

Republic of Kenya

Kenya Cereal Enhancement Programme (KCEP)

Detailed design report

Working papers

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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 | | |
|  | | |
| AE | Adult Equivalent |
| ASAL |  |
| CAADP | Comprehensive Africa Agricultural Development Programme |
| CGA | Cereal Growers Association |
| COSOP |  |
| DFID | Department for International Development (UK) |
|  |  |
|  |  |
| EU | European Union |
| FAO | Food and Agricultural Organisation |
|  |  |
| Ha  HR | Hectare  High Rainfall |
| HSNP |  |
| IFAD | International Fund for Agricultural Development |
| IIAM | Institute of Agricultural Research of Mozambique |
| ILRI | International Livestock Research Institute |
| KFSSG | Kenya Food Security Steering Group |
| KIHBS | Kenya Integrated Household Budget Survey |
| KMDP | Kenya Maize Development Programme |
| Ksh | Kenyan Shilling |
|  |  |
| M&E | Monitoring and Evaluation |
| MOA | Ministry of Agriculture |
| NAAIAP |  |
| MTR | Mid-Term Review |
|  |  |
| NEPAD | New Economic Partnership for African Development |
| NGOs | Non Governmental Organization |
| OVC | Orphans and Vulnerable Children |
|  |  |
|  |  |
| ReSAKSS | Regional Strategic Analysis and Knowledge Support System |
| SHOMAP |  |
| Tegemeo | Tegemeo Institute for Agricultural Policy and Development |
|  |  |
| SNV | Dutch Development Organization NGO |
|  |  |
| T&V | Training and Visit Extension Model |
| UNICEF |  |
| USAID | United States Agency for International Development |
| WHO | World Health Organisation |

**Working Paper 1 – Poverty, targeting and gender**

1. **THE POVERTY CONTEXT**
2. **The national poverty context**
3. Kenya has an estimated population of 41.6 million people (2011)[[1]](#footnote-1), 70 percent of which lives in the high medium potential (HMP) areas in the centre and west of the country and 30 percent of which lives in arid and semi-arid lands (ASALs), which constitute 84 percent of the land mass of the country. The urban population is estimated to be 22%. 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 it is feared that the political crisis of 2008 has reversed this trend. It has been estimated that the poverty headcount has increased by 22 percent and that the measure of severe poverty has gone up by 38 percent, reversing the gains that had been made over the past five years.[[2]](#footnote-2) The gross national income per capita was estimated at US$ 810 in 2010.
4. There is marked provincial variation in incomes, poverty and human development, as well as in disparities in access to services. This is caused by factors such as the viability of the livelihood systems that households depend on and on the susceptibility of these livelihoods to economic, environmental, and security shocks. Poverty rate was markedly higher in rural areas (49.7%) than in urban areas (34.4%). The majority of the poor live in the Medium to High Potential (MHP) areas that cover about 16 percent of the country, but the Arid and Semi-Arid Lands (ASAL) have the lowest development indicators and the highest incidence of poverty[[3]](#footnote-3). According to the 2005/6 Kenya Integrated Household Budget Survey (KIHBS) the lowest incidence of poverty was in the Central Province (30.3 percent), followed by the Rift Valley (49.7 percent), Nyanza (47.9 percent), Eastern (51.1 percent), Western (53.2 percent), Coast (69.7 percent) and North Eastern Province (74 percent)[[4]](#footnote-4). Within this broad picture, more recent studies on the spatial distribution of poverty have since been completed that will be considered further below. The national poverty line in 2005/6 was estimated at KSh 1562 for the rural poor and KSh 988 for the food poor[[5]](#footnote-5). Food security continues to be a major concern with an estimated 3.8 million people in rural areas either highly or extremely food insecure; FAO/GIEWS and FEWSNET agree that in the short-term Kenya is a hunger prone country while the long-term situation is assessed as alarming and hunger as moderately high.

**Table 1: Poverty Incidence 2005/6**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Poverty Measure | Headcount (%) | Number (millions) |
| National | Overall | 46.60 | 16.60 |
| Food | 48.50 | 16.30 |
| Severe | 19.50 | 6.90 |
| Rural | Overall | 49.70 | 14.10 |
| Food | 47.20 | 13.40 |
| Severe | 22.30 | 6.30 |

Source: KIHBS (2007)

1. Inequality, measured across the distribution of household consumption, is high, especially when one compares the position of those at the top, to those at the bottom. In 2005/6, the consumption decile ratios of the top 10 percent to the bottom 10 percent stood at 20:1 and 12:1 in urban and rural areas, respectively. This compares to 5:1 in Tanzania and 3.3:1 in Ethiopia, for example.
2. The agro-ecological zone (AEZ) in which the poor are located has more influence on the poverty of a household than the province. Although all parts of Kenya are facing significant challenges, poverty is manifested differently across Kenya’s agro-ecological zones. The high rainfall zones – 11 percent of Kenya’s land – produce 70 percent 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 produce 20 percent of Kenya’s agricultural output. Traditionally these areas received less rainfall than high potential areas. Climate change is already evident in the increasingly erratic rainfall patterns. Yet this region offers significant potential for increases in agricultural output, if water management and harvesting, irrigation, and crop varieties can be improved. Lastly, Kenya’s arid regions take up 68 percent of the land area, and produce 10 percent 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 2 breaks the population down into poverty quintiles by agro-ecological zone (AEZ).

**Table 2: Population distribution and poverty levels by AEZ**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | National | High Rainfall | | | Arid Areas | | | Semi-Arid Areas | | |
| 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)

1. While the poverty rate has declined from 53 percent in 1999 to 46 percent in 2009 (World Bank estimation), the total number of poor has increased from 15.2 million to 17.8 million. The 2005/6 KHIBS is too static and dated to provide much insight into current poverty dynamics, however a number of 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[[6]](#footnote-6). Table 3 provides an overview of household poverty dynamics in the period 1997 to 2007. A household is considered to be transiently poor when it falls below the poverty line in some but not all of the spells, chronically poor if it falls below the poverty line in every spell, and non-poor if it never falls below the poverty line[[7]](#footnote-7).

**Table 3: Poverty mobility type and distribution by AEZ, 2000-2007**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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.

1. 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. 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. The main difference between the non-poor and exited households and the poor households in the survey is that the former have regular reliable non-agricultural income sources that contribute to a risk management and asset accumulation strategy. The extreme fluctuation in the poverty status of surveyed households is caused mainly by the vulnerability of the rural poor to political (eg, riots, violence, displacement), economic (eg, inflation, market volatility, unemployment) and health shocks. Among households reporting a serious decline in asset wealth, at least half reported a death or chronic illness as the main cause. Reducing vulnerability to shocks and ensuring interventions are adapted to different AEZ will be a central feature of the project targeting strategy.
2. **Gender.** Female headed households and, in particular, households headed by widows and single mothers have lower income and higher poverty incidences, estimated at 44 percent by the World Bank. Women have a lower level of educational attainment and lower access to capital assets then men and lack control over property, particularly land. This has resulted in not only a cultural but also a social and economic gender driven disempowerment. Amongst rural smallholders specifically, consistently better-off are headed by males and not polygamous, whilst the key characteristics of the chronic poor and those descending into poverty are that they are headed by women, particularly those women who have recently lost a male family member and households that are polygamous. A change from female to male headship is associated with more than a doubling of household asset wealth, especially for ascenders and descenders. This finding attests to the often-devastating long-term negative impact of widowhood, separation, or abandonment of females by their spouses on household asset dynamics. Closer analysis shows that, apart from the obvious advantage of having male labor, the difference in wealth status between female and male-headed households can also be attributed to men’s greater capacity to protect land against encroachment and participate in a broader range of economic activities.
3. Female farmers play a key role in agriculture – whether directly through the management of farm produce or through labor. Additionally, women are responsible for 80 percent of paid and unpaid labor in food production, including staple crops. Yet, women have few incentives to increase productivity due to their lack of access to income from their labor. Discriminatory beliefs hamper women’s ability to upgrade their skills and move into higher technical and supervisory positions in value chains.Women are given ownership of the crops they cultivate, but are not given the title of land-owners. The responsibility put on women to produce food for the family requires legal protection in order to maintain economic and food security. This legal protection involves access to land, to land tenure, to credit, and to the profits reaped from labor. Agricultural production is the main source of money and security in Kenya, and arable land is highly valued and sought after.
4. The inability for women to gain access to resources restricts their bargaining power and their ability to provide for their families. Social interpretations of land classification and crops are defined by gender and are manipulated to maintain the subordinate position of women in the cultured and gendered discourse of agricultural work. In general, women cultivate crops eaten at home, while men work in the fields of cash crops, like maize when it became a commercialized commodity (Wane, 2003). Additionally, men increasingly migrate in the search for non-agricultural labour and are sometimes gone 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.
5. **Youth**. The share of youth (15-29 years) in Kenya has risen slightly in the last two decades and is expected to remain around 30 percent. The youth number about 9.1 million, and account for 32% of the population. The youth form 60% of the total labor force but a majority is unemployed and lack resources to start their own households. Lack of access to land and a disaffection with agricultural production as a livelihood strategy, especially amongst rural males, limits their livelihood options. Youth and young households tend to be more poor and vulnerable with asset accumulation positively related to the age of the household head; among the non-poor and the ascending households, an increase in the age of the household head by one year increases household asset holding by about 12%. Unemployment, the lack of control over assets and limited options for productive contribution has resulted in frustration and risky behavior that can have implications for criminality, violence and contracting HIV/AIDS.
6. **Resources And Livelihood Strategies Of The Poor**
7. The strategic objective of the KCEP is to reduce the national grain deficit and support smallholder farmers in graduating from subsistence to commercial agriculture. The key question for the poverty analysis is to understand whether and which of the poor households are ready to participate in value chain development, what minimum asset thresholds they need to meet and what the best options are to support their inclusion in the selected value chains. This section examines the resources and livelihood strategies of the poor through a capital asset framework, and examines how household level natural, physical, human, social and financial assets are used in and determine the livelihood strategies of the poor. A broad capital asset framework is increasingly being used in value chain analysis as lessons from the field show that a narrow focus on the income characteristics of the poor is leading to poor analysis of the value chain readiness of different households and therefore poorly designed projects. In particular, the specialization required to pursue profits and specialize in a single value chain requires an analysis of complex trade-offs the poor make, which in turn requires a global view of their assets.

**Natural Capital**

1. Access to natural capital and the AEZ in which the household is located is the single most important factor in determining household poverty levels. The poverty headcount, intensity and severity increases from the High-Rainfall (HR), Semi-Arid (SA) to Arid (A) areas, as well as in the 9 sub AEZ identified in table 3. There is however a growing level of poverty in many of the HR areas driven mainly by the subdivision of land and increasingly uneconomical landholdings. In general, there is a high correlation between poverty and land constraints, nearly 75% of chronically poor households are found in divisions with median farm sizes smaller than two acres. Both the amount and predictability of rainfall are closely linked to poverty headcount and severity. In addition, apart from the 13% who are landless, there are a further 15% of households that do own land who are functionally landless (i.e. their endowment of land is insufficient to contribute significantly to household livelihood). 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.
2. 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[[8]](#footnote-8), 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.
3. Poverty studies have shown that the adoption of hybrid seeds provides positive returns even in low potential areas and to poor households. The use of hybrid seed is associated with higher income. It seems that not only does it increase income but it does so also in less favorable areas and reduces relative deprivation amongst households in poorer AEZ’s. Among maize-growing households, hybrid seed reduces the likelihood that the household income falls below the poverty line by 16 percentage points overall, 22 percentage points in the higher potential maize zones, and 16 percentage points 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 for reasons explored above; this has major targeting implications.
4. The capacity for smallholders to take advantage of their natural capital will depend increasingly on the development of technical packages adapted to specific socio-ecological niches. There is a consensus in the literature that public investments in research on adapted inputs, improved seed, varieties for semi-arid areas, breeding and distribution are, to quote USAID, ‘the single most important investment to promote broad-based productivity growth and poverty reduction in Kenya’.

