Western Kenya Unit												
1. Goods and Equipment												
a. Desk computers	number	1	-	-	-	1	1	1.0	-	-	-	1.0
b. Laptop computers	number	3	-	-	-	3	1	3.0	-	-	-	3.0
c. Printers	number	3	-	-	-	3	0,2	0.6	-	-	-	0.6
d. Copy machine and scanner	number	1	-	-	-	1	0,4	0.4	-	-	-	0.4
e. Vehicles /d	number	2	-	-	-	2	45	90.0	-	-	-	90.0
f. Office furniture	set	1	-	-	-	1	3	3.0	-	-	-	3.0
Subtotal								98.0	-	-	-	98.0
C. Eastern Kenya Unit												
1. Goods and Equipment												
a. Desk computers	number	1	-	-	-	1	1	1.0	-	-	-	1.0
b. Laptop computers	number	3	-	-	-	3	1	3.0	-	-	-	3.0
c. Printers	number	3	-	-	-	3	0,2	0.6	-	-	-	0.6
d. Copy machine and scanner	number	1	-	-	-	1	0,4	0.4	-	-	-	0.4
e. Vehicles /e	number	2	-	-	-	2	45	90.0	-	-	-	90.0
f. Office furniture	set	1	-	-	-	1	3	3.0	-	-	-	3.0
Subtotal								98.0	-	-	-	98.0
Total Investment Costs								408.8	9.1	17.1	9.1	444.3
II. Recurrent Costs												
A. Personnel												
1. PIU Staff salaries												
a. Project Coordinator	p/m	12	12	12	12	48	3,1	37.2	37.2	37.2	37.2	148.8
b. Financial and Administrative Manager	p/m	12	12	12	12	48	2,85	34.2	34.2	34.2	34.2	136.8
c. Engineer	p/m	12	12	12	12	48	2,85	34.2	34.2	34.2	34.2	136.8
d. Value chain specialist	p/m	12	12	12	12	48	2,85	34.2	34.2	34.2	34.2	136.8
e. Procurement Officer	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
f. M&E and planning Officer	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
g. KM, Communication and visibility Officer	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
h. Financial Services Specialist	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
i. Accountant	p/m	12	12	12	12	48	2,1	25.2	25.2	25.2	25.2	100.8
j. Project assistant	p/m	24	24	24	24	96	1,1	26.4	26.4	26.4	26.4	105.6
k. Drivers	p/m	36	36	36	36	144	0,6	21.6	21.6	21.6	21.6	86.4
Subtotal								337.8	337.8	337.8	337.8	1 351.2

2. Western Kenya Unit Salaries												
a. Agri-Business Specialist	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
b. Agronomist	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
c. M&E/KM Officer	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
d. Accountant	p/m	12	12	12	12	48	2,1	25.2	25.2	25.2	25.2	100.8
e. Project assistant	p/m	12	12	12	12	48	1	12.0	12.0	12.0	12.0	48.0
f. Driver	p/m	24	24	24	24	96	0,6	14.4	14.4	14.4	14.4	57.6
Subtotal								145.2	145.2	145.2	145.2	580.8
3. Eastern Kenya Unit Salaries												
a. Agri-Buisness Specialist	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
b. Agronomist	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
c. M&E/KM Officer	p/m	12	12	12	12	48	2,6	31.2	31.2	31.2	31.2	124.8
d. Accountant	p/m	12	12	12	12	48	2,1	25.2	25.2	25.2	25.2	100.8
e. Project assistant	p/m	12	12	12	12	48	1	12.0	12.0	12.0	12.0	48.0
f. Driver	p/m	24	24	24	24	96	0,6	14.4	14.4	14.4	14.4	57.6
Subtotal								145.2	145.2	145.2	145.2	580.8
4. Allowances and travel												
a. Staff per diems	lumpsum	1	1	1	1	4	20	20.0	20.0	20.0	20.0	80.0
b. Staff domestic travel	lumpsum	1	1	1	1	4	20	20.0	20.0	20.0	20.0	80.0
c. Staff international travel	lumpsum	1	1	1	1	4	20	20.0	20.0	20.0	20.0	80.0
Subtotal								60.0	60.0	60.0	60.0	240.0
Subtotal								688.2	688.2	688.2	688.2	2 752.8
B. Operation and maintenance												
1. PIU												
a. Office consumables stationery etc	p/m	12	12	12	12	48	0,238	2.9	2.9	2.9	2.9	11.4
b. Water and electicity	p/m	12	12	12	12	48	0,595	7.1	7.1	7.1	7.1	28.6
c. Telecommunications	p/m	12	12	12	12	48	0,893	10.7	10.7	10.7	10.7	42.9
d. Audit /f	p/m	1	1	1	1	4		-	-	-	-	-
e. Insurance	annual	1	1	1	1	4	5,357	5.4	5.4	5.4	5.4	21.4
f. Vehicle operations and maintenance	lumpsum	1	1	1	1	4	5,952	6.0	6.0	6.0	6.0	23.8
Subtotal								32.0	32.0	32.0	32.0	128.1
2. Western Kenya Unit												
a. Office consumables stationery etc	p/m	12	12	12	12	48	0,238	2.9	2.9	2.9	2.9	11.4
b. Water and electicity	p/m	12	12	12	12	48	0,595	7.1	7.1	7.1	7.1	28.6
c. Telecommunications	p/m	12	12	12	12	48	0,893	10.7	10.7	10.7	10.7	42.9
d. Insurance	annual	1	1	1	1	4	5,357	5.4	5.4	5.4	5.4	21.4
e. Vehicle operations and maintenance	lumpsum	1	1	1	1	4	4,167	4.2	4.2	4.2	4.2	16.7
Subtotal								30.2	30.2	30.2	30.2	120.9
3. Eastern Kenya Unit												
a. Office consumables stationery etc	p/m	12	12	12	12	48	0,238	2.9	2.9	2.9	2.9	11.4
b. Water and electicity	p/m	12	12	12	12	48	0,595	7.1	7.1	7.1	7.1	28.6
c. Telecommunications	p/m	12	12	12	12	48	0,893	10.7	10.7	10.7	10.7	42.9
d. Insurance	annual	1	1	1	1	4	5,357	5.4	5.4	5.4	5.4	21.4
e. Vehicle operations and maintenance	lumpsum	1	1	1	1	4	4,167	4.2	4.2	4.2	4.2	16.7
Subtotal								30.2	30.2	30.2	30.2	120.9
Subtotal								92.5	92.5	92.5	92.5	370.0
Total Recurrent Costs								780.7	780.7	780.7	780.7	3 122.8
Total								1 189.5	789.8	797.8	789.8	3 567.0

\a No FWD
\b including customization, training, etc. at central and local level
\c tw o meetings per year
\d FWD vehicles
\e FWD vehicles
\f Annual audits are provided by National Auditor General w ith no charge for the Project

Table 6: Financing plan of voucher packages

1ACRE Maize-VOUCHER	Year 1 - 90% subsidized								Year 2 - 40% subsidized								
Subsistence maize	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries	Unit	Qt (Kgs)	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries	
seeds (hybrid)	10 Kgs	1	2 500	2 500	30	4	23	3	10 Kgs	1	2 500	2 500	30	2	10	18	
beans quality seeds	25 kgs	1	2 500	2 500	30	4	23	3	25 kgs	0		0	0	0	0	0	
basal fertilizer	50 Kgs	1	3 800	3 800	45	7	34	5	50 Kgs	1	3 800	3 800	45	3	15	27	
top dressing fertilizer	50 Kgs	1	2 800	2 800	33	5	25	3	50 Kgs	1	2 800	2 800	33	2	11	20	
hermetic bags	bags	10	200	2 000	24	3	18	2	bags	0	200	0	0	0	0	0	
tarpaulin	NB	1	2 000	2 000	24	3	18	2	NB	0	0	0	0	0	0	0	
palet	NB	2	300	600	7	1	5	1	NB	0	0	0	0	0	0	0	
weather insurance (@12% of input package)	lumpsum	1		1 944	23	3	17	2	lumpsum	1		1 092	13	1	4	8	
Total input-voucher				**18 144**	216	31	163	22				**10 192**	121	8	41	73	
Total costs	farmers	20 000	18 144	***362 880 000***	4 320 000	622 080	3 265 920	432 000	farmers	20 000	10 192	***203 840 000***	2 426 667	155 307	815 360	1 456 000	4 081 280
								216								***121***	

1 ACRE w.sorghum-VOUCHER*	Year 1 - 90% subsidized								Year 2 - 60% subsidized								year 3 - 30% subsidized							
White sorghum	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries
white sorghum certified seeds	Kgs	4	125	500	6	1	5	1	Kgs	0	125	0	0	0	0	0	Kgs	0	125	0	0	0	0	0
pulses quality seeds (green gram, cow pea, etc.)	kgs	4	125	500	6	1	5	1	kgs	0	125	0	0	0	0	0	kgs	0	125	0	0	0	0	0
basal fertilizer	X Kgs	1	3 800	3 800	45	7	34	5	X Kgs	1	3 800	3 800	45	4	23	18	X Kgs	1	3 800	3 800	45	2	11	32
top dressing fertilizer	Y Kgs	1	2 800	2 800	33	5	25	3	Y Kgs	1	2 800	2 800	33	3	17	13	Y Kgs	1	2 800	2 800	33	2	8	23
hermetic bags	bags	10	200	2 000	24	3	18	2	bags	0	200	0	0	0	0	0	bags	0	200	0	0	0	0	0
tarpaulin	NB	1	2 000	2 000	24	3	18	2	NB	0	2 000	0	0	0	0	0	NB	0	2 000	0	0	0	0	0
palet	NB	2	300	600	7	1	5	1	NB	0	300	0	0	0	0	0	NB	0	300	0	0	0	0	0
weather insurance (@12% of input package)	lumpsum	1		1 464	17	3	13	2	lumpsum	1		792	9	1	5	4	lumpsum	1		792	9	0	2	7
Total SLM-voucher				**13 664**	163	23	123	16				**7 392**	88	8	44	35				**7 392**	88	4	22	62
Total costs	farmers	15 000	13 664	***204 960 000***	2 440 000	351 360	1 844 640	244 000	farmers	15 000	7 392	***110 880 000***	1 320 000	126 720	665 280	528 000	farmers	15 000	7 392	***110 880 000***	1 320 000	63 360	332 640	924 000
								163								***88***								***88***

1 ACRE Finger millet-VOUCHER*	Year 1 - 90% subsidized								Year 2 - 60% subsidized								year 3 - 30% subsidized							
Finger Millet	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on	EU grant	Beneficiaries	Unit	Qt	Price (Ksh)	Total (ksh)		GoK (VAT @ 16% on voucher)	EU grant	Beneficiaries	Unit	Qt	Price (Ksh)	Total (ksh)	USD	GoK (VAT @ 16% on	EU grant	Beneficiaries
Finger millet certified seeds	Kgs	4	125	500	6	1	5	1	4 Kgs	0	500	0	0	0	0	0	4 Kgs	0	500	0	0	0	0	0
pulses quality seeds (pigeon pea, cow pea, etc.)	kgs	4	125	500	6	1	5	1	4 kgs	0	400	0	0	0	0	0	4 kgs	0	400	0	0	0	0	0
basal fertilizer	X Kgs	1	3 800	3 800	45	7	34	5	X Kgs	1	3 800	3 800	45	4	23	18	X Kgs	1	3 800	3 800	45	2	11	32
top dressing fertilizer	Y Kgs	1	2 800	2 800	33	5	25	3	Y Kgs	1	2 800	2 800	33	3	17	13	Y Kgs	1	2 800	2 800	33	2	8	23
hermetic bags	bags	10	200	2 000	24	3	18	2	bags	0	200	0	0	0	0	0	bags	0	200	0	0	0	0	0
tarpaulin	NB	1	2 000	2 000	24	3	18	2	NB	0	2 000	0	0	0	0	0	NB	0	2 000	0	0	0	0	0
palet	NB	2	300	600	7	1	5	1	NB	0	300	0	0	0	0	0	NB	0	300	0	0	0	0	0
weather insurance (@12% of input package)	lumpsum	1		1 464	17	3	13	2	lumpsum	1		792	9	1	5	4	lumpsum	1	0	792	9	0	2	7
Total SLM-voucher				**13 664**	163	23	123	16				**7 392**	88	8	44	35				**7 392**	88	4	22	62
Total costs	farmers	5 000	13 664	***68 320 000***	813 333	117 120	614 880	81 333	farmers	5 000	7 392	***36 960 000***	440 000	42 240	221 760	176 000	farmers	5 000	7 392	***36 960 000***	440 000	21 120	110 880	308 000

Appendix 10: Economic and Financial Analysis

Introduction

1. The strategic objective of the KCEP is to contribute to national food security by increasing production of cereal staples (maize, sorghum, millet, and associated pulses), and generate incomes among smallholders in medium and high potential production areas. Specifically, the KCEP will contribute to (i) reducing the national grain deficit; and (ii) support smallholder farmers in graduating from subsistence to commercial agriculture by: a) improving smallholder access to targeted technologies and inputs for the three cereal crops and associated pulses; b) building capacity of smallholders for production, storage, and processing; c) providing marketing support; and d) facilitating smallholder access to sustainable financial services.

2. Expected programme benefits would be in the form of (i) improved on-farm productivity; (ii) reduced on-farm and post harvest losses; (iii) increased farm-gate price associated with bulking, WRS and market linkages; and (iv) additional value added for smallholders generated through improved processing.

Financial Analysis

Objectives and Approach

3. The primary objective of the financial analysis is to determine the financial viability and incentives for the programme target group as a result of their engagement in Programme activities, and hence to examine the impact of Programme interventions on family labour, cash flow and household incomes. A cash-flow analysis is carried out to represent the situation of “with” and “without” programme scenarios, indicative crop and activity budgets have been combined in the farm models, where appropriate.

Programme Beneficiaries and Benefits

4. **Target group.** The main target group will consist of the following categories:

- *Category 1is composed of 40,000 subsistence farmers who will graduate to commercial agriculture,* of which 20,000 maize producers, 15,000 sorghum producers, and 5,000 millet producers. Farmers in this category are net buyers of staple crops, food insecure and do not use fertilizers or modern inputs (or, in the lowlands, use fertilisers but no proper water and soil fertility management practices). This group will be eligible to the e-voucher and to all of the interventions outlined in Components 1, 2 and 3;
- *Category 2includes an estimated 60,000 farmers who will be further developing farming as a business.* This group is likely to be composed of poor as well as less-poor, who have already graduated to market-oriented agriculture, are net sellers of grains and are interested in further expanding their business, by developing new activities around the production and marketing of target crops. This group will benefit from project interventions, with the exception of the e-voucher.
- *Women,* and especially women-headed households, will constitute a direct target group because their access to the value chain and capacity to generate income is heavily curtailed by traditional gender roles that would undermine their participation unless gender is mainstreamed into the programme. *Youth*will constitute a direct target group because they are more likely to be resource poor, lack control over assets and have limited livelihood options, and their integration into rural economies has long-term positive social and economic consequences.
- *Secondary target group* will be other stakeholders in the targeted value chains, including agro-dealers, public extension services, buyers, processors, and large farmers providing support services to smallholders. Interventions aimed at building their capacities through training and short-term investment credit will increase their ability to provide better services to farmers and support inclusive value chain growth. *Indirect target groups* include those who will benefit from the spill-over effects of programme activities, i.e. (i) poor households who lack the assets necessary to participate directly in the programme activities but who will benefit from labour opportunities generated by increased agricultural production; and (ii) value chain producers in target counties but

out of the programme area, who will benefit from the development of institutional capacities and business models that will support the replication of programme activities.

5. The financial analysis has only quantified the returns to the category 1 and 2. Specific financial returns to women and indirect beneficiaries were not estimated.

6. **Programme Financial Benefits.** The quantifiedbenefits included in the financial analysis are:

- Higher agricultural productivity associated with the package promoted in Component 1 (adapted input package, improved agricultural technology and practices disseminated through extension services) accruing to category 1 beneficiaries. This type of benefits will accrue also to category 2 beneficiaries through training of trainers of lead farmers on identified needs, demonstrations, field days and fairs organized by agro-dealers localized in their area of production;
- Post-harvest losses reduction and improved quality of grains through training on grading and drying and storage management both on-farm and at larger warehouse facilities. This benefit applies to both cat. 1 and 2 households; and
- Increase in farm gate price associated with Warehouse Receipt System and improved market linkages with buyers.

Key Assumptions

- Exchange rate. The exchange rate used in the analysis is Ksh 84 to US$ 1.0.
- Prices. The financial prices for programme inputs and products were collected in the field by the design mission. All the information on labour requirements for various production models, prevailing wage rates, yields, input use, farm gate and market prices of the products, input prices and forward contracts were collected. Prices used represent estimates of the average seasonal prices.
- Labour. It has been assumed that farm labour is provided by the households. Hired labour is costed at Ksh 200 per day, which is the prevailing market rate. In the case of the sorghum crop model, the extension of the cropped area from 1 to 2 acre was estimated to require an additional 40% labour.
- Mechanization. It has been assumed that by year 5, 40% of farmers, both from Category 1 and 2, will utilize the shelling/threshing facilities promoted by the programme, while the remaining farmers will keep cultivating manually.
- Category 2. The starting situation for category 2 farmers was assumed to coincide with the “with project” situation of category 1 farmers in year 3. This is because category 2 farmers are in a more advanced stage of capacity as (i) they already had access to the subsidised agricultural inputs package under the National Accelerated Agricultural Inputs Access Programme; and/or (ii) have been able to adopt improved technologies and practices on their own. For this category of beneficiaries, the programme benefits will come in the form of higher yields associated with improved agricultural practices, reduced post harvest losses linked to improved post-harvest practices and increased farm gate price generated by improved storage, access to WRS and linkages to buyers.
- Voucher. It has been assumed that for maize, the provision of the recommended input package is subsidized at 90% in the first year and 40% in the second year. For sorghum and finger millet, the provision of the input package is subsidized at 90% in the first year, 60% in the second year and 30% in the 3rd year. Only Category 1 beneficiaries are eligible to the voucher scheme.

Crop Models

7. KCEP will target the 3 main rain-fed cereals of the country (maize, sorghum and millet), which are both traditional staple food and hold significant incipient market development potential. It will also target leguminous crops (beans, green gram, pigeon peas), through crop rotation or intercropping. Each crop or pulse was identified in terms of production, inputs and labour. The production budgets compare the situation "with Project" to the "without Project" for each type of cultivation. Table 1 summarises the yields and incomes in the “with” (at full development) and “without” Project situations for the various crops, while detailed physical and financial budgets are presented in Appendix 1. Note that the cropped area for sorghum and green gram increases from 1 acre in the “without project” situation to 2 acres in the “with project” situation at full development.

Table 1: Crop Budgets: Yields and Income Assumptions (per acre)

No.	Crops	Yields (MT)			Gross Revenue from Production (excl. Post Harvest Losses and Self Consumption)			
		Unit	WOP	WP	WOP		WP	
					KSH	US$	KSH	US$
01	Maize	Kg	900	1800	3742	45	37884	451
02	Sorghum	Kg	600	2340	8190	98	44268	527
03	Finger Millet	Kg	700	1295	7308	87	42336	504
04	Beans	Kg	360	648	3780	45	22680	270
05	Green Gram	Kg	270	486	19320	230	34892	413
06	Pigeon Pea	Kg	270	486	924	11	12348	147

Farm Models

8. Twelve farm models have been developed representing the farming system (cereal/pulses mixed cropping and intercropping) to assess the financial return for category 1 and 2 target households. These models were built taking into consideration the following assumptions:

a. All farm models maintain the existing cropping patterns, except the sorghum and the green gram, for which the area under crop increases from 1 acre at year 1 to 2 acres at year 2;
b. Cash crops and livestock activities were not accounted for in the models as no intervention on these activities takes place as part of programme interventions;
c. On-farm consumption of farm products and by-products has been considered in the models and valued at the estimated opportunity cost;
d. Mechanised shelling and threshing will be adopted by 40% of beneficiaries by year 5, as part of recommended programme improvement. In the model, family labour for these activities has been reduced accordingly.

- **Farm Model-1: Manual Maize/Beans – Category 1**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 39 in the without Project scenario to US$ 482 at full Project development. The model's NPV, discounted at 12%, is US$ 1,244.

- **Farm Model-2**: **Manual Sorghum/Green Gram - Category 1**. This model assumes an average household farm size of 1.0 acre for the first year and two acres from year 2. The model indicates that annual household benefits after financing would increase substantially from US$ 284 in the without Project scenario to US $326 at full Project development. The model's NPV, discounted at 12%, is US$ 884.

- **Farm Model-3**: **Manual - Finger Millet/Pigeon Pea – Category 1**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 58 in the without Project scenario to US$ 483 at full Project development. The model's NPV, discounted at 12%, is US$ 979.

- **Farm Model-4**: **Mechanic – Maize/Beans – Category 1**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 39 in the without Project scenario to US$ 486 at full Project development. The model's NPV, discounted at 12%, is US$ 1,260.

- **Farm Model-5**: **Mechanic – Sorghum/Green Gram – Category 1**. This model assumes an average household farm size of 1.0 acre for the first year and two acres from year 2. The model indicates that annual household benefits after financing would increase substantially from US$

284 in the without Project scenario to US $621 at full Project development. The model's NPV, discounted at 12%, is US$ 923.

- **Farm Model-6**: **Mechanic – Finger Millet/Pigeon Pea – Category 1**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 58 in the without Project scenario to US$ 485 at full Project development. The model's NPV, discounted at 12%, is US$ 982.

- **Farm Model-7: Manual Maize/Beans – Category 2**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 372 in the without Project scenario to US$ 539 at full Project development. The model's NPV, discounted at 12%, is US$ 326.

- **Farm Model-8**: **Manual Sorghum/Green Gram - Category 2**. This model assumes an average household farm size of 1.0 acre for the first year and two acres from year 2. The model indicates that annual household benefits after financing would increase substantially from US$ 666 in the without Project scenario to US $677 at full Project development. The model's NPV, discounted at 12%, is US$ 107.

- **Farm Model-9**: **Manual - Finger Millet/Pigeon Pea – Category 2**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 214 in the without Project scenario to US$ 497 at full Project development. The model's NPV, discounted at 12%, is US$ 596.

- **Farm Model-10**: **Mechanic – Maize/Beans – Category 2**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 372 in the without Project scenario to US$ 541 at full Project development. The model's NPV, discounted at 12%, is US$ 331.

- **Farm Model-11**: **Mechanic – Sorghum/Green Gram – Category 2**. This model assumes an average household farm size of 1.0 acre for the first year and two acres from year 2. The model indicates that annual household benefits after financing would increase substantially from US$ 666 in the without Project scenario to US $691 at full Project development. The model's NPV, discounted at 12%, is US$ 143.

- **Farm Model-12**: **Mechanic – Finger Millet/Pigeon Pea – Category 2**. This model assumes an average household farm size of 1.0 acre. The model indicates that annual household benefits after financing would increase substantially from US$ 214 in the without Project scenario to US$ 500 at full Project development. The model's NPV, discounted at 12%, is US$ 604.

9. Table 2 below presents a summary of the financial returns in US dollars.

	Acres	WOP	WP	Incremental	% Full Dev.
Model-1: Manual Maize/Beans – Category 1	1				
Gross Value of Production		90	721	631	701%
Outflows		51	240	189	370%
Farm Family Net Benefit After Financing		39	482	443	1.135%
<u>NPV=$1,244</u>					
Model-2: **Manual Sorghum/Green Gram - Category 1**.	1st year: 1 acre, 2nd year: 2 acres				
Gross Value of Production		327	940	613	187%
Outflows		43	330	287	667%
Farm Family Net Benefit After Financing		284	610	326	114%
<u>NPV=$884</u>					
Model-3: **Manual - Finger Millet/Pigeon Pea – Category 1**.	1				
Gross Value of Production		98	651	554	565%
Outflows		39	169	130	333%
Farm Family Net Benefit After Financing		58	483	425	732%
<u>NPV=$979</u>					
Model-4: **Mechanic – Maize/Beans – Category 1**.	1				
Gross Value of Production		90	721	631	701%
Outflows		51	236	185	362%
Farm Family Net Benefit After Financing		39	486	447	1.146%
<u>NPV=$1,260</u>					
Model-5: **Mechanic – Sorghum/Green Gram – Category 1**.	1st year: 1 acre, 2nd year: 2 acres				
Gross Value of Production		327	940	613	187%
Outflows		43	319	276	641%
Farm Family Net Benefit After Financing		284	621	337	118%
<u>NPV=$923</u>					
Model-6: **Mechanic – Finger Millet/Pigeon Pea – Category 1**.	1				
Gross Value of Production		98	651	554	565%
Outflows		39	166	127	325%
Farm Family Net Benefit After Financing		58	485	427	736%
<u>NPV=$982</u>					
Model-7: Manual Maize/Beans – Category 2.	1				
Gross Value of Production		550	721	171	31%
Outflows		178	182	4	2%
Farm Family Net Benefit After Financing		372	539	167	44%
<u>NPV=$326</u>					
Model-8: **Manual Sorghum/Green Gram - Category 2**.	1st year: 1 acre, 2nd year: 2 acres				
Gross Value of Production		838	940	102	12%
Outflows		172	262	90	52%
Farm Family Net Benefit After Financing		666	677	11	2%
<u>NPV=$107</u>					
Model-9: **Manual - Finger Millet/Pigeon Pea – Category 2**.	1				
Gross Value of Production		340	651	311	91%
Outflows		127	154	27	21%
Farm Family Net Benefit After Financing		214	497	283	132%
<u>NPV=$596</u>					
Model-10: **Mechanic – Maize/Beans – Category 2**.	1				
Gross Value of Production		550	721	171	31%
Outflows		178	180	2	1%
Farm Family Net Benefit After Financing		372	541	169	45%
<u>NPV=$331</u>					
Model-11: **Mechanic – Sorghum/Green Gram – Category 2**.	1st year: 1 acre, 2nd year: 2 acres				
Gross Value of Production		838	940	102	12%
Outflows		172	249	77	44%
Farm Family Net Benefit After Financing		666	691	25	4%
<u>NPV=$143</u>					
Model-12: **Mechanic – Finger Millet/Pigeon Pea – Category 2**.	1				
Gross Value of Production		340	651	311	91%
Outflows		127	152	25	19%
Farm Family Net Benefit After Financing		214	500	286	133%
<u>NPV=$604</u>					

Table 2: Farm Models Financial Returns (USD)

10. The results presented above suggest that financial returns to programme interventions are high. This is mostly due to the subsidies applied to the input package. A discussion on the sustainability of the subsidy approach is conducted below.

11. **Voucher packages sustainability**. Two types of checks have been carried out on the use of agricultural input subsidised packages through: (i) *analysing the sustainability of input packages in the context of the household livelihood system*. This was done by including the on-farm benefits generated by the programme into a simple household model tracing the overall household expenditures and income of subsistence farmers (cat 1) (see discussion below); and (ii) *assessing the economic viability of these input package independently from the other programme interventions* to confirm the interest for the country to specifically invest in agricultural input subsidies as compared to alternative uses of these funds for rural development (see section on economic analysis).

12. *The subsistence household model* includes (i) estimates of main income sources (on-farm disaggregated by crop and animal sales), casual labour, income generating activities and remittances; and (ii) estimate of household expenditures associated with basic needs (food, education and health). The model does not take into consideration the changes in basic expenditures associated with a change in income. The sources of the data are from focus group interviews during the design mission, national and international literature and Kenya Bureau of Statistics.

13. The results in table 3 below suggest that:

a. The "without project" situation is on average financially unsustainable due to the fact that subsistence households incur higher expenditures as compared to their level of income and have to borrow from formal and informal sources to bridge that gap;

b. Sorghum subsistence farmers will generate enough income through the proposed level of subsidy (90% in Y1 and 40% in Y2 for maize; 90% in Y1, 60% in Y2 and 30% in Y3 for sorghum and millet) to be able to sustain the cost of basic food, health and education and in addition finance the cost of the inputs and the proposed farming technology;

c. Both Maize and Millet subsistence farmers have difficulties in the first year due to a significantly lower crop income but will break even in the second year. Access to consumption and/or production loans during the first year of programme intervention will be crucial for these target groups;

d. Over time, the increase in income associated with programme interventions will allow households to significantly improve their pattern of basic expenditure and thus their livelihood system; and

14. Based on the analysis, the maize and sorghum subsistence producers could fund up to 30% and 45% respectively of the recommended input package in Y1 (rather than 10% as planned under KCEP). In practice, this increase in own contribution is not recommended as it would increase the risk of unsustainability of the voucher scheme given that any unforeseen event will reduce the household capacity of funding the cost of the inputs and the proposed farming technology. The 10% farmer contribution to the input package retained for Y1 in KCEP is designed to allow sufficient margin for subsistence households to cope with unforeseen events and avoid drop outs which were observed in the case of the voucher schemes in Zambia and Zimbabwe.

Table 3: Voucher Sustainability within Household Livelihood System (Ksh)

			Category 1			
Maize Input Package	**WOP**			**WP**		
90% 1st year, 40% 2nd year	**Year 1 to 5**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflows						
Casual Labor	25000	25000	25000	25000	25000	25000
Milk Sales	8000	8000	8000	8000	8000	8000
Crop Sales	7560	34501	44654	52089	56912	59385
Total	40560	67501	77654	85089	89912	92385
Outflows						
Food	30000	30000	30000	30000	30000	30000
Education	10000	10000	10000	10000	10000	10000
Health	8000	8000	8000	8000	8000	8000
Inputs for production	4258	6552	15120	20160	23856	20160
Warehouse overheads			512	1436	1470	1470
Past Debt/Savings		13453	503	-13518	-29011	-45596
Total	52258	68005	64136	56079	44315	24034
Surplus/Deficit	**-11698**	**-503**	**13518**	**29011**	**45596**	**68351**
Sorghum Input Package	**WOP**			**WP**		
90% Y1, 60% Y2, 30% Y3	**Year 1 to 5**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflows						
Crop Farming	27468	45541	62093	70400	77792	78674
Casual Labor	8000	8000	8000	8000	8000	8000
Sale of Livestock	5000	5000	5000	5000	5000	5000
Sale of other goods	3000	3000	3000	3000	3000	3000
Income from wages/remittances,etc..						
Total	43468	61541	78093	86400	93792	94674
Outflows						
Food	25000	25000	25000	25000	25000	25000
Education	14000	14000	14000	14000	14000	14000
Health	7000	7000	7000	7000	7000	7000
Inputs for production	3593	7056	20076	24360	29400	27720
Warehouse overheads						
Past Debt/Savings		7043	-1441	-13458	-29498	-47891
Total	49593	60099	64635	56902	45902	25829
Surplus/Deficit	**-6125**	**1441**	**13458**	**29498**	**47891**	**68845**
Finger Millet Input Package	**WOP**			**WP**		
90% Y1, 60% Y2, 30% Y3	**Year 1 to 5**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflows						
Crop Farming	8215	24691	30036	40097	54719	57759
Casual Labor	10000	10000	10000	10000	10000	10000
Sale of Livestock	6000	6000	6000	6000	6000	6000
Sale of other goods	5000	5000	5000	5000	5000	5000
Income from wages/remittances,etc..						
Total	29215	45691	51036	61097	75719	78759
Outflows						
Food	19000	19000	19000	19000	19000	19000
Education	9000	9000	9000	9000	9000	9000
Health	6000	6000	6000	6000	6000	6000
Inputs for production	3310	4536	9828	12180	16212	14196
Warehouse overheads			1680	1680	1680	1680
Past Debt/Savings		9310	2478	-3050	-16287	-40114
Total	37310	47846	47986	44810	35605	9762
Surplus/Deficit	**-8095**	**-2155**	**3050**	**16287**	**40114**	**68997**

15. **Weather-based crop insurance**. The financial sustainability of the weather-based crop insurance was assessed through a financial analysis of the crop models of the three cereals using the full cost of the insurance. Results presented in table 4 below suggest that all three crop models are viable when using the full cost for the insurance, all other things being equal.