**Physical Capital**

1. Physical capital refers to the public and private infrastructure available to rural households and includes tools, equipment, machinery, warehouses, inputs and other built or productive infrastructure. The correlation between poverty mobility and access to public physical infrastructure and services, in particular to markets, improved seeds, fertilizer and extension has been well studied, in particular for maize. In some areas there is a general consensus. Physical access to both input and output market services and infrastructure has improved significantly in rural Kenya for most areas and for almost all indicators[[9]](#footnote-9) for which data was consistently collected during the 1997-2007 period. Market access indicators attributed to public sector investment improved in virtually all regions, and these improvements were relatively similar across relatively high-potential and low-potential areas.
2. In addition, there were also broad improvements in indicators of market access attributable to private sector investment. In particular, the distance households traveled 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. This represents a 43% and 59% reduction in distance and reflects the increased density of grain buyers and fertilizer sellers operating in rural 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. Additionally, improvements in access to markets reflecting private sector investment were greatest in the relatively low-potential areas. The tendency for access indicators reflecting private investment to improve to a greater extent in the relatively low- potential zones may reflect where unmet profit opportunities are the greatest. 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.
3. The effect of infrastructure improvements on poverty reduction is not clearly demonstrated in broad panel studies. Partly this is because projects and programmes that have built infrastructure have not undertaken thorough impact evaluation on poverty reduction. A very broad conclusion is that the ability of rural households to take advantage of inputs and infrastructure is dependent on their access to natural, human and social capital resources. In order for households to take advantage of infrastructural investments, they require support with the development of their productive capacity (e.g soil fertility) and human/social capital (e.g information, knowledge, organising capacity).
4. A recent study[[10]](#footnote-10), for example, 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.
5. Similarly, mobile phone use has increased significantly with some studies suggesting that 70% of Kenyans, which includes a large percentage of the rural poor under the poverty line, own a mobile phone. However in general mobile technology has not been effectively used to improve market access. A study of mobile phone use by maize farmers found that 85% of farmers in accessible villages and 75% in remote villages had mobile phones but had not used them to access market information, although 66% of respondents had used mobile phones to receive money. There is no information on the poverty levels of the participants but it is likely that the ability to identify buyers and negotiate prices will be especially hard for women, the youth and the uneducated.
6. There is no conclusive evidence of the correlation between the uptake of extension and information services and poverty reduction. The policy lessons drawn have been that for extension to be effective it has to be tailored to different socio-ecological niches and embedded in a package of support services. Research evidence indicates that smallholders’ ability to productively utilize modern agricultural inputs are related to public investments in improved crop science, viable extension systems to transfer agronomic and management knowledge to farmers, and investments in physical infrastructure to raise the returns to using purchased inputs.
7. In sum, while there is a significant difference in the proportion of poor and non-poor households adopting improved seeds and using fertilizer there does not seem to be a big variation in access. Physical capital (unlike natural capital) in itself is not a major determinant of poverty for most poverty groups. In terms of physical capital, the factors that would seem to present the most important options for reducing poverty are more appropriate technological interventions adapted to the natural and human capital constraints of the poor.

**Human Capital**

1. There is overwhelming evidence and a widespread consensus that poverty and low agricultural productivity is closely correlated to the human capital endowments of a household. In particular, households headed by women, youth, with a large number of dependents and with members that have HIV/AIDS are more likely to be poor and many of these households are chronically poor. Whilst the human capital resources of a household are a central feature of chronic poverty, health shocks are key in explaining poverty mobility. At least half of the 46% of population that has changed poverty status (either moving into or out of poverty in the ten-year period of the Tegemeo panel) reported a serious illness or death, having spent 22% of their income and 47% of their assets on medicines and caregiving. Health shocks not only cause households to sell physical assets but also to engage in a range of coping strategies that further deteriorate human capital assets such as taking girls out of school, reducing and changing food consumption and abandoning production on own fields for *kibuara*.
2. 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 at the time the household was formed; and (v) had parents who were relatively well-off and educated. Moreover, the ascenders were able to acquire more land, cultivate 70% more land, and increase their use of fertilizer over the 2000-2007 period, consistent with the overall agricultural and economy- wide growth in Kenya that occurred during the 2004-2007 period. This shows a clear correlation between human capital assets and capacity to intensify agricultural production.
3. 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.

**Social Capital**

1. Social capital refers to the rules, norms, obligations, reciprocity and trust embedded in social structures and arrangements that enable those who share it to achieve goals that they could not individually. In value chain analysis it refers to the capacity of a household to draw on mutual support arrangements to build capital assets, access information systems, provide risk mitigation support, develop linkages with service providers and influence decision-making. Community-based organizations have a long history in Kenya. They vary in size, form and function, and include women’s groups, welfare associations, youth groups, communal self- help groups and savings and credit associations. Single-sex groups tended to predominate over mixed groups, and female over male.
2. Whilst building social capital is a key objective of many projects and clearly important for household well-being, it is difficult to link access to social capital to household poverty. While collective local action is often a response to the combination of need and state failure, the poorest, lacking any surplus (including time to participate in group activities), may simply be unable to take a part in associational life. Hence something of an inverted ‘U-shaped curve’ exists in the relation between wealth and group activity, with the poorest and wealthiest communities and individuals being less involved in communal life than those in the middle range. Social capital has been linked to decreased poverty in the Tegemeo studies but only marginally and with questionable analysis about causality.

**Financial Capital and Livelihood Strategies**

1. As noted, there are no recent nationally representative surveys of rural poverty; the latest 2007 Tegemeo survey defines the rural poverty line as Ksh 1598 per month per adult equivalent (AE). The relevance of this poverty line will however vary between provinces as households with similar resource endowments can be above the poverty line in one province and below in another[[11]](#footnote-11). In the last ten years there has been rapid diversification in both agricultural and non-agricultural income sources across all wealth categories. Notably, the proportion of income from agriculture/non-agriculture remains roughly the same between the income poor and non-income poor, as shown in the table below.

**Table 4: Household annual mean income and share of income components**

|  |  |  |
| --- | --- | --- |
|  | **Income Poor** | **Income non-poor** |
| Total Income | 72,922 | 262,029 |
| Income per adult equivalent | 13,423 | 68,140 |
| **Share of income components (%)** | | |
| Crop | 46.5 | 44.8 |
| Livestock | 17.7 | 19.6 |
| Business & Informal labour | 22.5 | 16.6 |
| Salaries & remittances | 13.3 | 18.9 |

Source: Olwande, J and M.Mathenge (2011) Market Participation Among Poor Households in Kenya, WP 42, Tegemeo Institute

1. On-farm diversification, especially in crops, has until 2007 been closely correlated with poverty reduction. The number of crops planted in the main season by province has increased dramatically over time—the extent of increase ranged from doubling over the decade in Eastern and Central, and close to tripling in Nyanza and Western. The number of crops per field in the main season evidenced dramatic increases, doubling in Western, and increasing by about half elsewhere. The number of crops tends to be fewer among households with more uneducated adults, and those with less land.
2. Since 2007 (the last panel study) the importance of on-farm diversification in poverty reduction has been less documented, however a series of smaller studies using the same sample 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. Studies show that higher income households are more specialized than low income in cropping activities, male-headed households tend to be more specialized in their livelihood activities and farmers with more land tend to be more specialized in cropping. 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.
3. 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. Non-farm activities differ significantly in terms of entry-barriers, the types of financial investment needed to access them and of course returns. 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 (as they would if rural credit were available). 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.
4. One of the most robust findings from the rural panel survey is the importance of credit as a correlate of escaping from poverty. However, 70% of Kenyans do not have access to any form of credit and for those who do access loans there is a significant disparity in average amounts – with non-poor households 42% above the average and poor 77% below. While the extent of exclusion from financial services, and in particular credit, is manifest, it is important to bear in mind that the financial services sector in Kenya is very dynamic. There is evidence of significant innovation and expansion over the past several years, including group-based mechanisms and the use of mobile phones for financial services.
5. The single most important livelihood strategy of the poor, both in the High Rainfall and in the Semi-Arid Zones, 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.
6. There is a high degree of differentiation and market concentration within the smallholder sector. Data shows that 20% of the farms account for 50% of the total marketed maize surplus from the smallholder sector. These farm households appear to enjoy substantially higher welfare levels, in terms of asset holdings, crop income, and non- farm income, than the rest of the rural population. The relatively elite smallholder farmers had roughly 2 to 6 times as much land and productive assets as the non-selling households, 6 to 9 times more gross revenue from the sale of all crops, and 5 to 7 times as much total household income (IDWP 111). Maize producers within the smallholder sector, as outlined in the table below, can be grouped into six categories according to their market position.[[12]](#footnote-12)

**Table 5: Household characteristics according to position in the maize market**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Household market position (% of households) | | | | | | |
| Characteristic\* | Sell only | Buy only | Net seller | Net Buyer | Net Equal | Neither buys nor sells | Total |
| % sample | 19.7 | 51.7 | 11.8 | 6.1 | 0.5 | 10.4 | 100 |
| HH income (2004 Ksh) | 334,188 | 175,409 | 275,006 | 184,375 | 243,950 | 213,775 | 223,176 |
| Crop income (2004 Ksh) | 182,093 | 86,702 | 153,616 | 90,908 | 157,080 | 102,893 | 115,580 |
| Household wealth (2004 Ksh) | 273,390 | 58,662 | 118,840 | 61,862 | 31,590 | 110,435 | 113,401 |
| Land cultivated (acres) | 7.5 | 2.6 | 4.8 | 3.0 | 2.4 | 3.6 | 4.0 |
| HH size (AE) | 6.2 | 6.2 | 6.2 | 6.3 | 6.9 | 5.8 | 6.2 |
| % Female-headed | 12 | 49 | 7 | 16 | 5 | 11 | 100 |

Source: IDWP 111

1. The percentage of marketed maize is relatively high, however despite the relatively commercialised nature of maize production in Kenya, maize contributes to only 11% of average household crop sales in the surveyed region. There is considerable evidence that the ‘dynamic and active poor’ amongst the smallholder households are reducing the area planted to maize, intensifying production and putting part of their land, which may include rented land, under higher value crops. 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. A recent study on the maize value chain notes: ‘a critical component of making maize markets work for small-scale farmers is thus to address the needs of the majority of farmers who are net buyers of maize. Reliable access to maize at tolerable prices is a necessary precondition for these farmers to successfully diversify away from maize production and into the production of higher value crops’.[[13]](#footnote-13)
2. **Summary: Typology of the Poor**
3. This section has examined the characteristics of rural smallholders and the potential and constraints they face in developing livelihood strategies based on agricultural intensification. Arguably almost all rural smallholders, particularly those in the semi-arid lands, have a high degree of vulnerability due to their dependence on rain-fed agriculture. The fact that the poverty line has fluctuated so significantly demonstrates the limited security of the non-poor and the devastating impact that economic, natural and welfare shocks have on household resources. However there are some differences in the livelihood strategies of different wealth and income groups that will have an impact on the project targeting strategy. These are summarised briefly here:

* in the high-rainfall AEZ’s access to land and land degradation is a serious constraint on production and principal cause of poverty;
* Household human capital characteristics, particularly age, gender and health, are closely related to poverty levels and capacity to derive income from agriculture;
* Non-farm income has become an increasingly important part of household income but in the upper wealth quintiles this is a permanent and lucrative part of livelihood strategies, whilst in the lower income quintiles this is mainly a coping strategy and often leads to increased poverty;
* Access to technology, extension and infrastructure does not demonstrably increase household incomes in isolation from a value chain approach that provides smallholders with the resources they need to take advantage of public services such as access to credit, adapted technologies and the capacities to negotiate market positions:
* Gender roles and stereotypes pose serious constraints to women trying to develop livelihood strategies based on agricultural intensification.