Table 4: Financial Viability of Crop Insurance (USD)

USD	Category 1				
	Year 1	Year 2	Year 3	Year 4	Year 5
Maize (Manual)					
Income from Production	410	507	578	603	603
Total Inputs	169	147	148	172	148
Insurance	*22*	*38*	*38*	*38*	*38*
Other Costs of Production	102	90	92	92	92
Total	**139**	**270**	**338**	**339**	**363**
NPV = $1001					
	Year 1	Year 2	Year 3	Year 4	Year 5
Sorghum (Manual)					
Income from Production	542	739	838	926	939
Total Inputs	128	109	113	138	117
Insurance	*14*	*52*	*58*	*70*	*70*
External Labor		88	88	88	88
Other Costs of Production	100	107	113	114	115
Total	**314**	**435**	**524**	**586**	**619**
NPV = $1723					
	Year 1	Year 2	Year 3	Year 4	Year 5
Finger Millet (Manual)					
Income from Production	245	255	272	362	362
Total Inputs	118	94	96	120	96
Insurance	*15*	*19*	*19*	*19*	*19*
Other Costs of Production	97	72	72	72	72
Total	**30**	**89**	**104**	**170**	**194**
NPV = $390					

16. **Poverty impact.** A preliminary assessment of the poverty impact of the programme was carried out. This was done by adding the incremental income that the programme will generate to the “without project” income level as estimated in the subsistence household model presented in table 3 above. The results presented in table 5 suggest that for subsistence smallholders, the potential for poverty extraction is significant. Maize and sorghum subsistence farmers are able to reach income levels above the poverty line (87,630 Ksh per household per year equivalent to 0.52 USD/individual/day) in Y4. Millet farmers exit poverty in Y7. Among the more advanced farmers (category 2 beneficiaries), maize farmers exit poverty in Y2, millet farmers in Y5 while sorghum farmers are above the poverty line since the start. For more advanced smallholders, the issue is avoiding falling back into poverty as 75% of them are oscillating in and out of poverty and/or have recently exited from poverty.

Table 5: Preliminary Estimate of Poverty Impact (Ksh)

Poverty Line 87,630	**Category 1**				
Maize (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Casual Labour	25000	25000	25000	25000	25000
Milk Sale	8000	8000	8000	8000	8000
Crop Sale	34501	44654	52089	56912	59385
Total	**67501**	**77654**	**85089**	**89912**	**92385**
Sorghum (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Crop Farming	45541	62093	70400	77792	78674
Casual Labor	8000	8000	8000	8000	8000
Sale of Livestock	5000	5000	5000	5000	5000
Sale of other goods	3000	3000	3000	3000	3000
Total	**58541**	**75093**	**83400**	**90792**	**91674**
Finger Millet (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Crop Farming	24691	30036	40097	54719	57759
Casual Labor	10000	10000	10000	10000	10000
Sale of Livestock	6000	6000	6000	6000	6000
Sale of other goods	5000	5000	5000	5000	5000
Total	**45691**	**51036**	**61097**	**75719**	**78759**

Poverty Line 87,630	**Category 2**				
Maize (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Casual Labour	5000	5000	5000	5000	5000
Milk Sale	35000	35000	35000	35000	35000
Crop Sale	44881	50300	51443	52586	54871
Total	**84881**	**90300**	**91443**	**92586**	**94871**
Sorghum (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Crop Farming	77792	78926	78926	78926	78926
Casual Labor	6000	6000	6000	6000	6000
Sale of Livestock	20000	20000	20000	20000	20000
Sale of other goods	4000	4000	4000	4000	4000
Total	**103792**	**104926**	**104926**	**104926**	**104926**
Finger Millet (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Crop Farming	42563	44856	48639	54719	57759
Casual Labor	6000	6000	6000	6000	6000
Sale of Livestock	20000	20000	20000	20000	20000
Sale of other goods	4000	4000	4000	4000	4000
Total	**72563**	**74856**	**78639**	**84719**	**87759**

17. The results presented in table 5 were combined with those presented in table 6 and 7 below. This allowed estimating a preliminary poverty reduction target. When considering a scenario where only the input package with extension services and produce aggregation services are adopted, the potential for poverty extraction is 66,400 HH out of 100,000 beneficiary households (equivalent to 66% of beneficiaries receiving programme services). It should be noted that this poverty extraction is potentially unsustainable as the risks of falling back into poverty are high. In a scenario where beneficiary household adopt the full package of improvements promoted by the programme (input package with extension services, post-harvest services, market linkages and crop insurance), the potential for poverty extraction is 40,800 HH (equivalent to 41% of beneficiaries receiving programme services). On the one hand, the reduced number of household extracted from poverty in this scenario is a consequence of the lower adoption rate of the whole range of proposed interventions (especially weather-based crop insurance). On the other hand, the sustainability of this type of poverty extraction is higher as the risks of falling back into poverty are significantly reduced.

Table 6: Preliminary Estimate of Poverty Target (HH)

Component and sub-components	Outreach (HH)		Expected adoption rate (HH)		Impacted HH		Targeted poverty reduction (HH)		
	cat 1	cat 2	cat 1	cat 2	cat 1	cat 2	cat 1 95%	cat 2 75%	Total
Cereal Productivity Enhancement									
Supply of services									
Adaptation & dissemination of technical technologies	40 000	60 000	80%	50%	32 000	30 000	30 400	22 500	52 900
Technical advisory services (CGA)	40 000	60 000	80%	50%	32 000	30 000	30 400	22 500	52 900
Demand of services									
Training farmers on farmer organizational development	40 000	0	60%	0%	24 000	0	22 800	0	22 800
Assist farmers to undertake bulk procurement of inputs	40 000	0	60%	0%	24 000	0	22 800	0	22 800
Post-harvest Management and Market Linkages									
Post-harvest handling and management									
Training and capacity development 1/	40 000	0	80%	0%	32 000	0	30 400	0	30 400
Produce aggregation and warehousing	40 000	60 000	80%	80%	32 000	48 000	30 400	36 000	66 400
Market linkages and value addition									
Capacity building for market linkages and value addition	40 000	60 000	80%	80%	32 000	48 000	30 400	36 000	66 400
Spot improvement of access roads	40 000	60 000	100%	100%	40 000	60 000	38 000	45 000	83 000
Financial inclusion									
Access to services									
Voucher distribution	40 000	0	100%	0%	40 000	0	38 000	0	38 000
Access to WRS	40 000	60 000	80%	80%	32 000	48 000	30 400	36 000	66 400
Access to weather-based insurance 2/	40 000	60 000	60%	40%	24 000	24 000	22 800	18 000	40 800
financial literacy 3/	40 000	60 000	100%	40%	40 000	60 000	38 000	45 000	83 000
Value Chain Financing	40 000	60 000	80%	80%	32 000	48 000	30 400	36 000	66 400
Temporary poverty extraction: considering farmer adopting the input package with extension services and produce aggregation services (avoiding double counting) based on the following assumptions:					**32 000**	**48 000**	**30 400**	**36 000**	**66 400**
for cat 1:									
without project situation: 100% below poverty line									
with project situation: 95% above poverty line									
for cat 2:									
without project situation: 31% below poverty line; 44% at risk of falling back into poverty (31% oscillated and 13% just exited - see table 7 on poverty mobility). The 25% balance can be considered out of poverty already in the without project situation									
with project situation: 95% above poverty line									
Sustainable poverty extraction: considering only farmer adopting the full package including the input package with extension services, post-harvest services market linkagesd and weather based insurance (avoiding double counting) based on the following assumptions:					**24 000**	**24 000**	**22 800**	**18 000**	**40 800**
for cat 1:									
without project situation: 100% below poverty line									
with project situation: 95% above poverty line									
for cat 2:									
without project situation: 31% below poverty line; 44% at risk of falling back into poverty (31% oscillated and 13% just exited - see table 7 on poverty mobility). The 25% balance can be considered out of poverty already in the without project situation									
with project situation: 95% above poverty line									

1/ Cat 2 willnot benefit from tstrengthening of farmer organisation under KCEP. Thus post-harvest management training will not be provided as it requires previous farmer groups strengthening

2/ Cat 1 are assumed to have a low adoption rate as the cost is high and the benefits uncertain. Cat 2 beneficiaries will not access insurance services in the package and will adopt based on their interest and willingness

3/ Despite a 40% adoption, the impact is assumed to be 100% as beneficiaries have already received financial literacy or be literate.

Table 7: Poverty mobility type and distribution by agro-ecological zones (%)

AEZ (CAADP zone)*	Chronic Poor	Descended	Oscillated	Exited	Non-Poor
Coastal Lowland (SA)	28	5	41	12	13
Eastern Lowland (SA)	12	3	37	14	34
Western Lowland (HR)	39	8	30	16	7
Western Transitional (HR)	16	7	45	7	25
High Potential Maize Zone (HR)	17	5	24	12	41
Western Highlands (HR)	32	8	32	12	17
Central Highlands (HR/SA)	6	1	15	12	70
Marginal rain shadow (SA)	8	3	30	19	41
National	19	5	29	12	36
Source: Suri (2008) Rural Incomes, Inequality and Poverty Dynamics in Kenya, Working Paper 30, Tegemeo Institute					
*CAADP defines AEZ by arid, semi-arid and high rainfall areas.					
Notes:					
Chronic poor: below poverty line in last three survey years					
Non-poor: above poverty line in last three survey years					
Exited: were poor in 2000 and/or 2004 and rose above poverty in 2007					
Descended: not poor in 2000 and/or 2004 and became poor in 2007					
Oscillators: moved in and out of poverty in three survey years					

Economic Analysis

18. The objectives of the economic analysis are: (i) to examine the overall Programme viability, and (ii) to assess the Programme's impact and the overall economic rate of return; and (iii) to perform sensitivity analyses to assess the benefits from a broad welfare perspective.

19. **Key Assumptions**. The physical inputs and productions established in the financial analysis provided the basis to determine the viability of the programme investment in terms of opportunity costs and quantifiable benefits to the economy as a whole. The estimate of the likely economic returns from Programme interventions are based on the following assumptions: (i) Programme life has been assumed at 20-years; (ii) Programme inputs and outputs traded are valued at their respective market prices, and agricultural goods are expected to move freely within the programme area in response to market demand; (iii) an economic discount rate of 12% has been used; (v) the opportunity cost of unskilled labour was assumed at the minimum daily agricultural wage rate of 200 Khs; and (vi) financial prices were converted to economic prices using import party prices for maize, sorghum and millet based on import millgate price and transport/handling costs (see table 8 below), while for all other goods, a Standard Conversion Factor (SCF) of 0.9 was used.

Table 8: Import Parity Prices

	Maize	Sorghum	Finger Millet
Millgate price (bag) (Ksh)	3200	2880	4800
Handling (Ksh)	30	30	30
Transport to warehouse (Ksh)	100	100	100
Handling (Ksh)	20	20	20
Transport to farm (Ksh)	25	25	25
Handling (Ksh)	20	20	20
Foreign exchange rate (Ksh/$)	84	84	84
Import parity value at farm gate ($/kg)	**0.40**	**0.36**	**0.61**

20. **Programme Economic Costs**. The economic analyses include the investment and incremental recurrent costs of the programme components. The programme financial costs have been converted to economic values by removal of price contingencies, taxes and duties. In the case of

main cereals crops (maize, sorghum and millet), import parity prices have been estimated based on mill-gate import price. Furthermore, it has been assumed that there is a cost of replacing some specific programme-acquired equipment and infrastructure according to the following useful life: i) vehicles (7 years) ii) computers and office furniture (5 years) iii) maintenance of roads; iv) maintenance of warehouse (5 years); and v) maintenance of storage facilities (5-9 years).

21. **Benefits Estimation**. The incremental benefits stream comprises the economic net value of crop production. These benefits are then aggregated based on the phasing of the household uptake during the implementation period.

22. **Programme Phasing**. Table 9 below summarizes the number of participating farms during the implementation period. It has been assumed that 80% of farmers included in Category 1 will participate, and 50% of farmers belonging to Category 2.

23. **Warehouse Adoption Rates.** Table 10 belowsummarizes the number of participating famers to the warehouse system during the implementation period.

24. **Post Harvest Losses.**Table 11 below summarize the reduction of post harvest losses before and after the implementation of the programme.

25. **Mechanisation rate.**Table 12 below summarize the adoption of mechanisation before and after the implementation of the programme.

Table 9: Programme Phasing

Number of Farms Participating	**Y1**	**Y2**	**Y3**	**Y4**	**Y5 to Y20**	**Adoption Rate**
Maize						
Manual – Category 1	2000	7200	12800	11200	9600	80%
Mechanic – Category 1	0	800	3200	4800	6400	80%
Total Category 1	*2000*	*8000*	*16000*	*16000*	*16000*	
Manual – Category 2	15000	13500	12000	10500	9000	50%
Mechanic – Category 2	0	1500	3000	4500	6000	50%
Total Category 2	*15000*	*15000*	*15000*	*15000*	*15000*	
Sorghum						
Manual – Category 1	3960	9504	8448	7392	6336	80%
Mechanic – Category 1	0	1056	2112	3168	4224	80%
Total Category 1	*3960*	*10560*	*10560*	*10560*	*10560*	
Manual – Category 2	9900	8910	7920	6930	5940	50%
Mechanic – Category 2	0	990	1980	2970	3960	50%
Total Category 2	*9900*	*9900*	*9900*	*9900*	*9900*	
Finger Millet						
Manual – Category 1	1800	4896	4352	3808	3264	80%
Mechanic – Category 1	0	544	1088	1632	2176	80%
Total Category 1	*1800*	*5440*	*5440*	*5440*	*5440*	
Manual – Category 2	5100	4590	4080	3570	3060	50%
Mechanic – Category 2	0	510	1020	1530	2040	50%
Total Category 2	*5100*	*5100*	*5100*	*5100*	*5100*	

Table 10: Warehouse Participation Rate

Number of Farms Participating	Y1	Y2	Y3	Y4	Y5 to Y20
Maize					
Manual – Category 1	0%	20%	30%	50%	80%
Mechanic – Category 1	0%	20%	30%	50%	80%
Manual – Category 2	0%	20%	30%	50%	80%
Mechanic – Category 2	0%	20%	30%	50%	80%
Sorghum					
Manual – Category 1	0%	0%	0%	0%	0%
Mechanic – Category 1	0%	0%	0%	0%	0%
Manual – Category 2	0%	0%	0%	0%	0%
Mechanic – Category 2	0%	0%	0%	0%	0%
Finger Millet					
Manual – Category 1	0%	40%	60%	80%	80%
Mechanic – Category 1	0%	40%	60%	80%	80%
Manual – Category 2	0%	40%	60%	80%	80%
Mechanic – Category 2	0%	40%	60%	80%	80%

Table 11: Post Harvest Losses Reduction

	Y0	Y1	Y2	Y3	Y4	Y5 to Y20
Maize						
Manual – Category 1	25%	15%	10%	5%	5%	5%
Mechanic – Category 1	25%	15%	10%	5%	5%	5%
Manual – Category 2	10%	5%	5%	5%	5%	5%
Mechanic – Category 2	10%	5%	5%	5%	5%	5%
Sorghum						
Manual – Category 1	35%	20%	20%	10%	10%	10%
Mechanic – Category 1	35%	20%	20%	10%	10%	10%
Manual – Category 2	10%	10%	10%	10%	10%	10%
Mechanic – Category 2	10%	10%	10%	10%	10%	10%
Finger Millet						
Manual – Category 1	20%	15%	15%	7%	7%	7%
Mechanic – Category 1	20%	15%	15%	7%	7%	7%
Manual – Category 2	7%	7%	7%	7%	7%	7%
Mechanic – Category 2	7%	7%	7%	7%	7%	7%

Table 12: Adoption of Mechanization Rate

	Year 1	Year 2	Year 3	Year 4	Year 5
Maize	0	10%	20%	30%	40%
Sorghum	0	10%	20%	30%	40%
Finger Millet	0	10%	20%	30%	40%

26. **Economic viability of promoted input package**. The specific economic viability of the promoted input package was analysed in order to assess the interest for the country to subsidise agricultural inputs for subsistence farming. The positive NPVs of voucher packages for all three crops presented in table 13 suggest that promoting the input package is economically viable. This conclusion is reinforced when the voucher is combined with the other interventions promoted by the programme (post-harvest losses, WRS, market linkages). In this case, the economic viability is signifcant for all three crops as suggested by the results of the economic analysis below. This indicates that subsidising inputs is economically justified, even more so if these inputs are accompanied by a set of interventions allowing to reduce losses, secure higher farmgate prices and improve market linkages, as in the case of KCEP.