1. Table 6 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. The table groups households into three categories: the extremely poor, the poor and the non-poor. The group characterised as extremely poor corresponds to the 19.50% of the population that is ‘hardcore poor’ in the KIHBS and the 19% that is called ‘chronically poor’ in the Tegemeo panels. The non-poor group includes those that were above the poverty line in 2007 and includes the Tegemeo categories of permanently non-poor and those that have exited poverty. Likewise the poor group includes the two Tegemeo categories of ‘descended’ and oscillated’. The distribution of quintiles across these three groups is provided in the matrix. The focus is on those strategies and priorities that are relevant to the KCEP value chains; evidently the list is not exhaustive.

**Table 6: Assets, Resources, Livelihoods Strategies and Priorities**

|  |  |  |
| --- | --- | --- |
| **Characteristics, Assets, Resources** | **Livelihood Strategies (relevant to target VCs)** | **Priority Needs (relevant to target VCs) and in rough order of priority** |
| **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. | | |
| * 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. | * Relatively low crop diversification index with production focused on staples. * Diversification in livelihood strategies and high reliance on non-farm income. * High reliance on *kibuara*and 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 *posho*meal 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. | * 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. |
| **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. | | |
| * 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 * 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. | * 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 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. | * 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. |
| **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 |

1. **Targeting Rationale, Target Area and Target Group**
2. **Targeting Rationale**
3. **Objectives.** The project strategic objectives are to contribute to national food security by increasing production of cereal staples (maize, sorghum, millet and associated pulses) and generating incomes among producers in medium and high potential areas. Specifically, the project will contribute to (a) reducing the national grain deficit and (b) supporting smallholder farmers to graduate from subsistence to commercial agriculture. This section outlines how the social and economic analysis has contributed to a development of the project rationale, the selection of the target area and the definition of interventions for the project target group.
4. Increasing the competitiveness of staple foods grown by large numbers of smallholders will increase productivity and the nation’s total food supply. Farmer incomes will increase through expanded access to markets and improved market facilities. Surplus production will decrease food prices, thereby benefiting consumers – especially the rural poor who spend over 60 percent of their incomes on food. Increased demand and less volatile food markets provide incentives for farmers and other private sector actors to increase investments in staple food value chains. Increased farmer incomes stimulate demand for rural-based goods and services, which open up more economic opportunities – including for the very poor – and increase inclusive agricultural and economic growth. As smallholder producers increase their incomes and improve their food security status, they will begin to: decrease the area dedicated to low value commodities; diversify into higher-return commodities; and, for some, shift out of agriculture into better economic opportunities stimulated by agricultural growth and increased investments by the private sector.
5. **Target crops.** The staple value chains are self-targeting and have relatively low thresholds in terms of the asset portfolios necessary for smallholders to participate in them. Each of the value chains has a function in promoting food security as well as providing opportunities for generating incomes. Given the current level of market development and weather and price influenced fluctuations in food security, this dual function of the value chains offers an important risk mitigation function and differentiates them from the conventional cash crops. The value chains already 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 into generating income from agriculture. Maize in particular has scale in terms of number of producers, nutritional value, competitiveness and strong market demand. In addition, because maize makes up a large share of household crop income (in cash and kind) even small gains in maize productivity will have major and broad-based benefits.
6. In the near term, improving the competitiveness of maize will be important, because maize is the engine of diversification. As noted in the last section, dynamic and active farmers ascending out of poverty have diversified out of maize and not until farmers feel assured of having sufficient and affordable access to maize – including through markets – will they diversify. The future of Kenya’s smallholders, who farm increasingly small plots, will be in higher-return-per-hectare crops and for some alternative non-agricultural livelihood strategies. Another principal aspect of increased agricultural production is employment generation; smallholder farmers who go into more intensive production hire additional seasonal help providing an increase in employment opportunities for poor rural households (especially youth).
7. Improved post-harvest handling practices and storage, and meeting higher market standards, will enable male and female farmers to effectively participate in those markets and gain higher revenues. Bulking of quality products and access to and effective use of market intelligence will increase farmers’, especially women’s, bargaining power in the market. As noted, increasingly market access is described not only as a physical proximity to infrastructure and inputs, but also the capacity to take advantage of these to fetch higher prices.
8. Vulnerable populations will also need to diversify into lower risk, drought tolerant crops. As noted in the analysis, and outlined in detail in Working Paper 1, poor households often grow maize in unsuitable areas. A part of the explanation is the association of maize with food security as well as a cultural attachment to maize and insufficient information about the food security benefits of alternative staples like sorghum and millet. The project will promote these crops in suitable areas as well as demonstrating the benefits of inter-cropping in all value chains. Different crops grown on limited landholdings at the same time – e.g., beans and pulses with cereal crops – will support the smallholders’ challenge to produce more food per unit of land and will be fostered during project implementation.
9. Regarding sorghum, the project will support farmers to produce both for milling and brewing and for home consumption. The segmentation of sorghum production to meet the specific market demands of consumption and brewing has not been successful for lack of market information, and as a result smallholder success in marketing has been highly variable. The project will support smallholders to deliver to segmented market outlets, thus enabling both food security and income generation from sorghum to become part of a more planned livelihood strategy.
10. **Reduced Vulnerability.** While these investments in economic growth will be necessary to reduce poverty and hunger, poverty reduction will require targeted interventions that address the needs of vulnerable populations, women and youth. By linking poor farmers to markets and input access, providing affordable financial services, and promoting greater diversification – specifically tailored to the needs of smallholders, women and youth – the project will aim to “pull” rural households into income-raising activities.
11. Reducing the vulnerability of the very poor will also require improvements in nutrition and natural resource management. Smallholders will need access to knowledge and a range of technologies and products – including better agricultural practices, improved seeds, organic and chemical fertilizer, soil and water management techniques, and labor saving technologies – in order to ultimately boost productivity and food supply. As noted in the analysis, research into improved production of alternative staples such as sorghum and millet and technology adapted to particular socio-ecological niches has been identified in a series of studies as a priority.
12. The focus should be not only increasing productivity but also reducing risk and low-cost implementation. The project provides several risk mitigation instruments, outlined in the working paper on financial inclusion, that will protect household assets and secure household food security, including access to weather-index based crop insurance, warehouse receipt and forward contracting.
13. **NAAIAP.** Finally, a key part of the targeting rationale of the project is to build on the experience gained by NAAIAP in improving small-holders access to modern inputs. NAAIAP has implemented an approach offering smallholders access to a one-year voucher based grant for modern inputs allowing them to graduate from subsistence to commercial farming. There are a number of lessons that the project can learn from the NAAIAP approach that will be outlined further in section III. In terms of the targeting rationale, the key lesson is that there is scope to further support smallholders that have benefited from NAAIAP but have not been able to graduate to become net sellers or who have successfully increased production but require further support to consolidate progress
14. **Target Area**
15. Given the project objectives, the potential of the target area for production of the staples in the project value chain in areas with high population density and a high incidence of poverty was the main targeting criteria and resulted in a focus on the high rainfall and semi-arid areas for which analysis has been presented in this study.
16. A number of other sociological factors contributed to the selection of these counties. They all 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 in the analysis.
17. 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]](#footnote-14) is high in all of the counties chosen for maize, whilst for the sorghum/millet counties it is close to the national average.
18. The counties chosen for maize include: Kagamega, Bungoma, Trans Enzoi, Nandi and Nakura. The counties chosen for sorghum and millet include Kitui, Tharaka and Embu. Detailed sociological fieldwork during and after the main design mission was undertaken in Nakuru and Tharaka county. These counties have the greatest potential for linking agricultural growth with poverty reduction.
19. The detailed county data attached to the main design report illustrate that, apart from Nakuru, all of the counties have poverty levels above the national average. The counties selected for maize are in the high potential maize and western transitional zones, whilst those for sorghum and millet are in the eastern lowlands. As described in the analysis, whilst these areas have lower numbers of chronically poor than the national average, the high potential maize and western transitional 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 stand to benefit most from the interventions that have been outlined, as well as contributing to national food security.
20. 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 the 2013 food security report and Kitui and Tharaka are included in the drought prone areas that are regularly monitored by the Kenya Food Security Steering Group (KFSSG).
21. **Target Group**
22. The social and poverty analysis has shown that smallholders across the different wealth quintiles have different priorities and capacities. In particular, among the poorer income groups – for reasons described - there is a distinction between those rural households that are economically active and able to produce a surplus and those whose primary focus is likely to remain basic food security. Whilst the project will target both groups some of the poorer households will lack the capital assets necessary to benefit from project interventions. In this case, scarce resources are likely to have a higher pay-off in poverty reduction if invested in helping better-endowed (but still poor) smallholders increase their production than in less well-endowed households who may be better served through labour markets than through direct participation as sellers in crop markets.
23. Value chain analysis shows that different measures are needed in each stage when following a pathway out of poverty from: (i) stabilizing household consumption/stemming asset loss to (ii) smoothing household consumption/protecting assets to (iii) smoothing household income/acquiring assets to (iv) expanding household income/leverage assets and to (v) stabilized income-generation and asset accumulation.

**The Main Project Target Group**

1. The main target groupwill consist of two different categories:
2. The first category is subsistence farmers who are net buyers of staple crops, food insecure and do not use fertilizers or modern inputs. These households are food insecure for part of the year and their main livelihood strategy is household food production supplemented with off-farm wage labour and trade. The primary objective for their entry into each of the value chains is to generate income for increased food security and to meet basic household needs of health, education and shelter. This group is likely to be composed of households in quintiles 2 and 3, although the project will seek to make the benefits also available to households in quintile 1 that have the minimum land and labour requirements through interventions that will be described in section III. It 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. This category will also include NAAIAP supported-groups that were not able to graduate to commercial farming.
3. The second category will include farmers and groups in the project area, both poor and non-poor, that have successfully increased production, apply fertilizers and good agronomic practices and are 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.
4. The project will provide two main types of support to the main target group:
5. Support to 40.000 beneficiaries in the first category will include e-vouchers, which will enable smallholders to purchase modern inputs as these are a necessary requirement for increasing productivity and taking part in project interventions supported by Components 2 and 3. This target group will be supported to take part in and benefit from all of the interventions outlined in components 1, 2 and 3;
6. Support to an estimated 60,000 beneficiaries in the second category, both poor and non-poor, who will benefit from project interventions, with the exception of the e-voucher.
7. **Women** will constitute a direct target group in each value chain because of the clear evidence that, 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, to be outlined in section III, will prioritise their participation whenever possible and project implementation and management arrangements will be gender sensitive.
8. **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.

**Secondary Target Group**

1. 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, private extension services, buyers, processors, and leading 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.

**Indirect Target Group**

1. Indirect target groups include those that are not directly targeted through project activities but who will, according to the analysis completed during the design phase, benefit from the spill-over effects of project activities. These include:
2. 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. Accounting for employment generated by project activities significantly increases project beneficiaries.
3. Project investments will lead to a number of indirect benefits for value chain producers even out of the project area. Pro-poor value chain development is constrained by a lack of pro-poor orientation amongst extension services, limited progress in mainstreaming gender issues into value chain development and a lack of experience in institutional models for connecting market-makers in the value chain with poor producers. The project will engage on these issues to support pro-poor entry into value chains as well as to ensure a fair distribution of value added for small farmers. The benefits of these interventions will provide indirect benefits to all producers in the value chain.

**Table 7: Target Rationale, Target Group and Key Benefits**[[15]](#footnote-15)

| **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 as value chain producers and service providers. | * Young people have income and opportunities for productive contribution. |

1. **INCLUSION AND TARGETING MECHANISMS**
2. Whilst the project targeting rationale is based on poverty and social analysis, specific operational measures will be required to support the negotiating power and capacity of the target group and ensure that the services respond specifically to the priorities, assets and labour capacity of the identified target group. The overall project approach is to ensure that inclusion and gender equity are mainstreamed in all aspects of project implementation.
3. This section describes the lessons learnt on including the poor in value chains, the project targeting mechanisms and the implementation and management arrangements for inclusion and targeting. The components and sub-components of the project are designed to ensure the inclusion of the poor in the project value chains and these activities are not reviewed further here. This section focuses specifically on issues related to beneficiary selection, activity targeting and the management arrangements to ensure that the project objectives of inclusive value chain development are operationalized.
4. **Lessons learnt on inclusion and targeting mechanisms[[16]](#footnote-16)**
5. **Community-based Targeting.** Community-based targeting (CBT) approaches have often been used in Kenya to identify the target population for an intervention; these have been extensively reviewed and found to be broadly effective.[[17]](#footnote-17) Inevitably, social dynamics can lead to exclusion and for this reason, recognizing both the challenges and the benefits of CBT, a hybrid approach combining eligibility criteria along with CBT is often employed.[[18]](#footnote-18) This hybrid approach has been used by NAAIAP; beneficiary identification is conducted through community committees based on pre-defined eligibility criteria. The final independent evaluation found that only 4.1% of respondents found the process unfair. A similar hybrid beneficiary selection process, to be outlined below, will be used in the project.
6. **Beneficiary Selection Procedure.** In the NAAIAP programme, resource poor farmers are selected through the county agriculture stakeholders’ forum, which was found to be acceptable to the majority of stakeholders. Generally, the evaluation found the process acceptable to the majority of stakeholders.
7. **Group formation**. Farmers’ group formed around a common purpose are a cost-efficient manner to propagate extension messages and stakeholder fora set up under the National Extension Programme have shown that they can function and grow as effective coordinators of discussion and collaboration among all stakeholders in the agricultural sector. Capacity building of groups at the grassroots levels and deliberate measures to include vulnerable groups and women is however necessary for these groups to be representative and inclusive.
8. One of the key lessons of the NAAIAP evaluation is that group capacity building requires more time and requires more mentoring, especially for the inclusion of vulnerable members, than has so far been available. Where possible, group formation should build on pre-existing groups, especially those that are formed around existing social and economic relations. In addition, it is important that the group formation process is properly phased from the grassroots upwards, in particular for the selection of beneficiaries.
9. **Training of women and youth**. The USAID-financed Kenya Maize Development Project (KDMP) final evaluation shows that targeted training of women and youth has been effective in helping both groups to gain direct benefits from value chain investments. The KDMP was able to increase the percentage of women involved in farmers groups by 30%, with many occupying leadership positions. Through KMDP‘s training programs such as the Power of Attitude Change, and Farming as a Family Business, male and female attitudes towards the role of women in decision making on income at the household level improved. Similarly, KMDP‘s training curriculum such as - My Future, My Choice - was designed to introduce farming approaches to young people to enable them to have a productive role in the rural Kenyan economy.
10. **Targeting mechanisms**

**Selection of Beneficiaries for E-Vouchers**

1. The project will use the proven approach of NAAIAP in establishing only broad non-monetary eligibility criteria for receipt of the e-voucher and using community-based targeting for beneficiary selection. The following proposed eligibility criteria are based on NAAIAP experience, as well as on the social and economic analysis of the design.
2. Farmers eligible to receiving the e-voucher will have to meet the following conditions:

* be subsistence farmers unable to procure adequate inputs on their own/using fertilisers but no water and soil fertility management practices (specific to the semi-arid area);
* 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 (50% of women – see below).

1. These criteria will support the targeting of resource poor farmers who have access to the land necessary to benefit from project interventions. The economic analysis presented in Appendix 10 demonstrates that the beneficiary contribution is accessible even to farmers in the poorest income groups. The eligibility criteria will support the targeting of women and youth.
2. Furthermore, 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 for ‘proper use’, as described below.
3. The Community Based Targeting (CBT) process will follow the procedure established by NAAIAP. This procedure is: (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 form 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. This process will be carried out jointly by County Agriuclture Office and the Cereal Growers’ Association, as the lead implement agent of Component 1.
4. This procedure for beneficiary selection was found to be generally effective by the NAAIAP evaluation. The main critical comment was that enough time is needed between the phases for the process to achieve it’s intended objectives of not only selecting beneficiaries but having consensus amongst the community that those selected genuinely meet the criteria. The project will therefore ensure that the first phase – information and sensitisation of participants – is given enough time to lay the ground for the other phases.

**Mitigating the risk of the misuse of e-vouchers**

1. The risk of elite capture and the misuse of e-vouchers by beneficiaries (cashing them for other purposes than the acquisition of inputs) are risks that have been identified in several reviews of e-voucher schemes, including in the stock taking exercise carried out by IFAD as part of project design (see Annex 4 to the Concept Note). 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 discussed above.
2. The following are key measures that will be taken to prevent the misuse of e-vouchers:

* *Information and capacity buildingof e-vouchers recipients:*  information and capacity building will be provided to farmers on the purpose of the e-voucher and the rules, rights and obligations of taking part in the scheme. Information will also be provided on the economic benefits to be expected from using the inputs included in the e-voucher, together with the prescribed agronomic practices. This will be done through a simple farmer project and loss account (using crop budgets in Appendix 10), which will be presented to and discussed with farmers. This set of activities will be carried out as part of the community-based targeting exercise through which beneficiaries will be selected, and will be built into the capacity building processes described in Component 1 (on obligations regarding technical use), and Component 2 (on financial obligations);
* *Farmers’ cost-sharing:* as opposed to what was applied in NAAIAP, but in line with other systems applied in the region, farmers will be asked to cover part of the cost of the e-voucher, i.e. 10% in year 1 and 40% in year 2. This will contribute to developing farmers’ commitment and ownership;
* *Peer pressureamongst group members.* This will be sustained by: (i) promoting small groups (up to a maximum of 30 members), where members know each other and share common interests and objectives; and (ii) materialising the group commitment through the signature by each single member of a document describing: obligations linked to the use of the e-voucher; system adopted by the group to monitoring members’ compliance with their obligations (for example, assigning focal points to accompany members when they redeem the voucher). Additionally, eligibility receiving the voucher in the second year will be contingent on the proper use of the voucher in year 1 (see eligibility criteria above). The same principle of group solidarity used in solidarity lending will be applied: 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. 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. This sanction will be included in the document signed by the group. The document will be co-signed by the county or sub-county agriculture office;
* *Access to bank services and warehouse receipt system:* the bank card through which e-vouchers will be delivered will provide card holders with a bank account and with the possibility to access financial services offered by Equity Bank along favourable terms and conditions that are adapted to the needs of smallholders lacking collateral, as well as easy procedures. Capacity building provided by the Equity Group Foundation on financial literacy and products and services offered by Equity Bank will ensure that farmers are in a position to use new opportunities lonked to the opening of a bank account. Additionally, the warehouse receipt system that will be developed jointly with Equity Bank in the warehouses supported by the project will provide farmers with access to cash for other expenditure than inputs. Altogether these measures supporting financial inclusion and described in Working Paper 4 – Financial Inclusion will reduce the need for e-voucher to be cashed in for emergency needs;
* *Information and capacity buildingof agrodealers:* information and capacity building will be provided to agrodealers registered to participate in the programme. 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;
* *M&E:* regular M&E of the scheme, building on group and agrodealer M&E will contribute to early detection of e-voucher misuse and to further develop remedial measures.

**Group Formation**

1. The entry-point of the project is in the formation of farmer groups based on common interest. The purpose, process and modalities of group formation are extensively described in Working Paper 2 - Productivity and Quality Enhancement. The project will strengthen farmers’ knowledge and organization at the grass-root level and facilitate farmers’ groups’ representation and active participation into county stakeholders’ fora.
2. Activities will include: (i) identification of the existing groups in the project areas and promotion of new groups; (ii) farmers’ knowledge and skills empowermentat the grass-root level through intensive training in topics such as: participation, group dynamics, leadership, gender, planning and prioritization of appropriate intervention strategies, participation at county stakeholders’ fora level; (iii) farmers’ capacity building and sensitization meetings to link groups to identified input suppliers (bulk procurement of inputs) and trainings on negotiation skills; and (iv) peer exchange visits for mutual learning. Tailor-made capacity building plans will be jointly agreed with recipient farmers’ organizations, building on prior preparation of production/business plans and capacity assessments, and will be reviewed on an annual basis. Agricultural advisory services will be provided through 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.
3. The gender and inclusion study that will be conducted during project start-up (see below) will identify, as outlined further below, mechanisms to ensure that these groups include the project target group as described.

**Gender**

1. The gender analysis presented in section 1 provides justification for directly involving women through positive targeting and ensuring that project delivery mechanisms are gender sensitive. The following are the main measures that will be taken in this respect:
2. *Quotas* will be established for women’s participation in all project activities and interventions. The analysis during design suggests that a 50% quota for women’s participation in e-voucher schemes is reasonable. Whilst women are the main farmers, the monetisation of farming transactions tends to marginalise their contributions and this quota is important to ensure that they participate equally. Quotas will also be established for women in activities at downwards levels of the value chain to ensure their participation. In particular, experience shows that women’s participation tends to fall in higher-level entities, such as collection centres and warehouses. These quotas will be established during project start-up as it was not possible to set realistic and effective targets during the design.
3. *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. The experience of NAAIAP, as well as KMDP, have found that such training should start at the household level and include all of the value chain stakeholders as well as project management. The training modules and methods used by KMDP, in particular the ‘Power of Attitude Change’ and ‘Farming as a Family Business’ modules, will be reviewed during project start-up and lessons will be drawn to be incorporated into the project training programme.
4. *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;
5. *Women’s access to land, tenure and the inclusion of women in polygamous households* will be a key concern of the Gender and Inclusion study that will be undertaken during project start-up (see below). The objective will be to identify any barriers to participation related to these issues and develop measure to mitigate the risk that women are excluded as a result.
6. *Nutrition:* the project will target activities aimed at developing alternative staples to maize (sorghum and millet), disseminating information on their nutritional value and overcoming cultural obstacles to their status as a food staple at women. Women, for all the reasons outlined in the analysis, are the obvious recipients of this information and most likely to operationalize advice on how staples can contribute to household food security.