Table 13: Economic Viability of Promoted Input Package (USD)

USD			**Category 1**		
Maize (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Income from Production	404	509	591	630	642
Total Inputs	156	135	136	159	137
Family Labor	221	224	224	224	224
Other Costs of Production	93	80	80	80	80
Total	**-66**	**70**	**151**	**167**	**201**
NPV = $324					
Sorghum (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Income from Production	554	789	905	1002	1018
Total Inputs	128	110	113	137	115
External Labor		80	80	80	80
Family Labor	199	199	199	199	199
Other Costs of Production	104	180	173	183	183
Total	**123**	**221**	**341**	**404**	**442**
NPV = $1035					
Finger Millet (Manual)	Year 1	Year 2	Year 3	Year 4	Year 5
Income from Production	379	400	553	599	614
Total Inputs	109	87	88	111	89
Family Labor	230	226	226	226	226
Other Costs of Production	89	63	63	63	63
Total	**-49**	**24**	**176**	**199**	**236**
NPV = $360.95					

27. **Economic Rate of Return.** The overall economic internal rate of return (EIRR) of the Programme is estimated at 30% for the base case. The net present value (NPV) of the net benefit stream, discounted at 12%, is US$ 21.004 million. The summary of economic analysis is presented in table 13 in Attachment 1.

28. **Sensitivity Analysis**. The analysis assesses the effect of variations in Programme benefits and costs. Results are presented in table 10 below. The EIRR was subject to sensitivity analysis to measure variations due to unforeseen factors. For instance, an increase in total Programme costs by 10% would reduce the EIRR to 23%, while a 20% cost over-run would reduce EIRR to 18%. A 10% decrease in the production net benefits would reduce the EIRR to 20%; a 20% decrease in production net benefits would bring EIRR to 10%, i.e. below the minimum of 12% required. Switching values for key economic benefits suggest that in order for the programme not to be viable, (i) the adoption rate of category 1 beneficiaries of improved input package and technology should drop to 60%; and (ii) the adoption rate of category 2 beneficiaries of improved input package and technology should drop to 30%. The sensitivity analysis, therefore, indicates that the (i) KCEP is relatively robust and will remain economically viable under most foreseeable adverse conditions, (ii) it is more sensitive to benefit reduction as compared to cost increase; and (iii) it will become unviable only in the case of a reduction of net benefits by 20%.

Table 14: Sensitivity Analysis

Sensitivity Analysis	**IRR**	**NPV ('000)**
Increase in Cost: 10%	23.68%	$14,866.45
Increase in Cost: 20%	18.36%	$8,728.11
Increase in Cost: 30%	13.78%	$2,589.76
	IRR	**NPV ('000)**
Decrease in Nets Benefits: 10%	20.37%	$9,481.22
Decrease in Nets Benefits: 20%	10.06%	-$2,042.34
Decrease in Benefits: 30%	-3.87%	-$13,565.92
	Participation Rate	**Switching Value**
Full KCEP Intervention Package		
Category 1	80%	60.3%
Category 2	50%	30.3%
	With Project	**Switching Value**
Level of Post Harvest Losses	7%	15.2%

Attachment 1

Table 1: Maize/Beans – Manual – Category 1 – Yields, Inputs and Financial Budget

	Unit	Price 1	Price 2	Without Project Year 1 to 5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
		$	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$
1. Production															
Maize															
Total	**kg/acre**			900		1575		1710		1800		1800		1800	
Post-Harvest Losses	**kg/acre**	0.33		225		236		171		90		90		90	
Self-Consumed (6 bags @ 90kg)	**kg/acre**	0.33		540		540		540		540		540		540	
Marketed	**kg/acre**			135		799		999		1170		1170		1170	
At Harvest (at storage facility)	**kg/acre**	0.33		1	45	1	264	80%	264	70%	270	50%	193	20%	77
At Peak Season	**kg/acre**		0.40	0	0	0	0	20%	80	30%	140	50%	234	80%	374
Beans															
Total	**kg/acre**			360		558		594		594		648		648	
Post-Harvest Losses	**kg/acre**	0.50		90		84		59		30		32		32	
Self-Consumed (2 bags @ 90 kgs)	**kg/acre**	0.50		180		180		180		180		180		180	
Marketed	**kg/acre**			90		294		355		384		436		436	
At Harvest (at storage facility)	**kg/acre**	0.50		1	45	1	147	80%	142	70%	135	50%	109	20%	44
At Peak Season	**kg/acre**		0.65	0	0	0	0	20%	46	30%	75	50%	142	80%	227
Income from Production					90		411		532		620		678		722
2. Production costs															
2.1 Inputs															
Improved Seeds															
Maize	**kg/acre**	1.00	3.00	10	10	10	30	10	30	10	30	10	30	10	30
Beans	**kg/acre**	0.25	1.20	25	6	25	30	25	30	25	30	25	30	25	30
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	35	50	35	50	35	50	35	50	35
Pesticides															
Storage dust-maize	**kg**		5.00	1	5										
Storage dust-beans	**kg**		4.00	0	1										
Bags															
Purchase of gunny bags	**bags**	0.50		11	5	10	5	13	7	15	8	16	8	16	8
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total Inputs					28		169		147		148		172		148
2.2 Family Labor					232		246		267		269		269		269
2.3 Other costs of production															
Small materials		0.02	0.05		5		12		13		13		13		13
Other equipment		0.08	0.15		19		37		40		40		40		40
Tarpaulin							24								
Palets							7								
Weather-index based insurance							22		38		38		38		38
Sub Total other costs of production					23		102		92		92		92		92

			Without Project Year 1 to 5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenues								
Maize			45	264	344	411	427	452
Beans			45	147	188	209	250	270
Sub Total Revenue			*90*	*411*	*532*	*620*	*678*	*722*
Operating Inputs			28	169	147	148	172	148
Other Costs			23	102	92	92	92	92
Labor			232	246	267	269	269	269
Sub Total Cost excluding Labor			51	271	238	240	264	240
Sub Total Cost including Labor			283	518	506	509	533	509
Gross Income excl. Family Labor			39	139	293	380	413	482
Gross Income incl. Family Labor			-193	-107	26	111	145	213
Incr. Gross Income excl. Fam. Labor before Financing	NPV @ 12%	$1,025		100	254	342	375	443
Incr. Gross Income incl. Fam. Labor before Financing	NPV @ 12%	$913		86	219	305	338	406
Benefit/Cost (excl. labor)				2	2	3	3	3
Benefit/Cost (incl. labor)				1	1	1	1	1
Package Subsidy (90% 1st year, 40% 2nd year)								
Improved Seeds								
Maize	**kg/acre**			27	12			
Beans	**kg/acre**			27				
Fertilizers								
Basal fertilizer	**kg**			41	18			
Top-dressing fertilizer	**kg**			30	13			
Pesticides								
Storage dust Maize	**kg**							
Storage dust Beans	**kg**							
Bags								
Gunny bags	**bags**							
Hermetic bags	**bags**			21				
Others								
Tarpaulin				21				
Palets				6				
Insurance				20	15			
Total Package Subsidy/farmer			0	193	58	0	0	0

Cash Flow Analysis			**WOP**	**With Project**				
Items			**Year 1 to 5**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflow								
Production Revenues			90	411	532	620	678	722
Total Inflow			90	411	532	620	678	722
Outflow								
Production Costs			51	271	238	240	264	240
Subsidized (90% 1st year, 2nd year)			0	193	58	0	0	0
Paid by the beneficiaries			51	78	180	240	264	240
Total Outflow			51	271	238	240	264	240
Total Outflow including Family Labor			283	518	506	509	533	509
Net Income after Financing			39	332	352	380	413	482
Net Income after Financing including Family Labor			-193	-107	26	111	145	213
Incremental Production Revenues	NPV 12%	$1,565		321	210	531	588	632
Incremental Total Inflow		$1,565		321	210	531	588	632
Incremental Production Costs		$724		221	188	189	213	189
Incremental Production Cost Subsidized		$219		193	58	0	0	0
Incremental Production Cost paid by Beneficiaries		$505		28	129	189	213	189
Incremental Outflow		$724		221	188	189	213	189
Incremental Outflow incl. Family Labor		$836		235	223	226	250	226
Incremental Net Income		$1,244		293	313	342	375	443
Incremental Net Income incl. Family labor		$913		86	219	305	338	406

Table 2: Maize/Beans – Mechanic – Category 1 – Yields, Inputs and Financial Budget

				Without Project		With Project									
	Unit	Price 1 $	Price 2 $	Year 1 - 5		Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production				Q.	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$
Maize	**kg/acre**														
Total	**kg/acre**			900		1575		1710		1800		1800		1800	
Post-Harvest Losses	**kg/acre**			225		236		171		90		90		90	
Self-Consumed	**kg/acre**			540		540		540		540		540		540	
Marketed	**kg/acre**			135		799		999		1170		1170		1170	
At Harvest	**kg/acre**	0.33		1	45	1	264	80%	264	70%	270	50%	193	20%	77
At peak Season	**kg/acre**		0.40	0	0	0	0	20%	80	30%	140	50%	234	80%	374
					45		264		344		411		427		452
Beans	**kg/acre**														
Total	**kg/acre**			360		558		594		594		648		648	
Post Harvest Losses	**kg/acre**			90		84		59		30		32		32	
Self-Consumed	**kg/acre**			180		180		180		180		180		180	
Marketed	**kg/acre**			90		294		355		384		436		436	
At Harvest	**kg/acre**	0.50		1	45	1	147	80%	142	70%	135	50%	109	20%	44
At Peak Season	**kg/acre**		0.65	0	0	0	0	20%	46	30%	75	50%	142	80%	227
					45		147		188		209		250		270
Income from Production					90		411		532		620		678		722
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Maize	**kg/acre**	1.00	3.00	10	10	10	30	10	30	10	30	10	30	10	30
Beans	**kg/acre**	0.25	1.20	25	6	25	30	25	30	25	30	25	30	25	30
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	35	50	28	50	35	50	35	50	35
Pesticides															
Storage dust-maize	**kg**		5.00	1	5										
Storage dust-beans	**kg**		4.00	0	1										
Bags															
Purchase of gunny bags	**bags**	0.50		11	5	10	5	13	7	15	8	16	8	16	8
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total inputs					28		169		140		148		172		148
2.2. Labor					232		246		249		249		249		249
3. Other costs of production															
Small materials		0.02	0.05		5		12		12		12		12		12
Other equipment		0.08	0.15		19		37		37		37		37		37
Mechanic Shelling		0.71	0.71						0		0		0		0
Farming															
Tarpaulin							24								
Palets							7								
Weather-index based insuyrance							22		38		38		38		38
Sub total other costs of production					23		102		88		88		88		88

			Without Project	With Project				
			Year 1 - 5	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Maize			45	264	344	411	427	452
Beans			45	147	188	209	250	270
Sub Total Revenue			90	411	532	620	678	722
Operating Inputs			28	169	140	148	172	148
Other costs			23	102	88	88	88	88
Labor			232	246	249	249	249	249
Sub Total Cost excluding labor			51	271	228	236	260	236
Sub Total Cost including labor			283	518	477	485	509	485
Gross income excl. labor			39	139	304	384	417	486
Gross income incl. labor			-193	-107	55	135	168	237
Incr. Gross income excl. labor before financing	NPV @ 12%	$1,040.88		100	265	345	379	447
Incr. Gross income incl. labor before financing	NPV @ 12%	$981.74		86	248	328	361	430
Benefit/Cost (excl. labor)				2	2	3	3	3
Benefit/Cost (incl. labor				1	1	1	1	1

		Year 1	Year 2	Year 3	Year 4	Year 5
Package Subsidy (90% 1st year, 40% 2nd year)						
Improved Seeds	**kg/acre**					
Maize	**kg/acre**	27	12			
Beans		27				
Fertilizers	**kg**					
Basal Fertilizers	**kg**	41	18			
Top Dressing Fertilizer		30	13			
Pesticides	**kg**					
Storage dust-maize	**kg**					
Storage dust-beans						
Bags	**bags**					
Gunny bags	**bags**					
Hermetic bags		21				
Others						
Tarpaulin		21				
Palets		6				
Weather-index based insuyrance		20	15			
Total package subsidy/farmer		193	58	0	0	251

Cash Flow Analysis		Without Project		With Project				
Items		Year 1 - 5		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflow								
Production Revenues								
Total Inflow			90	411	532	620	678	722
Outflow			90	411	532	620	678	722
Production Costs			51	271	228	236	260	236
Subsidized (90% 1st year, 2nd year)			0	193	58	0	0	251
Paid by the beneficiaries			51	78	169	236	260	236
Total Outflow			51	78	169	236	260	236
Total Outflow including Family Labor			283	325	418	485	509	485
Net Income after Financing			39	332	362	384	417	486
Net Income after Financing including Family Labor			-193	86	113	135	168	237
Incremental Production Revenues	NPV at 12%	$1,749		321	442	531	588	632
Incremental Total Inflow		$1,749		321	442	531	588	632
Incremental Production Costs		$708		221	177	185	209	185
Incremental Production Cost Subsidized		$361		193	58	0	0	251
Incremental Production Cost paid by Beneficiaries		$490		28	119	185	209	185
Incremental Outflow		$490		28	119	185	209	185
Incremental Outflow incl. Family Labor		$549		42	136	202	227	203
Incremental Net Income		$1,260		293	323	345	379	447
Incremental Net Income incl. Family labor		$1,201		279	306	328	361	430

Table 3: Maize/Beans – Manual – Category 2 – Yields, Inputs and Financial Budget

	Unit	Price 1 $	Price 2 $	Without Project Year 1-5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Maize	kg/acre														
Total	kg/acre			1710		1800		1800		1800		1800		1800	
Post-Harvest Losses	kg/acre			86		90		90		90		90		90	
Self-Consumed	kg/acre			540		540		540		540		540		540	
Marketed	kg/acre			1085		1170		1170		1170		1170		1170	
At Harvest	kg/acre	0.33		1	358	1	386	80%	309	70%	270	50%	193	20%	77
At peak Season	kg/acre		0.40	0	0	0	0	20%	94	30%	140	50%	234	80%	374
					358		386		402		411		427		452
Beans	kg/acre														
Total	kg/acre			594		594		648		648		648		648	
Post Harvest Losses	kg/acre			30		30		32		32		32		32	
Self-Consumed	kg/acre			180		180		180		180		180		180	
Marketed	kg/acre			384		384		436		436		436		436	
At Harvest	kg/acre	0.50		1	192	1	192	80%	174	70%	152	50%	109	20%	44
At Peak Season	kg/acre		0.65	0	0	0	0	20%	57	30%	85	50%	142	80%	227
					192		192		231		237		250		270
Income from Production					550		578		633		648		678		722
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Maize	kg/acre	1.00	3.00	10	30	10	30	10	30	10	30	10	30	10	30
Beans	kg/acre	0.25	1.20	25	30	25	30	25	30	25	30	25	30	25	30
Fertilizers															
Basal Fertilizers	kg		0.90	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	kg		0.70	50	35	50	35	50	35	50	35	50	35	50	35
Pesticides															
Storage dust-maize	kg														
Storage dust-beans	kg														
Bags															
Purchase of gunny bags	bags	0.50		23	12	25	15	26	15	26	15	26	15	26	15
Purchase of hermetic bags	bags		2.40												
Sub total inputs					152		155		155		155		155		155
2.2. Labor					267		269		269		269		269		269
3. Other costs of production															
Small materials		0.02	0.05		5		5		5		5		5		5
Other equipment		0.08	0.15		21		22		22		22		22		22
Mechanic Shelling															
Farming															
Tarpaulin															
Palets															
Weather-index based insuyrance															
Sub total other costs of production					27		27		27		27		27		27

			Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Maize			358	386	402	411	427	452
Beans			192	192	231	237	250	270
Sub Total Revenue			550	578	633	648	678	722
Operating Inputs			152	155	155	155	155	155
Other costs			27	27	27	27	27	27
Labor			267	269	269	269	269	269
Sub Total Cost excluding labor			178	182	182	182	182	182
Sub Total Cost including labor			446	451	451	451	451	451
Gross Income excl. labor			372	396	451	466	495	539
Gross Income incl. labor			104	127	182	197	226	271
Incremental Gross Income excl. labor before financing	NPV	$326		25	79	94	123	168
Incremental Gross Income incl. labor before financing		$320		23	78	92	122	166
Benefit/Cost (excl. labor)				3	3	4	4	4
Benefit/Cost (incl. labor				1	1	1	2	2
Package Subsidy (90% 1st year, 40% 2nd year)								
Improved Seeds								
Maize	**kg/acre**							
Beans	**kg/acre**							
Fertilizers								
Basal Fertilizers	**kg**							
Top Dressing Fertilizer	**kg**							
Pesticides								
Storage dust-maize	**kg**							
Storage dust-beans	**kg**							
Bags								
Gunny bags	**bags**							
Hermetic bags	**bags**							
Others								
Tarpaulin								
Palets								
Weather-index based insuyrance								
Total package subsidy/farmer								
Number of farmers								
Total cost of package subsidy								

			Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Cash Flow Analysis								
Inflow								
Production Revenues			550	578	633	648	678	722
Total Inflow			550	578	633	648	678	722
Production Costs			178	182	182	182	182	182
Subsidized (90% 1st year, 2nd year)			0	0	0	0	0	0
Paid by the beneficiaries			178	182	182	182	182	182
Total Outflow			178	182	182	182	182	182
Total outflow including labor			446	451	451	451	451	451
Net Income after financing			372	396	451	466	495	539
Net Income after financing including labor			104	127	182	197	226	271
Incremental Production Revenues	NPV 12%	$340		28	83	98	127	172
Incremental Total Inflow		$340		28	83	98	127	172
Incremental Production costs		$14		4	4	4	4	4
Incremental Production costs subsidized		$0		0	0	0	0	0
Incremental Production Cost paid by beneficiaries		$14		4	4	4	4	4
Incremental Outflow		$14		4	4	4	4	4
Incremental Outflow including labor		$20		5	6	6	6	6
Incremental Net Income		$326		25	79	94	123	168
Incremental Net Income incl. labor		$320		23	78	92	122	166

Table 4: Maize/Beans – Mechanic – Category 2 – Yields, Inputs and Financial Budget

				Without Project		With Project									
	Unit	Price 1 $	Price 2 $	Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Maize	**kg/acre**														
Total	**kg/acre**			1710		1800		1800		1800		1800		1800	
Post-Harvest Losses	**kg/acre**			86		90		90		90		90		90	
Self-Consumed	**kg/acre**			540		540		540		540		540		540	
Marketed	**kg/acre**			1085		1170		1170		1170		1170		1170	
At Harvest	**kg/acre**	0.33		1	358	1	386	80%	309	70%	270	50%	193	20%	77
At peak Season	**kg/acre**		0.4	0	0	0	0	20%	94	30%	140	50%	234	80%	374
					358		386		402		411		427		452
Beans	**kg/acre**														
Total	**kg/acre**			594		594		648		648		648		648	
Post Harvest Losses	**kg/acre**			30		30		32		32		32		32	
Self-Consumed	**kg/acre**			180		180		180		180		180		180	
Marketed	**kg/acre**			384		384		436		436		436		436	
At Harvest	**kg/acre**	0.5		1	192	1	192	80%	174	70%	152	50%	109	20%	44
At Peak Season	**kg/acre**		0.65	0	0	0	0	20%	57	30%	85	50%	142	80%	227
					192		192		231		237		250		270
Income from Production					550		578		633		648		678		722
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Maize	**kg/acre**	1	3	10	30	10	30	10	30	10	30	10	30	10	30
Beans	**kg/acre**	0.25	1.2	25	30	25	30	25	30	25	30	25	30	25	30
Fertilizers															
Basal Fertilizers	**kg**		0.9	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.7	50	35	50	35	50	35	50	35	50	35	50	35
Pesticides															
Storage dust-maize	**kg**														
Storage dust-beans	**kg**														
Bags															
Purchase of gunny bags	**bags**	0.5		23	12	25	15	26	15	26	15	26	15	26	15
Purchase of hermetic bags	**bags**		2.4												
Sub total Inputs					152		155		155		155		155		155
2.2. Labor					267		269		249		249		249		249
3. Other costs of production															
Small materials		0.02	0.05		5		5		5		5		5		5
Other equipment		0.08	0.08		21		22		20		20		20		20
Mechanic Shelling		0.71	0.71						0.03		0.05		0.08		0.13
Farming		454.4													
Tarpaulin															
Palets															
Weather-index based insuyrance															
Sub total other costs of production					27		27		25		25		25		25
				Without Project		With Project									
				Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
Revenue															
Maize					358		386		402		411		427		452
Beans					192		192		231		237		250		270
Sub Total Revenue					550		578		633		648		678		722
Operating Inputs					152		155		155		155		155		155
Other costs					27		27		25		25		25		25
Labor					267		269		249		249		249		249
Sub Total Cost excluding labor					178		182		180		180		180		180
Sub Total Cost including labor					446		451		429		429		429		429
Gross income excl. labor					372		396		453		468		497		541
Gross income incl. labor					104		127		204		219		248		292
Incremental Gross income excl. labor before financing		NPV	€330.83				25		81		96		125		169
Incremental Gross income incl. labor before financing		NPV	€379.03				23		100		114		144		188
Benefit/Cost (excl. labor)							3		4		4		4		4
Benefit/Cost (incl. labor							1		1		2		2		2
Package Subsidy (90% 1st year, 40% 2nd year)															
Improved Seeds															
Maize	**kg/acre**														
Beans	**kg/acre**														
Fertilizers															
Basal Fertilizers	**kg**														
Top Dressing Fertilizer	**kg**														
Pesticides															
Storage dust-maize	**kg**														
Storage dust-beans	**kg**														
Bags															
Gunny bags	**bags**														
Hermetic bags	**bags**														
Others															
Tarpaulin															
Palets															
Weather-index based insuyrance															
Total package subsidy/farmer							0		0		0		0		0
Number of farmers															
Total cost of package subsidy															
				Without Project		With Project									
				Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
Cash Flow Analysis															
Inflow															
Production Revenues					550		578		633		648		678		722
Total Inflow					550		578		633		648		678		722
Production Costs					178		182		180		180		180		180
Subsidized (90% 1st year, 2nd year)					0		0		0		0		0		0
Paid by the beneficiaries					178		182		180		180		180		180
Total Outflow					178		182		180		180		180		180
Total outflow including labor					446		451		429		429		429		429
Net income after financing					372		396		453		468		497		541
Net income after financing including labor					104		127		204		219		248		292
Incremental Production Revenues			NPV 12%	$340			28		83		98		127		172
Incremental Total inflow				$340			28		83		98		127		172
Incremental Production costs				$9			4		2		2		2		2
Incremental Production costs subsidized				$0			0		0		0		0		0
Incremental Production Cost paid by beneficiaries				$9			4		2		2		2		2
Incremental Outflow				$9			4		2		2		2		2
Incremental Outflow including labor				-$39			5		-16		-16		-16		-16
Incremental Net Income				$331			25		81		96		125		169
Incremental Net Income incl. labor				$379			23		100		114		144		188

Table 5: Sorghum/Green Gram – Manual – Category 1 – Yields, Inputs and Financial Budget

	Unit	Price 1	Price 2	Without Project Year 1 to 5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
		$	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$
1. Production															
Sorghum															
Total	**kg/acre**			600		930		1860		2040		2280		2340	
Post-Harvest Losses	**kg/acre**			210		186		372		204		228		234	
Self-Consumed (6 bags @ 90kg)	**kg/acre**														
Marketed	**kg/acre**			390		744		1488		1836		2052		2106	
At Harvest (at storage facility)	**kg/acre**	0.25		1	98	1	186	1	372	1	459	1	513	1	527
At Peak Season	**kg/acre**														
Green Gram															
Total	**kg/acre**			270		419		432		446		486		486	
Post-Harvest Losses	**kg/acre**														
Self-Consumed (2 bags @ 90 kgs)	**kg/acre**														
Marketed	**kg/acre**			270		419		432		446		486		486	
At Harvest (at storage facility)	**kg/acre**	0.85		1	230	1	356	1	367	1	379	1	413	1	413
At Peak Season	**kg/acre**														
Income from Production					327		542		739		838		926		940
2. Production costs															
2.1 Inputs															
Improved Seeds															
Sorghum	**kg/acre**	1.25	1.50	4	5	4	6	4	6	4	6	4	6	4	6
Green Grams	**kg/acre**	1.00	1.50	4	4	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	35	50	35	50	35	50	35	50	35
Folliard Feed Green Gram	**litre**		1.00							2	2	2	2	2	2
Pesticides															
Thunder Green Gram	**litre**		12.00			1	6	1	6	1	6	1	6	1	6
Storage dust-green gram	**kg**		5.00	1	5	1	5	1	5	1	5	1	5	1	5
Bags															
Purchase of gunny bags	**bags**	0.50		7	4	3	1	11	6	15	8	18	9	19	11
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total Inputs					18		128		109		113		138		117
2.2 Labor					251		271		271		271		271		271
2.3 Other costs of production															
Small materials		0.02	0.05		5		14		14		14		14		14
Other equipment		0.08	0.15		20		41		41		41		41		41
Tarpaulin							24								
Palets							7								
Weather-index based insurance							14		53		58		70		71
External Labor									88		88		88		88
Sub Total other costs of production					25		100		195		201		212		213

			Without Project Year 1 to 5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Sorghum			98	186	372	459	513	527
Green Gram			230	356	367	379	413	413
Sub Total Revenue			327	542	739	838	926	940
Operating Inputs			18	128	109	113	138	117
Other Costs			25	100	195	201	212	213
Labor			251	271	271	271	271	271
Sub Total Cost excluding Labor			43	228	304	313	350	330
Sub Total Cost including Labor			294	499	575	584	621	601
Gross Income excl. Labor			284	314	435	525	576	610
Gross Income incl. Labor			33	43	164	254	305	339
Incr. Gross Income excl. Labor before Financing	NPV @ 12%	$688.30		30	151	240	292	326
Incr.Gross Income incl. Labor before Financing	NPV @ 12%	$616.21		10	131	220	272	306
Benefit/Cost (excl. labor)				2	2	3	3	3
Benefit/Cost (incl. labor)				1	1	1	1	2

		Without Project	Year 1	Year 2	Year 3	Year 4	Year 5
Package Subsidy (90% 1st year, 60% 2nd year, 30% 3rd year)							
Improved Seeds							
Sorghum	**kg/acre**		6				
Green Gram	**kg/acre**		6				
Fertilizers							
Basal fertilizer	**kg**		41	27	13		
Top-dressing fertilizer	**kg**		30	20	10		
Foliard Feed Green Gram	**litre**						
Pesticides							
Thunder Green Gram	**litre**						
Storage dust-green gram	**kg**						
Bags							
Gunny bags	**bags**						
Hermetic bags	**bags**		21				
Others							
Tarpaulin			21				
Palets			6				
Insurance			13	18			
Total Package Subsidy/farmer		0	144	65	23	0	0

Cash Flow Analysis			**Without Project**	**With Project**				
Items			**Year 1 to 5**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Inflow								
Production Revenues			327	542	739	838	926	940
Total Inflow			327	542	739	838	926	940
Outflow								
Production Costs			43	228	304	313	350	330
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)			0	144	65	23	0	0
Paid by the beneficiaries			43	84	239	290	350	330
Total Outflow			43	84	239	290	350	330
Total Outflow including Family Labor			294	355	510	561	621	601
Net Income after Financing			284	458	500	548	576	610
Net Income after Financing including Family Labor			33	187	229	277	305	339
Incremental Production Revenues	NPV 12%	$1,702.00		215	524	511	599	613
Incremental Total Inflow		$1,702.00		215	524	511	599	613
Incremental Production Costs		$924.53		185	261	271	307	287
Incremental Production Cost Subsidized		$196.31		144	65	23	0	0
Incremental Production Cost paid by Beneficiaries		$728.22		41	197	248	307	287
Incremental Outflow		$728.22		41	197	248	307	287
Incremental Outflow incl. Family Labor		$800.32		61	217	268	327	307
Incremental Net Income		$884.61		174	216	263	292	326
Incremental Net Income incl. Family labor		$812.52		154	196	243	272	306

Table 6: Sorghum/Green Gram – Mechanic – Category 1 - Yields, Inputs and Financial Budget

				Without Project		With Project									
	Unit	Price 1 $	Price 2 $	Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Sorghum	**kg/acre**														
Total	**kg/acre**			600		930		1860		2040		2280		2340	
Post-Harvest Losses	**kg/acre**			210		186		372		204		228		234	
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			390		744		1488		1836		2052		2106	
At Harvest	**kg/acre**	0.25		1	98	1	186	1	372	1	459	1	513	1	527
At peak Season	**kg/acre**		0.40	0	0	0	0	0	0	0	0	0	0	0	0
					98		186		372		459		513		527
Green Gram	**kg/acre**														
Total	**kg/acre**			270		419		432		446		486		486	
Post Harvest Losses	**kg/acre**														
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			270		419		432		446		486		486	
At Harvest	**kg/acre**	0.85		1	230	1	356	1	367	1	379	1	413	1	413
At Peak Season	**kg/acre**		0.65	0	0	0	0	0	0	0	0	0	0	0	0
					230		356		367		379		413		413
Income from Production					327		542		739		838		926		940
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Sorghum	**kg/acre**	1.25	1.50	4	5	4	6	4	6	4	6	4	6	4	6
Green Gram	**kg/acre**	1.00	1.50	4	4	4	4	6	4	6	4	6	4	4	4
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	28	50	35	50	35	50	35	50	35
Folliard Feed Green Gram			1.00							2	2	2	2	2	2
Pesticides															
Thunder Green Gram	**kg**		12.00			1	6	1	6	1	6	1	6	1	6
Storage Dust-Green Gram	**kg**		5.00	1	5	1	5	1	5	1	5	1	5	1	5
Bags															
Purchase of gunny bags	**bags**	0.50		7	4	3	1	11	6	15	8	18	9	19	11
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total inputs					18		119		107		111		136		115
2.2. Labor					251		271		221		221		221		221
3. Other costs of production															
Small materials		0.02	0.05		5		14		11		11		11		11
Other equipment		0.08	0.15		20		41		33		33		33		33
Meccanic Threshing		3.57	3.57						1		1		1		1
Farming															
Tarpaulin							24								
Palets							7								
Weather-index based insurance							14		53		58		70		71
External labor									88		88		88		88
Sub total other costs of production					25		100		186		192		203		204