**Activities targeted towards youth**

1. There are a number of activities that have been developed to target the particular social and economic circumstances of young people, as outlined in the analysis:
2. *Targeting:* households with young heads will be prioritised, after women-headed households, in the selection of beneficiaries for e-vouchers.
3. *Sensitisation:* youth are not interested in subsistence farming as their parents are used to practice it. Yet youth are key assets to support the introduction of innovation as well as to develop group dynamism, as also been confirmed during project design. Information sessions provided on project objectives, benefits and activities in participating sub-counties (in particular through the community based targeting process) 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;
4. *Capacity building:* 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.
5. *Value chain integration:* 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).
6. **Gender and Social Inclusion (GESI) mechanisms**
7. **Gender and inclusion study.** Building on the analysis and targeting mechanisms developed in this working paper, a Gender and inclusion study will be carried out as part of start-up activities to:

* further detail the main characteristics (assets, practices, seasonal vulnerabilities, cash and other key constraints) of producers of different poverty levels in the target sub-counties and refine the typology outlined in this paper;
* identify opportunities and measures required to promote the inclusion of the various groups, including the most vulnerable ones, in the three value chains;
* identify the factors that prevent women from gaining equal access to value chains not only as producers but also as processors, managers and investors, and propose measures to facilitate women’s access to support services and project activities, as well as mainstreaming gender equality into project activities;
* review the beneficiary selection process for e-vouchers outlined in this paper so that it is adjusted to the poverty profile of each target area;
* refine identified measures to avoid elite capture and misuse of the voucher;
* propose a methodology for assessing group capacity, in line with social characteristics and covering social inclusion issues;

1. 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 lead value chain service providers (Cereal Growers’ Association for Component 1, service provider to be tendered for Component 2), and it will be coordinated with the initial group mapping and value chain analysis to be carried out respectively by CGA and the Component 2 service provider at project start-up.
2. **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 inclusion and gender study.The national consultant that will undertake the gender and inclusion study will also participate. The purpose of the workshops will be to contribute to the establishment of a GESI Strategy and Implementation Action Planfor each of the value chains. These will detail actions required 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 by CGA/Component 2 service provider in collaboration with the PIU, based on an assessment of past year achievements and an identification of challenges and constraints facing value chain actors.
3. **Capacity Assessments of Farmers 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. A methodology to be established during project start-up will establish criteria to evaluate the performance of farmers groups. This will enable weak groups to receive timely support and replication of the performance of stronger groups.
4. **Project management.** The PIU, under the overall responsibility of the Project Coordinator, will ensure that all terms of reference for service providers include the requirement that the latter set up gender-balanced teams that have prior experience with gender mainstreaming and that contract deliverables reflect gender and inclusion target and indicators.
5. **M&E and knowledge management.**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. Weak M&E was identified as a weakness in NAAIAP and KCEP start-up activities will include the development of a methodology for ex-ante poverty measurement. The latest national household budget survey (2010), which had not yet been published during the design phase, will be available during start-up and will enable more accurate poverty measurements to be made.
6. The design of the Project Learning System should include qualitative and participatory monitoring and evaluation methods at the level of farmer groups that will be established during project start-up.

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**Working Paper 2 – cereal productivity enhancement**

1. **agricultural sector in Kenya**[[19]](#footnote-19)
2. **Background.** Kenya has a land area of 569,140 km², and an estimated population of 41.6 million people (2011)[[20]](#footnote-20), 70% of which lives in the high medium potential (HMP) areas in the centre and west of the country. The remaining 30% live in arid and semi-arid lands (ASALs) which cover 84% of the land mass and host 70% of the national livestock herd. The gross national income per capita was estimated at US$ 810 in 2010. The Kenyan economy is highly vulnerable to internal and external shocks. In 2008, the economy suffered from the global financial crisis, significant post-election civil disruptions, as well as drought. The annual growth rate of the economy of 6-7% before 2008, was cut back by 2.5% by the drought of 2008-2011[[21]](#footnote-21). The gross domestic product (GDP) growth rate fell to 4.4% in 2011 from 5.8% the previous year and the World Bank projects growth rates of 5% for 2012 and 5.5% for 2013.
3. The agricultural sector accounts for 65% of Kenya’s exports and employs 80% of the workforce. 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. The Kenya 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. Kenya‘s agriculture is predominantly rain-fed. Irrigation accounts for 1.7% of total agricultural land but 18% of the value of agricultural produce, demonstrating its potential for increasing productivity. Kenya has developed only 105,000 ha out of an estimated irrigation potential of 1.3 million ha[[22]](#footnote-22).
4. Other challenges facing the sector include: (a) a low budgetary allocation to the sector of 3-4% during 2000-2010, much below the Maputo Declaration target of 10%; (b) climate change which is one of the major challenges of the Kenyan economy. An initial estimate in 2012 of the immediate needs for addressing the current challenges of climate change, as well as preparing for future climate change for Kenya is USD 500 million/year; the cost of adaptation to climate change is estimated at US$ 2 billion per year by 2030[[23]](#footnote-23); also climate change is affecting more severely the Arid and Semi-arid Lands (ASALs) which have some of the highest levels of poverty incidence; and (c) population density (going up to 300 persons per km2 in the environs and watershed of Mt Kenya) leading to land fragmentation and degradation.
5. Food security. Kenya imports up to 20 per cent of its annual cereal requirements. Poverty is inextricably related to food insecurity. For the rural poor, food insecurity is exacerbated by frequent droughts, floods, inefficient food distribution and marketing systems, population growth and HIV/AIDS. Over the last decade, droughts and floods have increased in frequency and intensity. Severe drought occurred in 2010-11 with four million people requiring food assistance. Food poverty is highest among pastoralists, agro pastoralists and marginal agriculturalists in the country’s ASALs. Even in normal years, over half a million people in the northern arid part of the country need food assistance. Countrywide, 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.
6. **Cereal production in Kenya**. Kenya is a food deficit country even in a bumper harvest year. Maize is the staple food[[24]](#footnote-24) and maize consumption is estimated at 98 kilograms per person per year. The average total annual production and consumption is estimated at 2,700,000 and 3,400,000 MT respectively. The annual domestic deficit fluctuates between 200,000 - 700,000 MT. Most of the shortfall in domestic production is met by imports from the neighboring countries of Uganda and Tanzania[[25]](#footnote-25). Of the total maize produced in country, 75% is grown by about 3.5 million small-scale farmers, largely for their own consumption and 25% is produced by 1,000 large scale commercial farmers. Current national maize stocks are estimated at 2.3 million MT[[26]](#footnote-26) (26 million bags of 90 Kg).
7. Maize is also important in Kenya’s crop production patterns, accounting for roughly 28 percent of gross farm output from the small-scale farming sector. Maize productivity is low and average yields have increased only marginally over the past 12 years. The national average maize yield is 1.8 MT/ha, but there is a wide variance in individual farm yields with some farms averaging between 4 MT/ha to 5 MT/ha. Cited among the reasons for Kenya’s low maize yields relative to its neighbors’ is that maize has been grown extensively and continuously for decades in Kenya, while both Ethiopia and Uganda are recent commercial producers of maize. Other hypotheses assert that many Kenyan smallholders produce maize as a subsistence crop and invest their capital in other production operations (especially dairy) that yield higher economic returns[[27]](#footnote-27).
8. 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, 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.
9. **agro-ecological zones covered by KCEP**
10. **Farming systems**
11. **Target area** (see maps and tables annex 1 and 2)**.** For maize, KCEP activities will focus on the high maize-producing counties of Western and Rift Valley known as “Kenya’s bread basket” or the Western high potential zone[[28]](#footnote-28). The Rift Valley region with an average production of 22.5 million bags of maize contributes in 2012 to 50% of the total national production. It is the agro-ecological zone (AEZ) I and II mainly, with humid and sub-humid climate. KCEP target counties are: Nakuru, Nandi, Trans Nzoia, Bungoma and Kakamega. This zone has some of the most densely populated areas in the country, surpassing 1,000 people per km2 in some locations. Rainfall is continuous between March‐September and in some places ceases only in November, with averages of 1200‐2200 mm per annum. The driest period is December‐February when average temperatures reach 29⁰C. Otherwise, average annual temperatures range from 13‐29⁰C. Frequency of drought is one year every five to six years.
12. For sorghum and millet, KCEP will target the semi-arid areas of Eastern Kenya namely Tharaka, Kitui and Embu counties. The Eastern region contributed respectively to 28% and to 56% of the national sorghum and millet production in 2012 (see annex 2). It is 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. The mean maximum temperature is 24.7ºC while the mean minimum temperature is 13.7ºC. This zone is well known for erratic rainfall pattern. Frequency of drought (<250 mm rainfall) is two years every seven years .
13. **Farming systems and livelihoods in the High Potential Maize Zone.** Smallholders practice a mixed crop livestock system. The main food crops grown are maize and pulses (beans, pigeon peas, etc.). The major enterprises are cash crops (coffee, tea, horticulture) and dairy production. There is high human population density and land scarcity is a major problem.
14. The main source of cash for households is the sale of crops, including both food crops and cash crops. Livestock sales and the sale of livestock products such as milk are the second most important source of cash. 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[[29]](#footnote-29). Despite research and development efforts to intensify crop and livestock production through the use of high yielding crop varieties and improved livestock breeds, fertilizers, various types of agro-chemicals for crop and livestock enterprises among others, technology adoption is very low at small-scale farming level.
15. Small-scale farmers in the High Potential Maize Zone are **characterized** as follows:

* they grow between 0.5 to 2 acres of maize (long season) in monoculture and in rotation with pulses (short season);
* they diversify their farming systems with cash crops such as tea (e.g. Nandi), coffee, horticulture (e.g. Nakuru) and fodder crops, but in a very limited portion of land: from 0.25 to 1 acre;
* some of them also own small ruminants from 1 to 5 dairy cows;
* most of them use Open Pollinated Varieties (OPV) and local varieties;
* fertilizer use efficiency is low (quantities and type of applied fertilizer inappropriate when it is used);
* labour is mainly family labour using hand implements like the hoe. Women are highly involved in farming, while husbands look for income generating activities (casual labour);
* access to technical advisory services is poor[[30]](#footnote-30);
* post harvest losses are estimated at 25% and are mainly due to aflatoxin and pests attacks;
* productivity is low, from 5 to 12 bags per acre for maize and from 1 to 6 bags per acre for beans;
* they are net buyers of maize (5 people family needs are around 7 to 8 bags[[31]](#footnote-31)) and sell some bags at harvest time (local market) to get cash and pay school fees or any emergencies.

1. **Maize based cropping system.** Maize in Kenya is produced under a variety of farming practices. Among subsistence farmers, maize is commonly intercropped with other pulses, predominantly beans. Labor used is generally a mix of family and hired labor[[32]](#footnote-32). Maize crop is usually grown on own land but some farmers grow it on rented land.

**Table 1 – Cropping calendar for maize and bean in the selected High Potential Area in Kenya**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| Western |  | MaizePlanting | |  |  |  |  |  |  | MaizeHarv. | |  |
|  |  |  |  |  |  |  |  | Bean Planting | |  | Harv. |
| North Rift |  |  | MaizePlanting | |  |  |  |  |  |  | M. Harv. | |
| Harv. |  |  |  |  |  |  |  |  | Bean Planting | | Harv. |
| South Rift | Harv. | MaizePlanting | |  |  |  | Harvesting | | Bean Planting | |  | Harv |

1. **Farming systems and livelihoods in the semi-arid zone**. Crops are cultivated under rain fed conditions mainly during the short rainy season. Maize is the highest contributor to food and cash income but also green grams, cowpeas, beans, sorghum and millet.
2. Most households produce the maize consumed as well as sorghum, beans and vegetables. Wild foods are also consumed particularly during periods of stress. Food is accessed from own production and purchase. Livestock production (milk and meat) contribute somewhat to annual food security. Market purchases make up the remainder and includes the purchase of maize, wheat, barley, bread, rice, beans a king oil. The main sources of cash are crop sales, livestock sales and honey. Remittances are another important source of household income, contributing up to 10% of cash needs in some cases. The principle source of cash (up to 40%) is generated from the sale of food and cash crops. Income from sale of livestock and livestock products makes up 25‐40% of income and the rest comes from honey production, casual labor, remittances and petty trade.
3. This zone is characterized by market gluts, especially during good seasons when virtually all households sell their harvest. The food security situation in the zone is constrained by factors that have also limited the development of economic activities. These include shortage of reliable water supply, high input costs, poor soil fertility and poor access to markets for crop production. Poor or low yielding livestock genetic stock, high cost of veterinary drugs for livestock production hinder the expansion of the livestock sector.
4. Small-scale farmers are characterized as follows :

* in low lands, subsistence farmers traditionally grow red sorghum, Proso millet (Panicummiliaceum) in monoculture or in rotation with pulses sold as cash crops (green grams, cow peas and pigeon peas);
* land is not a limiting factor but labour availability limits the extent of land that can be farmed. Acreage can vary from 1 to 5 acres;
* in upper lands maize is grown, on from 0.5 to 1 acre (land is a limiting factor);
* the average household keeps 3-4 cattle, 6 goats and 8-10 chickens;
* land preparation is made by oxen and by hoe when oxen are not available (high demand during land preparation peak). Only 15% of subsistence farmers own their oxen;
* family labour combined with hired labour is practised over the season but there are shortages during peak seasons (land preparation, planting, weeding and harvesting);
* drought occurs every three years depending on the area;
* local seeds are most commonly used and OPV seeds are used for cereals and pulses over more than five years;
* fertilizers are not used by small-scale farmers for several reasons: (i) high-drought risky environment; (ii) cost and availability of appropriate fertilizers (limited access to agro-store in remote areas); and (iii) limited access of technical knowledge and know-how;
* cash crops (green grams and cow peas) are sold just after harvesting (highly perishable);
* limited soil fertility and lack of rain water management are critical issues. Farmers make two to three season fallows but with ‘’slash and burn’’ practises resulting in a loss of organic matter.