				Without Project		With Project									
				Year 1-5			Year 1		Year 2		Year 3		Year 4		Year 5
Revenue															
Sorghum					98		186		372		459		513		527
Green Gram					230		356		367		379		413		413
Sub Total Revenue					327		542		739		838		926		940
Operating Inputs					18		119		107		111		136		115
Other costs					25		100		186		192		203		204
Labor					251		271		221		221		221		221
Sub Total Cost excluding labor					43		219		293		302		339		319
Sub Total Cost including labor					294		490		514		523		560		540
Gross Income excl. labor					284		323		446		536		587		621
Gross Income incl. labor					33		52		225		315		366		400
Incr. Gross Income excl. labor before financing			NPV @ 12%	$726			39		162		251		303		337
Incr. Gross Income incl. labor before financing			NPV @ 12%	$790			19		192		281		333		367
Benefit/Cost (excl. labor)							2		3		3		3		3
Benefit/Cost (incl. labor							1		1		2		2		2

Package Subsidy (90% 1st year, 40% 2nd year)															
Improved Seeds															
Sorghum	**kg/acre**						6								
Green Gram	**kg/acre**						6								
Fertilizers															
Basal Fertilizers	**kg**						41		27		13				
Top Dressing Fertilizer	**kg**						30		20		10				
Folliard Feed Green Gram	**litre**														
Pesticides															
Thunder Green Gram	**litre**														
Storage Dust-Green Gram	**kg**														
Bags															
Gunny bags	**bags**														
Hermetic bags	**bags**						21								
Others															
Tarpaulin							21								
Palets							6								
Weather-index based insuyrance							13		18						
Total package subsidy/farmer					0		144		65		23		0		0

				Without Project		With Project									
Cash Flow Analysis				Year 1-5			Year 1		Year 2		Year 3		Year 4		Year 5
Items															
Inflow															
Production Revenues					327		542		739		838		926		940
Total Inflow					327		542		739		838		926		940
Outflow					327		542		739		838		926		940
Production Costs					43		219		293		302		339		319
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)					0		144		65		23		0		0
Paid by the beneficiaries					43		75		228		279		339		319
Total Outflow					43		75		228		279		339		319
Total Outflow including Family Labor					294		346		449		500		560		540
Net Income after Financing					284		467		511		559		587		621
Net Income after Financing including Family Labor					33		196		290		338		366		400
Incremental Production Revenues			NPV @ 12%	$1,613			215		412		511		599		613
Incremental Total Inflow				$1,613			215		412		511		599		613
Incremental Production Costs				$886			176		250		260		296		276
Incremental Production Cost Subsidized				$196			144		65		23		0		0
Incremental Production Cost paid by Beneficiaries				$533			32		185		237		296		0
Incremental Outflow				$690			32		185		237		296		276
Incremental Outflow incl. Family Labor				$626			52		155		207		266		246
Incremental Net Income				$923			183		227		274		303		337
Incremental Net Income incl. Family labor				$986			163		257		304		333		367

Table 7: Sorghum/Green Gram – Manual – Category 2 – Yields, Inputs and Financial Budget

	Unit	Price 1 $	Price 2 $	Without Project Year 1-5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Sorghum	**kg/acre**														
Total	**kg/acre**			2040		2280		2340		2340		2340		2340	
Post-Harvest Losses	**kg/acre**			204		228		234		234		234		234	
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			1836		2052		2106		2106		2106		2106	
At Harvest	**kg/acre**	0.25		1	459	1	513	1	527	1	527	1	527	1	527
At peak Season	**kg/acre**		0.40	0	0	0	0	0	0	0	0	0	0	0	0
					459		513		527		527		527		527
Green Gram	**kg/acre**														
Total	**kg/acre**			446		486		486		486		486		486	
Post Harvest Losses	**kg/acre**														
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			446		486		486		486		486		486	
At Harvest	**kg/acre**	0.85		1	379	1	413	1	413	1	413	1	413	1	413
At Peak Season	**kg/acre**		0.65			0	0	0	0	0	0	0	0	0	0
					379		413		413		413		413		413
Income from Production					838		926		940		940		940		940
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Sorghum	**kg/acre**	1.25	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Green Gram	**kg/acre**	1.00	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	**kg**		0.90	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70	50	35	50	35	50	35	50	35	50	35	50	35
Folliard Feed Green Gram			1.00	2	2	2	2	2	2	2	2	2	2	2	2
Pesticides															
Thunder Green Gram	**kg**		12.00	1	6	1	6	1	6	1	6	1	6	1	6
Storage Dust-Green Gram	**kg**		5.00	1	5	1	5	1	5	1	5	1	5	1	5
Bags															
Purchase of gunny bags	**bags**	0.50		25	13	28	14	29	14	29	14	29	14	29	14
Purchase of hermetic bags	**bags**		2.40												
Sub total inputs					118		119		120		120		120		120
2.2. Labor					**271**		**271**		**271**		**271**		**271**		**271**
3. Other costs of production															
Small materials		0.02	0.05		14		14		14		14		14		14
Other equipment		0.08	0.15		41		41		41		41		41		41
Mechanic Threshing															
Farming															
Tarpaulin															
Palets															
Weather-index based insuyrance															
External labor									88		88		88		88
Sub total other costs of production					54		54		143		143		143		143

			Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Sorghum			459	513	527	527	527	527
Green Gram			379	413	413	413	413	413
Sub Total Revenue			838	926	940	940	940	940
Operating Inputs			118	119	120	120	120	120
Other costs			54	54	143	143	143	143
Labor			271	271	271	271	271	271
Sub Total Cost excluding labor			172	173	262	262	262	262
Sub Total Cost including labor			443	444	533	533	533	533
Gross income excl. labor			666	753	677	677	677	677
Gross income incl. labor			395	482	406	406	406	406
Incr. Gross income excl. labor before financing	NPV @ 12%	$107.12		87	11	11	11	11
Incre. Gross income incl. labor before financing	NPV @ 12%	$107.12		87	11	11	11	11
Benefit/Cost (excl. labor)				5	4	4	4	4
Benefit/Cost (incl. labor				2	2	2	2	2

	Unit	Year 1	Year 2	Year 3	Year 4	Year 5
Package Subsidy (90% 1st year, 40% 2nd year)						
Improved Seeds						
Sorghum	**kg/acre**					
Green Gram	**kg/acre**					
Fertilizers						
Basal Fertilizers	**kg**					
Top Dressing Fertilizer	**kg**					
Folliard Feed Green Gram	**litre**					
Pesticides						
Thunder Green Gram	**litre**					
Storage Dust-Green Gram	**kg**					
Bags						
Gunny bags	**bags**					
Hermetic bags	**bags**					
Others						
Tarpaulin						
Palets						
Weather-index based insuyrance						
Total package subsidy/farmer		0	0	0	0	0

		Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Cash Flow Analysis							
Inflow		838	926	940	940	940	940
Production Revenues		838	926	940	940	940	940
Total Inflow		838	926	940	940	940	940
Production Costs		172	173	262	262	262	262
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)		0	0	0	0	0	0
Paid by the beneficiaries		172	173	262	262	262	262
Total Outflow		172	173	262	262	262	262
Total outflow including labor		443	444	533	533	533	533
Net income after financing		666	753	677	677	677	677
Net income after financing including labor		395	482	406	406	406	406
Incremental Production Revenues	NPV @ 12%	$354	88	102	102	102	102
Incremental Total inflow		$354	88	102	102	102	102
Incremental Production costs		$247	1	91	91	91	91
Incremental Production costs subsidized		$0	0	0	0	0	0
Incremental Production Cost paid by beneficiaries		$247	1	91	91	91	91
Incremental Outflow		$247	1	91	91	91	91
Incremental Outflow including labor		$247	1	91	91	91	91
Incremental Net Income		**$107**	**87**	**11**	**11**	**11**	**11**
Incremental Net Income incl. labor		**$107**	**87**	**11**	**11**	**11**	**11**

Table 8: Sorghum/Green Gram – Mechanic – Category 2 - Yields, Inputs and Financial Budget

	Unit	Price 1 $	Price 2 $	Without Project Year 1-5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Sorghum	**kg/acre**														
Total	**kg/acre**			2040		2280		2340		2340		2340		2340	
Post-Harvest Losses	**kg/acre**			204		228		234		234		234		234	
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			1836		2052		2106		2106		2106		2106	
At Harvest	**kg/acre**	0.25		1	459	1	513	1	527	1	527	1	527	1	527
At peak Season	**kg/acre**		0.40												
					459		513		527		527		527		527
Green Gram	**kg/acre**														
Total	**kg/acre**			446		486		486		486		486		486	
Post Harvest Losses	**kg/acre**														
Self-Consumed	**kg/acre**														
Marketed	**kg/acre**			446		486		486		486		486		486	
At Harvest	**kg/acre**	0.85		1	379	1	413	1	413	1	413	1	413	1	413
At Peak Season	**kg/acre**		0.65												
					379		413		413		413		413		413
Income from Production					838		926		940		940		940		940
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Sorghum	**kg/acre**	1.25	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Green Gram	**kg/acre**	1.00	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	**kg**		0.90	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70	50	35	50	35	50	35	50	35	50	35	50	35
Folliard Feed Green Gram			1.00	2	2	2	2	2	2	2	2	2	2	2	2
Pesticides															
Thunder Green Gram	**kg**		12.00	1	6	1	6	1	6	1	6	1	6	1	6
Storage Dust-Green Gram	**kg**		5.00	1	5	1	5	1	5	1	5	1	5	1	5
Bags															
Purchase of gunny bags	**bags**	0.50		25	13	28	14	29	14	29	14	29	14	29	14
Purchase of hermetic bags	**bags**		2.40				0						0		
Sub total inputs					118		119		120		120		120		120
2.2. Labor					271		271		199		199		199		199
3. Other costs of production															
Small materials		0.02	0.05		14		14		10		10		10		10
Other equipment		0.08	0.15		41		41		30		30		30		30
Mechanic Threshing		3.75	3.75						1.10		1.10		1.10		1.10
Farming															
Tarpaulin															
Palets															
Weather-index based insuyrance															
External labor									88		88		88		88
Sub total other costs of production					54		54		129		129		129		129

	Unit		Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Sorghum			459	513	527	527	527	527
Green Gram			379	413	413	413	413	413
Sub Total Revenue			838	926	940	940	940	940
Operating Inputs			118	119	120	120	120	120
Other costs			54	54	129	129	129	129
Labor			271	271	199	199	199	199
Sub Total Cost excluding labor			172	173	249	249	249	249
Sub Total Cost including labor			443	444	448	448	448	448
Gross income excl. labor			666	753	691	691	691	691
Gross income incl. labor			395	482	492	492	492	492
Incr. Gross income excl. labor before financing	NPV @ 12%	$143.26		87	24	24	24	24
Incr. Gross income incl. labor before financing	NPV @ 12%	$338.78		87	96	96	96	96
Benefit/Cost (excl. labor)				5	4	4	4	4
Benefit/Cost (incl. labor				2	2	2	2	2

	Unit	Without Project	Year 1	Year 2	Year 3	Year 4	Year 5
Package Subsidy (90% 1st year, 40% 2nd year)							
Improved Seeds							
Sorghum	**kg/acre**						
Green Gram	**kg/acre**						
Fertilizers							
Basal Fertilizers	**kg**						
Top Dressing Fertilizer	**kg**						
Folliard Feed Green Gram	**litre**						
Pesticides							
Thunder Green Gram	**litre**						
Storage Dust-Green Gram	**kg**						
Bags							
Gunny bags	**bags**						
Hermetic bags	**bags**						
Others							
Tarpaulin							
Palets							
Weather-index based insuyrance							
Total package subsidy/farmer			0	0	0	0	0

		Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Cash Flow Analysis							
Inflow		838	926	940	940	940	940
Production Revenues		838	926	940	940	940	940
Total Inflow		838	926	940	940	940	940
Production Costs		172	173	249	249	249	249
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)		0	0	0	0	0	0
Paid by the beneficiaries		172	173	249	249	249	249
Total Outflow		172	173	249	249	249	249
Total outflow including labor		443	444	448	448	448	448
Net income after financing		666	753	691	691	691	691
Net income after financing including labor		395	482	492	492	492	492
Incremental Production Revenues	NPV 12%	$354	88	102	102	102	102
Incremental Total Inflow		$354	88	102	102	102	102
Incremental Production costs		$211	1	77	77	77	77
Incremental Production costs subsidized		$0	0	0	0	0	0
Incremental Production Cost paid by beneficiaries		$211	1	77	77	77	77
Incremental Outflow		$211	1	77	77	77	77
Incremental Outflow including labor		$15	1	5	5	5	5
Incremental Net Income		$143	87	24	24	24	24
Incremental Net Income incl. labor		$339	87	96	96	96	96

Table 9: Finger Millet/Pigeon Pea – Manual – Category 1 -Yields, Inputs and Financial Budget

	Unit	Price 1	Price 2	Without Project Year 1 to 5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
		$	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$	Q.	$
1. Production															
Finger Millet															
Total	**kg/acre**			700		1085		1085		1260		1295		1295	
Post-Harvest Losses	**kg/acre**			140		163		163		88		91		91	
Self-Consumed (3 bags @ 90kg)	**kg/acre**			270		270		270		270		270		270	
Marketed	**kg/acre**			290		652		652		902		934		934	
At Harvest (at storage facility)	**kg/acre**	0.30		1	87	1	157	60%	117	40%	40	20%	56	20%	56
At Peak Season	**kg/acre**		0.60	0	0	0	78	40%	157	60%	325	80%	448	80%	448
Pigeon Pea															
Total	**kg/acre**			270		405		446		446		486		486	
Post-Harvest Losses	**kg/acre**			54		61		67		31		34		34	
Self-Consumed (2 bags @ 90 kgs)	**kg/acre**			180		180		180		180		180		180	
Marketed	**kg/acre**			36		164		199		235		272		272	
At Harvest (at storage facility)	**kg/acre**	0.30		1	11	1	39	60%	36	40%	28	20%	16	20%	16
At Peak Season	**kg/acre**		0.60	0	0	0	20	40%	48	60%	85	80%	131	80%	131
Income from Production					98		294		358		477		651		651
2. Production costs															
2.1 Inputs															
Improved Seeds															
Finger Millet	**kg/acre**	0.50	1.50	4	2	4	6	4	6	4	6	4	6	4	6
Pigeon Pea	**kg/acre**	1.00	1.50	4	4	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	35	50	35	50	35	50	35	50	35
Pesticides															
Stalk borer dust	**kg**		2.00	1	2										
Storage dust	**kg**		5.00	1	5										
Bags															
Purchase of gunny bags	**bags**	0.50		9	4	4	2	4	2	8	4	8	4	8	4
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total Inputs					17		118		94		96		120		96
2.2 Labor					221		256		266		266		266		266
2.3 Other costs of production															
Small materials		0.02	0.05		4		13		13		13		13		13
Other equipment		0.08	0.15		18		38		40		40		40		40
Tarpaulin							24								
Palets							7								
Weather-index based insurance							16		19		19		19		19
Sub Total other costs of production					22		98		72		72		72		72
				Without Project Year 1 to 5		**With Project Year 1**		**Year 2**		**Year 3**		**Year 4**		**Year 5**	
Revenue															
Finger Millet					87		235		274		365		505		505
Pigeon Pea					11		59		84		113		147		147
Sub Total Revenue					98		294		358		477		651		651
Operating Inputs					17		118		94		96		120		96
Other Costs					22		98		72		72		72		72
Labor					221		256		266		266		266		266
Sub Total Cost excluding Labor					39		216		167		168		193		169
Sub Total Cost including Labor					260		472		433		434		459		435
Gross Income excl. Labor					58		78		191		309		459		483
Gross Income incl. Labor					-163		-178		-75		43		193		217
Incr. Gross Income excl. Labor before Financing		NPV @ 12%	$796.76				20		132		251		400		424
Incr.Gross Income incl. Labor before Financing		NPV @ 12%	$643.47				-15		87		206		355		379
Benefit/Cost (excl. labor)							1		2		3		3		4
Benefit/Cost (incl. labor)							1		1		1		1		1
Package Subsidy (90% 1st year, 40% 2nd year)															
Improved Seeds															
Finger Millet	**kg/acre**						6								
Pigeon Pea	**kg/acre**						6								
Fertilizers															
Basal fertilizer	**kg**						41		27		13				
Top-dressing fertilizer	**kg**						30		20		10				
Pesticides															
Stalk borer dust	**kg**														
Storage dust	**kg**														
Bags															
Gunny bags	**bags**														
Hermetic bags	**bags**						21								
Others															
Tarpaulin							21								
Palets							6								
Insurance							11		3						
Total Package subsidy/farmer			0.00		0		142		50		23				214
Cash Flow Analysis				**Without Project**		**With Project**									
Items				**Year 1 to 5**		**Year 1**		**Year 2**		**Year 3**		**Year 4**		**Year 5**	
Inflow															
Production Revenues					98		294		358		477		651		651
Total Inflow					98		294		358		477		651		651
Outflow															
Production Costs					39		216		167		168		193		169
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)					0		142		50		23		0		0
Paid by the beneficiaries					39		74		117		145		193		169
Total Outflow					39		74		117		145		193		169
Total Outflow including Family Labor					260		330		383		411		459		435
Net Income after Financing					58		220		240		332		459		483
Net Income after Financing including Family Labor					-163		-36		-26		66		193		217
Incremental Production Revenues		NPV 12%	$1,239.94				196		161		380		554		554
Incremental Total Inflow			$1,239.94				196		161		380		554		554
Incremental Production Costs			$521.57				176		127		129		153		129
Incremental Production Cost Subsidized			$182.44				142		50		23		0		0
Incremental Production Cost paid by Beneficiaries			$339.13				35		78		106		153		129
Incremental Outflow			$339.13				35		78		106		153		129
Incremental Outflow incl. Family Labor			$492.42				70		123		151		198		174
Incremental Net Income			$979.20				161		182		274		400		424
Incremental Net Income incl. Family Labor			$825.91				126		137		229		355		379