**Table 2 –Cropping calendar for sorghum, millet and pulses in the selected Semi-arid Area in Kenya**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| Eastern |  | Harvest. | |  |  |  |  |  | LP | Sorghumplant. | |  |
|  | Havest. | |  |  |  |  |  | LP | Millet plant. | |  |
|  | LP | Green gram | |  | Harvest. | |  |  |  |  |  |

1. **Importance of pulses in farming systems in both areas**. Pigeon pea is usually planted at the onset of October/November short rains. Farmers normally do not apply fertilizer for this crop although occasionally they use manure. Cowpea is another important legume grown in the area of intervention. It is highly adaptable to different types of soil and intercropping systems. It is resistant to drought and its ability to improve soil fertility and prevent erosion makes it an important economic crop. The other important pulses include green gram and beans. The majority of grain legumes fixes nitrogen from the atmosphere, thus contributing significantly to the sustainability of soil fertility in the dry land cropping systems and hence reduces the requirements for inorganic commercial fertilizers.
2. **Finger millet in the semi-arid area.** Kenya mostly produces the finger millet (*Eleusinecoracana*) which grows from sea level to 2400 masl and grows well in free draining soils with well distributed rainfall. The major growing areas are Eastern (52% of total), Nyanza (19%), Rift valley (15%), Western (13%) and the rest (1%). Millet is grown from saved or purchased improved seeds at 3 – 5 kg/ha and takes 3 – 4 months to mature. The main diseases are blast, smuts, Ergot, head bugs while pests include birds, shoot fly and stalk borers. Yields are about 6 to 8 bags per acre in good rainy season in Eastern showing the great potential if improved practices are used.
3. In both areas of intervention, lack of proper storage capacity and alternative income sources compels even poor households with meager cereal harvests to sell during these periods, often at low prices, only to repurchase at more than double the price within 3-4 months.
4. **Development partners and farmers’ organizations**
5. **The Kenya Agricultural Research Institute (KARI)** is a national institution under the Ministry of Agriculture (MoA), whose mandate is to promote agricultural research as well as technology generation and dissemination to ensure food security through improved productivity and environmental conservation. KARI has 23 main Centres (including KARI Headquarters) and 14 sub-centres strategically spread throughout the country to cater for different agro-ecological zones and socio-economic systems[[33]](#footnote-33). In KCEP area of intervention, KARI centres are: (i) Kitale, Njaro and Perkerra in the Rift Valley and; (ii) Katumani[[34]](#footnote-34), whose mandate is to carry out adaptive and research development programmes in Machakos, Makueni, Kitui, Mwingi and TaitaTaveta Counties in the Eastern region.
6. KARI has 10 strategic programmes, of which 6 could be of interest for KCEP: (i) food crop research on cereals, root and tuber crops, legumes and pulses; (ii) socioeconomics and biometrics for crop, livestock and natural resources, including impact assessment, priority setting, market and policy research; (iii) land and water management, which includes soil fertility, survey and conservation; vegetation survey; agro-forestry, irrigation and drainage; (iv) biotechnology research on crops and livestock improvement; (v) adaptive research on the adaptation of technologies to diverse agro-ecological zones and socio-economic situations in Kenya; and (vi) KARI seed unit including germplasm conservation and multiplication[[35]](#footnote-35). In addition, to ensure that technologies reach farmers, KARI has embarked on the Agricultural Technology and Information Response Initiative (ATIRI) to empower farmers to make technology and information requests to agricultural service providers. ATIRI targets community-based organizations (CBOs) as beneficiaries, as well as intermediaries (farmer organizations) that can facilitate member acquisition of appropriate technologies and information.
7. **The International Plant Nutrition Institute (IPNI)**. IPNI is a global organization with initiatives addressing the world's growing need for food, fuel, fiber and feed. The mission of IPNI is to develop and promote scientific information about the responsible management of plant nutrition. Best management practices (BMPs) for nutrient stewardship promote the concept of applying the right product (source), at the right rate, at the right time, and in the right place. In Western Kenya, IPNI has developed, in collaboration with KARI, a capacity building programme on soil micro-nutrient management and water use efficiency. The methodology consists in training farmers, extension workers and agro-dealers to diagnose field nutrient deficiencies according to the AEZ, soil types, soil management history, etc. A fertilizer management handbook for extension systems and agro-dealers has been developed and is available, as well as a simplified manual for farmers (‘’Be your own maize doctor’’, ‘’Increase your maize yields: a farmer guide’’, etc.)[[36]](#footnote-36). Furthermore, IPNI and KARI are currently exploring options for promoting smarter fertilizer types such as Diammonium Phosphate (DAP) lime for acid soils with a Moroccan fertilizer company, taking into account three criteria: farmers’ investment capacities, risks and maximization of return to investment. Results from these activities will be capitalized and used within KCEP.
8. **Public delivery of technical advisory services**. The National Agricultural Extension Policy (NAEP) and the National Agricultural and the SIDA-financed Livestock Extension Programme (NALEP, 2000-2005) were policy documents that coordinated the management and facilitation of decentralized delivery of extension service throughout the country. The premises of this approach are that development agents should not do extension alone, but should rather carry it jointly with other stakeholders in the area that could also provide advisory services in order to gain synergy effects and expand farmers’ access to services. NALEP also underlined the importance of clientele participation, especially decision-making by women on farm matters, and demand – driven extension system. As part of this approach, it recognized the role of the private sector in a pluralistic extension system and set out modalities for the commercialization and privatization of extension services (CIGs). It was demonstrated under NALEP that farmers’ group formed around a common purpose (CIGs)[[37]](#footnote-37) are a cost-efficient manner to propagate focused extension messages responding to the needs of farmers‘ groups. Despite stakeholder fora set-up under NALEP have shown that they can function and grow as effective coordinators of discussion and collaboration among all stakeholders in the agricultural sector, they are heterogeneously functioning over the country depending mainly on stakeholders’ mobilization/dynamism and the level of support (capacity building) provided to stakeholder grassroots institutions. But effective participation of stakeholders requires.
9. A review of NAEP and NALEP was carried out in 2004, which concluded that NAEP and its implementation faced considerable constraints, which the new National Agricultural Sector Extension Policy (NASEP) seeks to address. The main goal of NASEP is to “*empower the extension clientele through sharing of information and imparting knowledge, skills and changing of attitudes, so that they can efficiently manage their resources for improved quality of livelihoods*”. The main elements of policy intervention as listed in the key objectives are: (i) promoting pluralistic extension service provision and management; (ii) designing a public sector exit strategy as part of the privatisation of extension services, including gradual commercialisation of public extension services; (iii) guiding the operations of Extension Service Providers (ESPs) through an independent regulatory body to ensure the quality extension services; (iv) establishing a coordinating framework for projects and programmes providing extension services; (v) harmonising extension approaches and methods, including with regard to the empowerment of grassroots organisations ; (vi) supporting the establishment of the National Agricultural Research Systems (NARS) with a demand-driven research agenda; (vii) strengthening established frameworks for stakeholder linkages, including those responsible for providing extension facilitating factors; and (viii) compelling ESPs to mainstream crosscutting issues in extension messages.
10. In line with NASEP, the Kenya Agricultural Productivity and Agribusiness Project (KAPAP)[[38]](#footnote-38) funded by the World Bank aims at increasing agricultural productivity and incomes of smallholder farmers. The Project has four components: (i) policy/institutional and project implementation; (ii) agricultural research systems; (iii) agricultural extension and farmer and other stakeholder empowerment; and (iv) agribusiness and market development. The component on extension services aims at sustainable intensified smallholder farming systems and the development of selected supply chains by: (i) empowering and organizing farmers/clients for the transformation of subsistence farming to commercial agriculture; (ii) enhancing participatory, bottom-up planning and priority setting for local agricultural sector development, including strengthened research, extension and agribusiness linkages; (iii) promoting Public Private Partnerships (PPPs) for competitive extension/support service delivery; (iv) improving farmer access to technical and market information using modern Information, Communication and Technology (ICT); and, (v) enhancing capacity building and empowerment for clients and service providers. At sub-county and county level, a list of available service providers is provided allowing farmers’ groups to select their support organization. l.
11. **Non commercial providers**. Many non-profit making entities such as non-governmental organization, faith based initiatives and community based organizations are providing agricultural extension services. Their involvement in such activities is motivated by search for sustainable ways to curb chronic poverty prevalence among the rural communities.
12. **Private commercial companies**. Due to increased competition, agro-chemicals and private seed companies in the agricultural sector are providing extension services. Extension is considered a part of the supply strategy. Their activities involve demonstrating the use of their technologies (e.g. hybrid seeds, fertilizers and crop protection chemicals). Agrochemical companies are also delivering extension advice through farm inputs merchants (stockists) and demonstrations during farmer field days. However, agrochemical companies are to a larger extent focusing on profitable enterprises and are thus not keen to extend services to marginal areas. They also target areas served with good infrastructural facilities to minimize distribution costs and they are mostly interested in prosperous farmers and thus not prepared to invest in building the capacity of the resource-poor farmers.
13. Agro-dealers represent an heterogeneous group, unevenly spread in Kenya. The seeds and fertiliser business is risky, especially in ASALs where demand is low and erratic. A recent study carried out by DFID[[39]](#footnote-39), shows that 50% of traders in agricultural inputs (known as agro-dealers) don’ t manage a full-time business (they have other activities related to trade) and deal with several commodities (in which some are not related to agriculture). The study highlighted two key constraints faced by agro-dealers: 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. Main conclusions and lessons learnt include: (i) delays in payment of agro dealers caused some of them to drop out of the programme and they could not get short-term credit for inputs; (ii) agro-dealer training is critical, it is important that both shopkeepers as well as owners receive the training since shopkeepers interface with farmers and carry out the voucher redemption; and (iii) the relationship between agro-dealers and suppliers needs to be strengthened to ensure a healthy mutually benefitting business relationship.
14. **Kenya National Agro-dealer Association (KENADA)**. KENADA was created in 2009 out of the need by a group of the Agricultural Market Development Trust(AGMARK) certified Agro-dealers to encourage the development and sharing of Best Practices in agro-vet business operation and to promote a range of industry specific services, information dissemination and events. The role of KENADA is : (i) to become the negotiating body that will speak with one voice to support the interests of all its members; (ii) to organize, bring together and represent all agro-inputs dealers in Kenya; (iii) to actively contribute to the modernization of Kenya’s agriculture, and participate in projects aimed at bringing developing the country through the agricultural sector; (iv) to provide professional support and networking among agro-dealers in order to assist each other through exchange of ideas, improve their skills, solve problems, to mobilize resources, and provide mutual encouragement; (v) to encourage and support business development of individual members; (vi) to establish and enforce a fair business conduct for its members, and keep members informed of the legal codes regulating the industry; (vii) to raise funds and acquire property for the purpose of fulfilling the aims and objectives of the association; (viii) to train and certify members in skills necessary for quality service provision to farmers; (ix) to carry any other lawful and gainful activities as shall be deemed necessary for the purpose of fulfilling the aims and objectives of the association.
15. **The Agricultural Market Development Trust (AGMARK)** is an international Non Profit Organization specialized in supporting agro-dealers in their businesses. AGMARK has been selected by NAIAAP to support agro-dealers trainings on business management and technical services. AGMARK has implemented agricultural input and output programmes in various African countries[[40]](#footnote-40), and is currently implementing a voucher programme in South Soudan. In addition, AGMARK implements many activities through KENADA as follows: (i) coordinate activities that support delivery of Agri inputs and other services to Smallholder farmers at the district levels; (ii) coordinate demand creation activities through its members for Agri inputs; (iii) coordinate capacity-building activities like trainings for its members; (iv) link to Agri input supply companies to access inputs; (v) link to Financial institutions; (vi) link to government programs like the input subsidy program i.e. NAAIAP; and (vii) discuss and advocate for market friendly subsidy policy.
16. **Seeds companies.** The Kenyan certified maize seed market is characterised by a wide variety of participants. The main players include: Ministry of Agriculture (MoA), Kenya Agricultural Research Institute (KARI), Kenya Plant Health Inspectorate Service (KEPHIS), seed companies, seed growers, seed agents and stockists and maize farmers. Each of these organisations plays unique roles. KEPHIS, which is a seed regulatory entity, has so far registered about 46 seed companies, 13 of which are dealing with maize seed. Of these maize seed companies, 7 companies are dealing with about 50 maize varieties. Among the maize seed companies registered so far include: Kenya Seed Company (KSC), KARI Seed Unit (KSU), Western Seed Company (WSC), Lagrotech, Pioneer, Pannar, Faida Seeds, Freshco, Monsanto and Seed Co Company.
17. **The Kenya Seed Company (KSC)** is a parastatal under the Ministry of Agriculture whose main mandate is to produce top quality certified seeds with an overall objective of enhancing food security in Kenya. KSC is registered under the Companies Act (Cap 486) (Government of Kenya 2010). Its mandate crops include maize, wheat, barely, sorghum, millet, sunflower, horticulture crops. The company has steadily increased the production of certified seed suitable for all agro ecological zones in the East African region. The company is highly active in developing new seed technologies and many of its improved varieties have been released through Kenya Plant Heath Incorporate Services (KEPHIS)[[41]](#footnote-41). KSC is a large capacity seed company in Kenya with complete facilities enabling the development of own materials, as well as the bulking and processing of improved seed leading to commercial release of significant amount of seed supply. Many small-scale commercial seed companies also access improved seed from the company to conduct the downstream seed activities.
18. **Dry land Seed Company** plays a great role in Eastern Kenya specifically in Machakos and Makueni counties. The company is currently producing varieties of maize OPV (KDV1, KDV2i, and KDV4) and hybrids (KH 500-21a); sorghum (Gadam and Seredo); beans (B1, B9, and KAT X- 56); cowpeas (K80, M66); green grams (N26); and pigeon peas (Mbaazi1, 60/8 and Mbaazi2). Its role is to produce adaptable improved varieties that can be produced under the harsh conditions of the ASALs of Kenya. The company sources basic seed from KARI and seed bulking is done through contract growers who are also involved in seed multiplication, processing and packaging. The company does marketing and promotion of improved varieties as well as trainings facilitated through different forums, which allow farmers to access relevant information and knowledge on available technologies.
19. The performance of Kenya’s maize seed industry has been adversely affected by non-price constraints. Despite the many varieties that have been released by the various seed companies, new varieties have not been taken up by farmers as would be expected. This may have been due to the lack of sufficient extension officers, inadequate facilitation promotion by the few available ones, as well as weak linkages among research, extension and seed companies. Overall, this has prevented the adoption of certified maize seed, with the probable consequent effect of high seed prices brought about by reduced economies of scale..
20. **Smart Logistics**. started operations in 2006 as a small-scale business buying sorghum from farmers and selling to East African Maltings Limited (EAML) for brewing, which supplies malt to breeries. The company currently has four major buyers: EAML (sorghum), Nutrofood (soybeans) and World Food Programme (WFP) through the Purchase for Progress (P4P) programme (sorghum, beans and maize). Smart Logistics mainly buys crops on contract and not through the open market. Through a grant from the Market Linkages Initiative (MLI) funded by USAID, Smart Logistics managed to build eight village aggregation centres (each with a capacity of 200 t.) which smallholders use to bulk their sorghum. Smart Logistics has also constructed a grain bulking center in Machakos with a capacity of 10,000 t. When the company started in 2009 it supplied just 20 t of sorghum. In 2011, Smart Logistics handled 2,000 t of sorghum, of which 1,500 t came directly from growers and 500 t came from its own appointed agents. In its business model, Smart Logistics uses two sources of supply: (i) a smallholder out grower model, known as the Community Based Outgrower structure (COBO) where growers are organized into groups (minimum 15 members and two acres of sorghum per member).Each COBO has a field officer employed by Smart Logistics, who supports the members of the COBO and links with the Ministry of Agriculture that provides extension services to the groups; and (ii) buying agents, appointed by Smart Logistics, who buy sorghum at a price lower than that offered by Smart Logistics to members of the COBO, but higher than the price offered by brokers.
21. **Farmers’ organisations. The Kenya National Farmer Federation of Agricultural Producers (KENFAP)** is the national farmers’ federation representing the interests of 1.8 million farm families and the legitimate farmers’ voice in Kenya. Established in 1946 as a Farmer Union representing the exclusive interests of large-scale white farmers, KENFAP is nowadays representing large-scale to small-scale farmers from 42 counties over 47. The mission of the organization is to ‘’empower members to make informed choices for improved sustainable livelihoods’’. Currently the federation represents the interests of about 5,000 farmer groups (with group membership ranging from 30-50 members), 10 cooperative societies, 6 large-scale farmers, 50 fully formed sub-county Federations and 35 national and regional commodity organizations. Among KENFAP’s membership, Commodity Associations are very important in terms of lobby and advocacy. Three of them are cereal based associations: the Cereal Growers Association (CGA) and the Small-scale Cereal Growers Association (SCGA), both based in Nairobi and the Kenya Millet and Sorghum Growers Association (KEMGA), based in Nyeri.
22. The Cereal Growers Association (CGA) is composed of 30,000 members, of which 25,000 are small to medium-scale farmers. CGA main activities are lobbying and advocacy but also technology transfer through the organization of events (fairs gathering private companies, KARI, and farmers’ groups). These two activities are carried out exclusively with financing from CGA own budget (membership-based). Other activities/services carried out by CGA are as follows: (i) mobilization of farmers, to facilitate group action in input procurement, access to extension services, marketing of their produce, credit access, etc. ;(ii) farmers’ training to build capacities to engage other players in their respective value chains; (iii) facilitation of technology transfer through on farm demonstrations and field days; (iv) facilitation of training of farmers on proper post harvest handling skills and linking them to appropriate grain handling facilities to minimize post-harvest losses; (v) trainings and facilitation to farmers to undertake aggregation and jointly market their produce; (vi) trainings and facilitation to farmers to access affordable credit; and (vii) facilitation to farmers members to procure farm inputs in bulk thereby attracting quantity discounts and reducing changes of buying adulterated inputs.
23. Support to small-scale farmers is funded by several projects in which CGA has been engaged as an implementing agent, namely: (i) the Kenya Maize Development Programme (USAID funding) in which the Commodities Association is in charge of strengthening existing farmers’ organizations and linking them to the market; (ii) USAID COMPETE with the establishment of Model Satellite Stores; (iii) the Project on Strengthening Inputs and Outputs Markets in Africa (SIMO)[[42]](#footnote-42) and the Commercializing Traditional Staple Crops Project (C-TSC)[[43]](#footnote-43) both AGRA funded projects, in which CGA main role is to mobilize small-scale farmers into producer groups, build their capacities to produce (e.g. seed access, agronomical good practises through demonstrations and fairs with KARI, MoA and seed companies), aggregate and market jointly (i.e. aggregation centres gathering 30 villages, market information hub, and linkages with buyers such as SMART LOGISTICS partnering in the Project); and (iv) the East African Sorghum Value Chain Development Programme funded by the European Union and implemented by EUCORD, in which CGA supports farmers’ group creation and productivity enhancement in collaboration with public extension officers. Through these collaborations, CGA has managed to support more than 300 farmer’s groups, cumulating a total of about 10,000 farmers.
24. CGA has a core staff of 9 professionals (1 executive director, 1 programme officer, 1 financial controller, 1 accountant, 1 administrator, 1 logistician, 1 secretary and 2 drivers) , and a total staffing of 22, including all staff financed through development projects.
25. **Agricultural Development potential**
26. **Factors influencing productivity**. Factors that influence maize, white sorghum and millet production costs and that are important to increase the productivity and competitiveness of production systems in Kenya include:

* *high quality seeds*: (i) use of local maize seeds or retained maize hybrid reduces yields because these types of seeds are neither cleaned from weeds or other seed contaminants, nor certified. In the High Maize Potential Zone, 88% of farmers use hybrid seeds, 5% use retained hybrids and 34% use local varieties[[44]](#footnote-44); (ii) the use of local sorghum and millet seeds or retained OPV beyond a period of three years decreases the quality and potential of OPV seeds.
* *fertilizers*: an examination of the adoption of fertilizers in Kenya reveals a generally widespread use of fertilisers by farmers in almost all agro-ecological zones (about 80% in the High Maize Potential Zone)[[45]](#footnote-45). However, high adoption rates of fertilizers are not sufficient for high maize productivity, it needs to be accompanied by a use of the required quantities and types of fertilizers[[46]](#footnote-46). For instance, about 55 percent of households in the main maize high potential zone use quantities of fertilizers that are less than 50 kg per acre[[47]](#footnote-47). Insufficient use is due to high farm gate prices of fertilizers that makes them unaffordable, in particular to smallholders. Low responsiveness of yield to fertilizer can be explained by several reasons among others : (i) tendency by some farmers to use inadequate fertilizers (e.g. in the tea-growing region to use tea fertilizer such as NPK on maize but such fertilizer does not benefit maize plants since the nutritional requirement is different); (ii) incorrect type of employed fertilizer due to lack of soil nutrient deficit analysis ; (iii) incorrect timing of the topdressing; and (iv) use of top-dressing fertilizer as a basal fertilizer. In the semi-arid area, the low use of fertilizer is mostly due to the risk of drought that have an effect on soil moisture and fertilizer efficiency. Fertilizer adoption and impact are therefore conditioned to soil moisture/structure improvement and rainwater management.
* *agricultural credit and other financial services*: commonly, farmers are unable to access credit through the formal banking systems. Working capital for both long-term investments in capital and the short-term needs have therefore not been available. Producers who access credit are able to purchase yield-enhancing inputs like fertilizer and hybrid seeds thereby raising their productivity. Of the farmers who access agricultural credit in the high potential maize zone, about 49 percent use hybrid maize and 58 percent use fertilizers[[48]](#footnote-48);
* *land preparation costs*: land preparation is a critical operation to ensure good crop implantation and rooting. Machinery costs that include harrowing, chiselling and planting, are generally high, particularly for maize cultivation (i.e. about 3,500 ksh/acre for ploughing, 2,000 Ksh/acre for harrowing and 1,700 Ksh/acre for chisel). This affects the quality and timeliness of farm operations, forcing farmers to reduce the quality of seedbed preparation. This adversely affects maize yields and causes an increase in production costs. In small-scale farming, access to machinery and even oxen is too expensive (oxen per acre is about 1,700 Ksh in the semi-arid area). In the semi-arid area, land preparation and labour in general are the limiting productive factors for increasing acreage under cereals and pulses.
* *price instability*: volatility in maize prices is high as the price determination is left to the rules of supply and demand and is subject to weather conditions.. In addition, most farm households are net buyers of grain and therefore do not benefit from “high” grain prices. Net buyers are households that over the course of the year either only buy grain or buy more than they sell (see annexe 4, price variation for maize, sorghum, millet and pulses);
* *farmers’ services and technology development:* generation and transfer of appropriate cost reduction and productivity enhancing technologies is a key strategy towards reducing local production costs and increased agricultural productivity to enhance Kenya’s cereal competitiveness. KARI has developed a wide range of technologies but adoption rates at farm level still remain low for several reasons: a) weaknesses in research-extension-clientele linkages (inadequate coordination among the institutions involved in technology development and community participation); b) poor access to inputs and technical advisory services, indeed public extension services are extremely limited with a ratio of one extension agent to 2–6,000 farm households depending on the sub-county; c) high poverty level preventing subsistence farmers to take the risk to adopt new technologies; and d) lack of secured market for farmers’ outputs..