Table 10: Finger Millet/Pigeon Pea – Mechanic –Category 1-Yields, Inputs and Financial Budget

	Unit	Price 1 $	Price 2 $	Without Project Year 1-5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Finger Millet	**kg/acre**														
Total	**kg/acre**			700		1085		1085		1260		1295		1295	
Post-Harvest Losses	**kg/acre**			140		163		163		88		91		91	
Self-Consumed	**kg/acre**			270		270		270		270		270		270	
Marketed	**kg/acre**			290		652		652		902		934		934	
At Harvest	**kg/acre**	0.30		1	87	1	157	60%	117	40%	108	20%	56	20%	56
At peak Season	**kg/acre**		0.60			0	78	40%	157	60%	325	80%	448	80%	448
					87		235		274		433		505		505
Pigeon Pea	**kg/acre**														
Total	**kg/acre**			270		405		446		446		486		486	
Post Harvest Losses	**kg/acre**					61		67		31		34		34	
Self-Consumed	**kg/acre**			180		180		180		180		180		180	
Marketed	**kg/acre**			90		164		199		235		272		272	
At Harvest	**kg/acre**	0.30		1	27	1	39	60%	36	40%	28	20%	16	20%	16
At Peak Season	**kg/acre**		0.60			0	20	40%	48	60%	85	80%	131	80%	131
					27		59		84		113		147		147
Income from Production					98		294		358		477		651		651
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Finger Millet	**kg/acre**	0.50	1.50	4	2	4	6	4	6	4	6	4	6	4	6
Pigeon Pea	**kg/acre**	0.20	1.50	4	4	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	**kg**		0.90			50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	**kg**		0.70			50	35	50	35	50	35	50	35	50	35
Pesticides															
Stalk borer dust	**kg**		2.00	1	2										
Storage dust	**kg**		5.00	1	5										
Bags															
Purchase of gunny bags	**bags**	0.50		9	4	4	2	4	2	8	4	8	4	8	4
Purchase of hermetic bags	**bags**		2.40			10	24					10	24		
Sub total inputs					17		118		94		96		120		96
2.2. Labor					221		256		251		251		251		251
3. Other costs of production															
Small materials		0.02	0.05		4		13		13		13		13		13
Other equipment		0.08	0.15		18		38		38		38		38		38
Mechanic Threshing		3.75	3.75						0		0		1		1
Farming															
Tarpaulin							24								
Palets							7								
Weather-index based insuyrance							16		19		19		19		19
Sub total other costs of production					22		98		70		70		70		70

	Unit			Without Project Year 1-5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue									
Finger Millet				87	235	274	433	505	505
Pigeon Pea				27	59	84	113	147	147
Sub Total Revenue				98	294	358	477	651	651
Operating Inputs				17	118	94	96	120	96
Other costs				22	98	70	70	70	70
Labor				221	256	251	251	251	251
Sub Total Cost excluding labor				39	216	164	166	190	166
Sub Total Cost including labor				260	472	415	417	441	417
Gross income excl. labor				58	78	194	312	461	485
Gross income incl. labor				-163	-178	-57	61	210	234
Incremental Gross income excl. labor before financing		NPV @ 12%	$803.90		20	135	253	403	427
Incremental Gross income incl. labor before financing		NPV @ 12%	$691.29		-15	105	223	373	397
Benefit/Cost (excl. labor)					1	2	3	3	4
Benefit/Cost (incl. labor					1	1	1	1	2
Package Subsidy (90% 1st year, 40% 2nd year)									
Improved Seeds									
Finger Millet	**kg/acre**				6				
Pigeon Pea	**kg/acre**				6				
Fertilizers									
Basal Fertilizers	**kg**				41	27	13		
Top Dressing Fertilizer	**kg**				30	13	10		
Pesticides									
Stalk borer fertilizer	**kg**								
Storage dust	**kg**								
Bags									
Gunny bags	**bags**								
Hermetic bags	**bags**				21				
Others									
Tarpaulin					21				
Palets					7				
Weather-index based insuyrance					11	3			
Total package subsidy/farmer					143	43	23		208

			Without Project Year 1-5		With Project Year 1	Year 2	Year 3	Year 4	Year 5
Cash Flow Analysis									
Inflow									
Production Revenues				98	294	358	477	651	651
Total Inflow				98	294	358	477	651	651
Production Costs				39	216	164	166	190	166
- Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)				0	143	43	23	0	0
- Paid by the beneficiaries				39	73	121	143	190	166
Total Outflow				39	73	121	143	190	166
Total outflow including labor				260	329	372	394	441	417
Net income after financing				58	221	236	335	461	485
Net income after financing including labor				-163	-35	-15	84	210	234
Incremental Production Revenues	NPV @ 12%		$1,318		196	260	380	554	554
Incremental Total Inflow			$1,318		196	260	380	554	554
Incremental Production costs			$514		176	124	126	151	127
Incremental Production costs subsidized			$178		143	43	23	0	0
Incremental Production Cost paid by beneficiaries			$337		34	82	103	151	127
Incremental Outflow			$337		34	82	103	151	127
Incremental Outflow including labor			$449		69	112	133	181	157
Incremental Net Income			$982		162	178	276	403	427
Incremental Net Income incl. labor			$869		127	148	246	373	397

Table 11: Finger Millet/Pigeon Pea – Manual – Category 2 -Yields, Inputs and Financial Budget

	Unit	Price 1 $	Price 2 $	Without Project Year 1 - 5		With Project Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Finger Millet	kg/acre														
Total	kg/acre			1260		1295		1295		1295		1295		1295	
Post-Harvest Losses	kg/acre			88		91		91		91		91		91	
Self-Consumed	kg/acre			270		270		270		270		270		270	
Marketed	kg/acre			902		934		934		934		934		934	
At Harvest	kg/acre	0.30		1	271	1	280	60%	168	40%	112	20%	56	20%	56
At peak Season	kg/acre		0.60	0	0	0	0	40%	224	60%	336	80%	448	80%	448
					271		280		392		448		505		505
Pigeon Pea	kg/acre														
Total	kg/acre			446		486		486		486		486		486	
Post Harvest Losses	kg/acre			31		34		34		34		34		34	
Self-Consumed	kg/acre			180		180		180		180		180		180	
Marketed	kg/acre			235		272		272		272		272		272	
At Harvest	kg/acre	0.30		1	70	1	82	60%	49	40%	33	20%	16	20%	16
At Peak Season	kg/acre		0.60	0	0	0	0	40%	65	60%	98	80%	131	80%	131
					70		82		114		131		147		147
Income from Production					341		362		507		579		651		651
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Finger Millet	kg/acre	1.25	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Pigeon Pea	kg/acre	0.75	1.50	4	6	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	kg		0.90	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	kg		0.70	50	35	50	35	50	35	50	35	50	35	50	35
Pesticides															
Stalk borer dust	kg		2.00												
Storage dust	kg		5.00												
Bags															
Purchase of gunny bags	bags	0.50		18	9	18	9	18	9	18	9	18	9	18	9
Purchase of hermetic bags	bags		2.40				0						0		
Sub total inputs					101		101		101		101		101		101
2.2. Labor					266		266		266		266		266		266
3. Other costs of production															
Small materials		0.02	0.05		5		13		13		13		13		13
Other equipment		0.08	0.15		21		40		40		40		40		40
Mechanic Threshing															
Farming															
Tarpaulin															
Palets															
Weather-index based insuyrance															
Sub total other costs of production					27		53		53		53		53		53

			Without Project Year 1 - 5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Revenue								
Finger Millet			271	280	392	448	505	505
Pigeon Pea			70	82	114	131	147	147
Sub Total Revenue			341	362	507	579	651	651
Operating Inputs			101	101	101	101	101	101
Other costs			27	53	53	53	53	53
Labor			266	266	266	266	266	266
Sub Total Cost excluding labor			127	154	154	154	154	154
Sub Total Cost including labor			393	420	420	420	420	420
Gross Income excl. labor			214	207	352	425	497	497
Gross Income incl. labor			-52	-59	86	159	231	231
Incremental Gross Income excl. labor before financing	NPV	$596		-6	139	211	283	283
Incremental Gross Income incl. labor before financing	NPV	$596		-6	139	211	283	283
Benefit/Cost (excl. labor)				2	3	4	4	4
Benefit/Cost (incl. labor				1	1	1	2	2

	Unit
Package Subsidy (90% 1st year, 40% 2nd year)	
Improved Seeds	
Finger Millet	kg/acre
Pigeon Pea	kg/acre
Fertilizers	
Basal Fertilizers	kg
Top Dressing Fertilizer	kg
Pesticides	
Stalk borer fertilizer	kg
Storage dust	kg
Bags	
Gunny bags	bags
Hermetic bags	bags
Others	
Tarpaulin	
Palets	
Weather-index based insuyrance	
Total package subsidy/farmer	
Total cost of package subsidy	

			Without Project Year 1 - 5	With Project Year 1	Year 2	Year 3	Year 4	Year 5
Cash Flow Analysis								
Inflow								
Production Revenues			341	362	507	579	651	651
Total inflow			341	362	507	579	651	651
Production Costs			127	154	154	154	154	154
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)			0	0	0	0	0	0
Paid by the beneficiaries			127	154	154	154	154	154
Total Outflow			127	154	154	154	154	154
Total outflow including labor			393	420	420	420	420	420
Net income after financing			214	207	352	425	497	497
Net income after financing including labor			-52	-59	86	159	231	231
Incremental Production Revenues	NPV 12%	$694		21	166	238	310	310
Incremental Total inflow		$694		21	166	238	310	310
Incremental Production costs		$97		27	27	27	27	27
Incremental Production costs subsidized		$0		0	0	0	0	0
Incremental Production Cost paid by beneficiaries		$97		27	27	27	27	27
Incremental Outflow		$97		27	27	27	27	27
Incremental Outflow including labor		$97		27	27	27	27	27
Incremental Net Income		$596		-6	139	211	283	283
Incremental Net Income incl. labor		$596		-6	139	211	283	283

Table 12: Finger Millet/Pigeon Pea – Mechanic –Category 2-Yields, Inputs and Financial Budget

				Without Project		With Project									
	Unit	Price 1 $	Price 2 $	Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
1. Production															
Finger Millet	kg/acre														
Total	kg/acre			1260		1295		1295		1295		1295		1295	
Post-Harvest Losses	kg/acre			117		125		125		125		125		125	
Self-Consumed	kg/acre			270		270		270		270		270		270	
Marketed	kg/acre			873		900		900		900		900		900	
At Harvest	kg/acre	0.3		1	262	1	270	60%	162	40%	108	20%	54	20%	54
At peak Season	kg/acre		0.6	0	0	0	0	40%	216	60%	324	80%	432	80%	432
					262		270		378		432		486		486
Pigeon Pea	kg/acre														
Total	kg/acre			446		486		486		486		486		486	
Post Harvest Losses	kg/acre														
Self-Consumed	kg/acre			180		180		180		180		180		180	
Marketed	kg/acre			266		306		306		306		306		306	
At Harvest	kg/acre	0.3		1	80	1	92	60%	55	40%	37	20%	18	20%	18
At Peak Season	kg/acre		0.6	0	0	0	0	40%	73	60%	110	80%	147	80%	147
					80		92		129		147		165		165
Income from Production					341		362		507		579		651		651
2. Production Costs															
2.1 Inputs															
Improved Seeds															
Finger Millet	kg/acre	1.25	1.5	4	6	4	6	4	6	4	6	4	6	4	6
Pigeon Pea	kg/acre	0.75	1.5	4	6	4	6	4	6	4	6	4	6	4	6
Fertilizers															
Basal Fertilizers	kg		0.9	50	45	50	45	50	45	50	45	50	45	50	45
Top Dressing Fertilizer	kg		0.7	50	35	50	35	50	35	50	35	50	35	50	35
Pesticides															
Stalk borer dust	kg		2												
Storage dust	kg		5												
Bags															
Purchase of gunny bags	bags	0.5		18	9	18	9	18	9	18	9	18	9	18	9
Purchase of hermetic bags	bags		2.4				0						0		
Sub total inputs					101		101		101		101		101		101
2.2. Labor					266		266		251		251		251		251
3. Other costs of production															
Small materials		0.02	0.05		5		13		13		13		13		13
Other equipment		0.08	0.15		21		40		38		38		38		38
Mechanic Threshing		3.15	3.15						0		0		0		0
Farming															
Tarpaulin															
Palets															
Weather-index based insuyrance															
Sub total other costs of production					27		53		50		51		51		51
				Without Project		With Project									
				Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
Revenue															
Finger Millet					262		270		378		432		486		486
Pigeon Pea					80		92		129		147		165		165
Sub Total Revenue					341		362		507		579		651		651
Operating Inputs					101		101		101		101		101		101
Other costs					27		53		50		51		51		51
Labor					266		266		251		251		251		251
Sub Total Cost excluding labor					127		154		152		152		152		152
Sub Total Cost including labor					393		420		403		403		403		403
Gross income excl. labor					214		207		355		427		500		500
Gross income incl. labor					-52		-59		104		176		249		249
Incr. Gross income excl. labor bef, financing			NPV	$604			-6		141		214		286		286
Incr. Gross income incl. labor bef. financing			NPV	$644			-6		156		229		301		301
Benefit/Cost (excl. labor)							2		3		4		4		4
Benefit/Cost (incl. labor							1		1		1		2		2
Package Subsidy (90% 1st year, 40% 2nd year)															
Improved Seeds															
Finger Millet	kg/acre														
Pigeon Pea	kg/acre														
Fertilizers															
Basal Fertilizers	kg														
Top Dressing Fertilizer	kg														
Pesticides															
Stalk borer fertilizer	kg														
Storage dust	kg														
Bags															
Gunny bags	bags														
Hermetic bags	bags														
Others															
Tarpaulin															
Palets															
Weather-index based insuyrance															
Total package subsidy/farmer															
Number of farmers															
Total cost of package subsidy															
				Without Project		With Project									
				Year 1-5		Year 1		Year 2		Year 3		Year 4		Year 5	
Cash Flow Analysis															
Inflow															
Production Revenues					341		362		507		579		651		651
Total Inflow					341		362		507		579		651		651
Production Costs					127		154		152		152		152		152
Subsidized (90% 1st year, 60% 2nd year, 30% 3rd year)					0		0		0		0		0		0
Paid by the beneficiaries					127		154		152		152		152		152
Total Outflow					127		154		152		152		152		152
Total outflow including labor					393		420		403		403		403		403
Net income after financing					214		207		355		427		500		500
Net income after financing including labor					-52		-59		104		176		249		249
Incremental Production Revenues			NPV 12%	$694			21		166		238		310		310
Incremental Total Inflow				$694			21		166		238		310		310
Incremental Production costs				$90			27		24		24		24		24
Incremental Production costs subsidized				$0			0		0		0		0		0
Incremental Production Cost paid by beneficiaries				$90			27		24		24		24		24
Incremental Outflow				$90			27		24		24		24		24
Incremental Outflow including labor				$49			27		9		9		9		9
Incremental Net Income				$604			-6		141		214		286		286
Incremental Net Income incl. labor				$644			-6		156		229		301		301

Table 13: Economic Budget (Aggregated) in US$

Economic Analysis (US$)		Without Project					With Project							
	Unit	Y1	Y2	Y3	Y4	Y5-Y20	Y1	Y2	Y3	Y4	Y5	Y10	Y15	Y20
Costs														
Investment Cost of KCEI	1000 $						4263	6449	5109	921				
Recurrent Cost of KCEI	1000 $						713	713	713	713	713	713	713	713
Replacement Cost	1000 $										118	118	253	118
Operational Cost of Storage	1000 $						4250	4250	4250	4250	4250	4250	4250	4250
Operational Cost of Shelling/Threshing	1000 $						1180	1180	1180	1180	1180	1180	1180	1180
Total Costs	1000 $						**10406**	**12592**	**11252**	**7064**	**6261**	**6261**	**6396**	**6261**
Net Benefits From Production														
Production														
Category 1														
Maize														
Manual	1000 $	-366	-1319	-2345	-2052	-1759	-231	-5	67	95	140	140	140	140
Mechanic Shelling	1000 $	0	-134	-538	-807	-1076	0	59	4837	803	1290	1290	1290	1290
Sorghum														
Manual	1000 $	258	619	551	482	413	341	2458	3093	3171	4499	4499	4499	4499
Mechanic Threshing	1000 $	0	69	138	206	275	0	317	886	1527	3034	3034	3034	3034
Millet														
Manual	1000 $	-137	-373	-332	-290	-249	-98	41	694	698	220	220	220	220
Mechanic Threshing	1000 $	0	-41	-83	-124	-166	-54	24	176	199	771	771	771	771
Total Category 1		**-246**	**-1180**	**-2609**	**-2585**	**-2561**	**-43**	**2894**	**9753**	**6493**	**9954**	**9954**	**9954**	**9954**
Category 2														
Maize														
Manual	1000 $	2188	1969	1750	1531	1313	2472	2704	2476	2294	213	213	213	213
Mechanic Shelling	1000 $	0	300	600	900	1200	0	422	863	1355	1926	1926	1926	1926
Sorghum														
Manual	1000 $	4899	4409	3919	3429	2939	6133	4954	4404	3853	3303	3303	3303	3303
Mechanic Threshing	1000 $	0	490	980	1470	1960	0	574	1148	1722	2296	2296	2296	2296
Millet														
Manual	1000 $	870	783	696	609	522	884	934	892	834	715	715	715	715
Mechanic Threshing	1000 $	0	87	174	261	348	0	112	239	382	509	509	509	509
Total Category 2		**7466**	**8038**	**8119**	**8201**	**8282**	**9489**	**9701**	**10023**	**10440**	**8962**	**8962**	**8962**	**8962**
Total Net Benefits From Production	1000 $	**7220**	**6858**	**5510**	**5616**	**5721**	**9446**	**12595**	**19776**	**16932**	**18916**	**18916**	**18916**	**18916**
Cash Flow	1000 $	**7220**	**6858**	**5510**	**5616**	**5721**	**-959**	**3**	**8525**	**9868**	**12655**	**12655**	**12520**	**12655**
Incremental Cash Flow	1000 $						**-8179**	**-6855**	**3015**	**4253**	**6934**	**6934**	**6798**	**6934**
NPV 12%	**$21,004.7983**													
IRR	**30.098%**													

Appendix 11: Draft KCEPimplementation manual

1. The programme manual will be completed as part of the start-up and preparatory activities of KCEP which will take place upon signature of the Contribution Agreement with the EU of the Grant Agreement with the Government of Kenya.

Appendix 12: Compliance with IFAD policies

OVERVIEW

2. This Appendix is based on IFAD's Strategic Framework for 2011-15 and a range of policy and strategy documents covering targeting, gender, rural finance, private sector, rural enterprise, environment and climate change, scaling up and knowledge management. The contents of the Appendix reflect IFAD's: (i) assessment of the fundamental causes of rural poverty; (ii) development and strategic objectives and operational outcomes, outputs and inputs; and (iii) principles of engagement (targeting, empowering poor rural people, innovation, learning and scaling-up, effective partnerships, sustainability, and economic efficiency). This discussion of KCEP's adherence to IFAD's policies is presented in tabular format and uses the above-listed points against which comments are provided on the relevant design features of the Project. The Appendix also includes the draft Environmental Screening and Scoping Note (Attachment 1), the Gender and Targeting Checklists (Attachment 2), and a Scaling Up Note (Attachment 3).

IFAD's STRATEGIC FRAMEWORK

3. The Strategic Framework has five objectives:

- Create a **natural resource and economic asset base** that is more resilient to climate change, environmental degradation and market transformation.
- Improve **access to services** and build resilience in a changing environment.
- Enable poor rural people and their organisations to manage **profitable and sustainable enterprises** and take advantage of decent work opportunities**.**
- Enable poor rural people to **influencepolicies and institutions** that affect their livelihoods.
- **Create enabling institutional and policy environments** to support agricultural production and related activities.

Strategic Element	Project Response
• Create natural resource and economic asset base.	• Improved natural resource management is an element of KCEP through the promotion of interventions which are both more productive and more sustainable. Soil and water conservation measures will be included in the technological package promoted for sorghum and millet in the semi-arid belt. Support will also be given through e-voucher packages for maintaining and/or building soil fertility. • Economic assets will be created through a network of certified warehouse managed by farmer organisation. These warehouses will be linked to a warehouse receipt system. Market linkages with large buyers of maize, sorghum and millet will also represent intangible economic assets.
• Improved access to services.	• KCEP is focusing on improved access to services both financial and non-financial. In the case of the former, the financial inclusion of subsistence smallholders through an e-voucher system is a key feature of the programme. Crop insurance is also part of the package. In terms of non-financial agricultural services, the programme is improving access to inputs and knowledge in agricultural production and post-harvest activities including good agricultural practices, post-harvest losses reduction, on-farm and warehouse storage services and warehouse receipt systems

Strategic Element	Project Response
• Rural people to manage profitable and sustainable enterprises.	• A range of service providers including farmer groups and organisations, agro-dealers, private sector extensionists and processors will be supported through improved access to equipment and training based on expanded demand for these services generated by the e-voucher package as well as promoted improved technologies
• Rural people to influence policies and institutions.	• KCEP will: (i) strengthen farmers' capacities and organization at the grass-root level; (ii) provide organizational support to farmers' groups organized into CIGs (e.g. cereals) with effective representation, partnerships and networks, articulated strategic orientations and active participation in development issues; and (iii) facilitate farmers' groups' representation and active participation into stakeholders' fora.
• Create enabling institutional and policy environments to support agricultural production and related activities.	• The programme will be based on a public/private partnership between the Government of Kenya, the European Union, IFAD, and Equity Bank that will set up an electronic voucher scheme for smallholders' access to agricultural inputs and inclusive banking services. This provides an enabling environment for agricultural production with a view to scaling up results as both EU and GoK have already indicated that substantial additional and parallel funding will be made available to KCEP within the 2015-2020 horizon

OTHER ELEMENTS OF IFAD’s POLICY FRAMEWORK

Policy	Project Response
• Targeting policy • Gender policy	• The project design (see Appendix 2 and Working Paper 1) provides a detailed analysis of poverty, gender and targeting. The targeting strategy defines mechanisms to ensure that the targeted subsistence smallholders and more advanced farmers(men and women) actually participate in and benefit from the planned interventions. These include: (i) geographic targeting measures; (ii) inclusiveness measures ; and (iii) eligibility criteria for e-voucher.
• Rural finance policy	• KCEP will not promote financial inclusiveness through a world-first e-platform developed and rolled out by Equity Bank. Through an open-loop mechanism, beneficiaries will become bank client and have access to adapted financial products • Financial services support will be provided to other actors of the target cereal value chains including agro-dealers and processors on investments for improved post-harvest and processing terchnlogies • A warehouse receipt system will be implemented on a large scale associated to the network of improved storage facilities
• Private sector and rural enterprise policy	• The Project will engage directly with Equity Bank in the area of financial services provision, payment of input vouchers and warehouse receipt systems. It will rely on private sector managed storage, post-harvest and processing facilities. Private sector extensionists will be strengthened for agricultural service provision
• Environment and climate change	• KCEP is expected to result in positive environmental outcomes (see ESRN below) associated with improved soil and water conservation technologies promoted in sorghum and millet production in semi-arid areas of Kenya. • The project will also contribute to climate change adaptation by promoting agricultural practices which are more resilient to climatic extremes, especially in semi-arid areas
• Knowledge management	• Under the joint PIU responsibility, an integrated M&E/KM system will be developed with four main objectives: (i) Steer programme implementation; (ii) Support economic decisions and policy-making; (iii) Share knowledge: document lessons learnt, good practices and innovations, and share knowledge to support programme implementation performance and policy dialogue.

Attachment 1

KENYA CEREAL ENHANCEMENT PROGRAMME (KCEP)

ENVIRONMENTAL IMPACT ASSESSMENT SCREENING/SCOPING REPORT

4. This is summary of the Environmental Impact Assessment (EIA) Screening/Scoping Report on the design work of the EU funded Kenya Cereal Enhancement programme (KCEP). The full report is available under the programme life file and is structured as a screening report to determine whether a detailed EIA study is required for the Programme. Its contents however meet both the requirements of an EIA Project Report as per Kenya's National Environment Management Authority (NEMA) and also that of International Fund for Agricultural Development's (IFAD) Environmental and Social Review Note (ESRN). The assessment is based on the KCEP concept note.

5. **Objectives of the SEA**: The objectives of the EIA included; to Identify and assess the anticipated environmental and social impacts of the proposed project – both positive and negative; to identify and analyze alternatives to the proposed project; to propose mitigation measures for negative impacts and enhancement measures for positive impacts to be undertaken during and after the implementation of the proposed project; to verify compliance with national environmental regulations and policies, World Bank Safeguard Policies, and industry best practice and standards; to identify any project affected person; and to prepare an Environmental and Social Management Plan (ESMP).

6. **Methodology**: To fulfill both IFAD and NEMA requirements, an Environmental and Impact Assessment (EIA) exercise was undertaken as part of the design work for the KCEP. In undertaking the EIA, focus was on identifying potential environmental, social and economic impacts of the proposed Programme, the significance of these impacts, and coming up with possible mitigation and enhancement measures for adverse and positive impacts respectively.

7. The Programme: The Kenya Cereals Enhancement Programme (KCEP), is a joint project between the Government of Kenya, the European Union (EU), and the International Fund for Agricultural Development (IFAD).

8. The programme aims to enhance the production of the main cereals staples in the country, namely maize, sorghum and millet, with a view of contributing to food security and improving farmers' livelihoods. Other than the cereals, the Programme will also enhance production of pulses, namely, beans, cowpeas, green grams, and pigion peas.

9. The Programme aims to enhance cereals production by:

- Improving smallholder access to targeted technologies and inputs;
- Building capacity of smallholders for production, storage, and processing of the targeted cereals and the associated pulses;
- Providing marketing support for the cereals and pulses; and
- Facilitating smallholder access to sustainable financial services

10. **Policy framework**. To successfully design and undertake KCEP, the project must be in line with the countries legislative and regulatory framework. Some of the laws and policies relevant to this project include; the Kenya constitution 2010, Kenya Vision 2010, The Environmental Management and Coordination Act, 1999, The Agriculture Act (Chapter 318), and the Warehouse receipting bill. Policies include among others: National Poverty Reduction Strategy/ Economic Recovery Strategy for Wealth and Employment Creation, Millennium Development Goals (MDGs), Agriculture Sector Development Strategy (ASDS), Agricultural Extension Policy, National Poverty Eradication Plan, Sessional papers no. 7 & 8 on development, Social welfare policy, National Community Development Plan, National Policy on Gender and Development and Sessional Paper No. 2 of 2006 on Gender and Equality. In addition to complying with the GoK policy and legal framework described above, KCEP also considered applicable IFAD procedures, policies and strategies including IFADs Strategic

Framework (2011-15), Country Strategic Opportunities Programme (COSOP –[2007-012]), Environment and Social Assessment Procedures (2009), the Environment and Natural Resource Management Policy (2011) and the Climate Change Strategy (2010). Multilateral environmental agreements that Kenya is party to were also considered.

11. **Potential Positive Impacts** and their enhancement will include: an improved environment as improved livelihoods generally translate to an improved environment due to the nexus between poverty and the environment; improve food security and reduce post-harvest losses; Improved water resources management by building farmers capacity to use and promote among other farmers, furrows and tied ridging; improved soil fertility enhance through capacity building; reduced solid wastes generation from reduced post-harvest losses; reduced production of illicit brews; and improved incomes and livelihoods leading to less persons living below the poverty line.

12. **Potential negative impacts** and their mitigation: solid acidification which will be mitigated through use of packages developed by KARI and capacity building; changes in soil micro-biodiversity which will be localized and not necessarily adverse; soil erosion which will be mitigated by the small sized nature of civil works; dust from cleaning of cereals which will be mitigated by dust masks and starting of this cleaning on-farm; air pollution from fumigation activities which will be mitigated by gas masks, protective clothing and use of skilled labour; and compaction of soils from continuous cultivation which will be addressed by crops intercropping and rotations, including no cultivation.

13. **Alternatives:**KCEP has on the whole chosen environmentally friendly alternatives. The ‘no’ option was also found non-desirable.

14. **Conclusions and recommendations:** impacts arising from the KCEP are largely positive and any minor adverse impacts have been adequately mitigated. Positive impacts, both social and environmental have also been enhanced. While there does not seem to be need of a detailed EIA, it is however recommended that the lead agency shares with NEMA the screening/scoping report (or aspects of it), so as to get a proper exemption letter on the same, as NEMA is the only authority to decide whether an EIA is required or not.

1.

Appendix 13: Contents of the Project Life File

ANNEX13:CONTENTSOFTHEPROJECTLIFEFILE

PRIOR DOCUMENTS

COSOP
CPMT Minutes

WORKING PAPERS/notes

1. Poverty, Gender and Targeting
2. Cereal productivity Enhancement
3. Post-harvest management and market linkages
4. Financial Inclusion
5. Feasibility Study for an Electronic Voucher Platform in Kenya
6. Stock taking note on e-voucher schemes in Kenya, Zambia and Zimbabwe
7. Environmental Impact Assessment Screening and Scoping Report

REFERENCE DOCUMENTS

Agricultural Sector Development Strategy (ASDS)
Agricultural Sector Support Programme II (ASSPII)
Comprehensive African Agricultural Development Program (CAADP) Compact
OECD-DAC and the World Bank reviews of Kenya National Procurement systems

MISSION DOCUMENTS

Terms of Reference for Stock Taking Mission
Terms of Reference for Design Mission
Aide Memoire of Design Mission
Environmental and Social Impact Study Report

IFAD REVIEW DOCUMENTS

QE Memo