1. Main issues in the high potential maize zone are summarized as follows:

* Lack of access to capital
* Land fragmentation due to increased pressure on land occasioned by ever because of demographic growth. As the size of landholdings decreases, the use of improved technologies through mechanization is drastically curtailed because costs of mechanization services are too expansive (economy of scale not reached on small acreages) ;
* Over reliance on rain-fed agriculture: climate change has had very negative effect on maize production figures as the country now experiences more droughts than it used to 4-5 years ago;
* Declining soil fertility and lack of proper crop rotation and intercropping: continuous planting of same crop in a piece of land deprives it of phosphorous and nitrogen which are very instrumental in crop development.

1. Main issues in the semi-arid zone are:

* High drought frequency: twice every seven years;
* Scarcity of water and poor water management;
* Capital scarcity (lack of cash lack of cash for purchasing or hiring farm inputs such as seed or oxen for ploughing)
* Lack of soil fertility management with practises increasing soil health and structure (e.g. intercropping, avoid slash and burn practises on fallows, crop residue management, organic fertilization, etc.)
* Crop diseases and pests: frequent pests include birds and army worms, the latter coming especially at the on-set of rains following prolonged dry spells and stalk borers
* Poor infrastructure, i.e. lack of roads in many areas, poor roads that are impassable during wet seasons and lack of public transport vehicles
* Marketing ((lack of or poor markets, low output prices, price fluctuations, delayed payment for marketed crops)
* Other constraints include: inadequate extension service (lack of or insufficient skills), lack of improved inputs (lack of certified seeds, fertilizers, machinery, low yields, labour scarcity (labour shortage, weeding problem, lack of enough time to work on the farm).

1. **Lessons learnt from past and on-going development operations.** The National Accelerated Agricultural Input Access Program (NAAIAP) is a voucher based programme being implemented by the Ministry of Agriculture. Its objective is to increase agricultural productivity for farmers with one hectare of land through the provision of basic farm inputs and mobilization of farmers resources for re-investment in agriculture. NAIAAP is composed by four components: a) *Kilimo plus* composed by an input grant package (the voucher includes basal fertilizer, top dressing fertilizer, certified seeds and extension services) for one year and agro dealer network development consisting of capacity building of agrodealers across the entire country; b) *KilimoBiashara* Agricultural Credit Guarantee Scheme enabling poor farmers to access credit and other financial services for investments; c) *Orphan Crops*: This component aims at boosting and widening the food crops base by promoting the utilization of traditional crops such as sorghum and millet; and d) administration and coordination.
2. On the agronomical side, main lessons from NAAIAP interventions are as follows[[49]](#footnote-49):

* *Propose realistic* agronomic response to the input package. The yield increases assumed in the programme were too optimistic. A realistic assumption should have been an additional 8-10 bags per acre of maize, corresponding to a surplus yield of about 500 kg per farmer per year[[50]](#footnote-50). It is only under very good soil conditions (with high organic matter) supplemented by organic manure that yield response may exceed 10 bags;
* Adapt input package to agroecological zones and soil types. The input package, which mainly comprises of basal fertilizer, top dressing fertilizer and certified seeds, was designed in such a way that a similar package was provided for all the participating sub-counties. Soil profile, organic contents of soils and agro-ecological conditions vary widely across Kenya. Therefore there is a need to reflect these conditions to make voucher products suitable to local conditions by instituting following measures: (i) soil nutrient use and fertilizer trials should be conducted to identify nutrient requirements of different sub-counties; (ii) based on such results, new fertilizer recommendations should be developed and should be reflected in the selection of products distributed through vouchers; and (iii) in areas where acidity is becoming a serious problem, lime treatment with fertilizers should be recommended and included with the vouchers;
* Increase fertilizer use efficiency by promoting farmers’ use of improved crop management practices such as crop rotation with legumes, changes in density and spacing patterns of seeds and placement of fertilizer and seeds at planting early planting, timely weeding, applying fertilizer in response to rainfall, and other water and soil conservation farming methods;
* Increase Programme intervention period from one year to three years. 41 percent of the beneficiary farmers were of the opinion that the input package should be provided for two years because drought, erratic weather and post-harvest losses compromised farmers’ opportunity to enhance household food security and to reduce poverty;
* A cost-sharing formula should be adopted to enhance ownership of the input interventions by the farmers, instead of providing 100% grant;
* Providing more resources to strengthen technical capacity and finding more dynamic extension strategies to bridge the staffing gap in the provision of extension services. Enabling strategies may include: (i) collaboration with other stakeholders already specialized in specific areas ; (ii) reduction on the number of training interaction with the farmers to reduce fatigue amongst beneficiaries; (iii) diversification of training methodologies and preparation of appropriate training tools and materials which can be left with the beneficiaries; (iv) promotion of farmer-to-farmer interactions through filed days and fairs; (vii) proper timing of training on extension service activities; and (viii) adequate follow-up on the impact of training and extension activities;
* Promoting crop index based insurance through the voucher programme should break the misconception from small-scale farmers that crop insurance can only be undertaken by large scale farmers;
* Importance of building capacities of farmers’ groups in order to contribute to sustainable rural development.

1. Specifically for drought resistant high value crops the so-called *‘’orphan crops’’* (sorghum, millet, cowpeas, green grams, pigeon peas, dolichos, etc.), main lessons from NAIAAP intervention are: i) the failure to use inputs particularly when planting traditional high value crops is mainly due to the perception of farmers that fertilizers are only necessary when planting maize food crop and cash crops; ii) legume seeds included in the voucher should be flexible allowing farmers to choose what seed they opt to plant; and iii) negative cultural perception of some farmers on drought resistant crops has led to lack of their adoption;.
2. Lessons learned from theSmallholder farmers agriculture inputs, extension and market support Programme (no acronym available) in Zimbabweare summarized below:

* Input suppliers were hesitant to take the risk of supplying agro-dealers on credit or on consignment as they were not sure about payment arrangements under the voucher programme. Furthermore in most cases the suppliers had no credit history with the agro-dealers. This resulted in late and patchy supply of agricultural inputs;
* The supply bottlenecks resulted in farmers making several trips to agro-dealers in anticipation of input deliveries. In some cases farmers bought less preferred inputs because agro-dealers stocked inappropriate inputs;
* In marginal districts poor input supply levels resulted in monopoly behaviour and artificial price hikes by some agro-dealers;
* Credits are not available or very expensive reducing ability and willingness to continue and expand activities;

1. The technical elements to be considered (some of them are difficult to measure) are: (i)nutrient supply (level, timely application and adequately fractioned, etc.); (ii) weather/rainfall condition over the considered agricultural season; (iii) level of use of improved seeds ; (iv) appropriateness of technical advice/practices for fertilizer use (soil fertility management including other practices such as supply of manure and other OM, conservation farming practices, etc.); and (iv) the interaction between these factors and especially: (a) fertilizer x seeds, (b) fertilizer x rainfall and (c) fertilizer x seeds x rainfall x OM level
2. **COMPONENT DESCRIPTION**
3. **Rationale**
4. The rationale for KCEP Component 1 is (i) import substitution of maize and millet (see Background section); and (ii) meeting unsatisfied demand for sorghum mainly for beer production. This unmet potential will in turn generate marketing opportunities that will trigger productivity enhancements (demand driven), altogether representing a significant scope for improving smallholders’ income in the three targeted value chains and for enhancing food security/availability by the same token. This line of action is consistent with government policies. The main elements for this rationale are provided in the “grain sector” section above.
5. Agricultural productivity growth throughout history has been intimately tied to productivity growth in marketing systems boosted by high demand and price. Abundant worldwide evidence has shown that the incentives and ability of farmers to make investments in productivity-enhancing inputs and production methods depends on reducing the transaction costs and risks of exchange across inputs, credit, and output markets. That is the reason why KCEP uses a value chain approach that integrates productivity improvement, post-harvest handling (drying, shelling and storage) and market linkages (increase farm gate prices linked to the Warehouse Receipt System and partnerships with buyers such as EABL building on on-going initiatives) allowing greater volumes, prices and margins.
6. At the production level, the rationale for KCEP interventions is based on key considerations: (i) subsistence farmers need to produce more and better in order to first become food-secure and produce surpluses to be sold (subsistence farmers graduating to market-oriented farmers); (ii) in the semi-arid area, the potential for crop diversification in rain fed conditions is low, thus strengthening the production of complementary cash crops (white sorghum, finger millet)[[51]](#footnote-51) to pulses will increase farmers’ food security and income; and (iii) productivity increase can be significant with the use of adapted inputs (quality seeds, adapted basal and top dressing fertilizer, integrated pest management, etc.) and close technical advisory services at farmers’ group level.
7. Agricultural subsidized input vouchers allow reducing the risk for subsistence farmers to invest in input package and technologies in case of crop failure (bad rainfall year). They are only justified if “smart”, that is, if they are: (i) promoting the adoption of an improved technology which is being hampered by market failures (information asymmetries, non-competitive markets, externalities and public goods) and/or policy failures (insufficient/ineffective policies on extension services, access to credit, competition, trade)[[52]](#footnote-52); (ii) technically and financially/economically viable; (iii) sufficiently diversified to account for different agro-ecological conditions; (iv) implemented over a period of time which is sufficiently long to ensure the highest adoption rate of the proposed technology while not encouraging dependency on the beneficiary side; and (v) promoting competition among and strengthening of the actors of the agri-input sub-sector (importers, wholesalers and agro-dealers).
8. Capacity development is also key for successful development interventions and has to be mainstreamed at all levels. Building farmers’ capacities to develop their demand for services and technologies according to their needs and specific constraints is thus critical. This implies that agro-dealers and private service providers can offer an adequate range of quality services.
9. **KCEP Strategy for sustainable crop intensification**
10. KCEP approach is based on: (i) financial profitability of the promoted crops (innovation introduction and link with a market demand); (ii) sustainability of the extension system based on a public-private collaboration and on a demand-driven approach; and (iii) sustainable crop intensification of the promoted farming systems.
11. The strategy for sustainable crop intensification is built on a holistic farming system approach that in turn is based on three technical principals: (i) achievement of increased agricultural productivity and enhancement of natural capital; (ii) higher rates of efficiency in the use of key inputs, including water, nutrients, pesticides, energy, land and labour; and (iii) use of managed and natural biodiversity to build system resilience to stresses. To achieve these principles, KCEP will work on six management practices:
12. *the use of well adapted, high-yielding varieties*. Maize hybrids and OPV seed varieties (sorghum and millet) to be made accessible through the voucher will be selected according to the specific features of each target AEZ, results from available results of on-farm trials from KARI and seeds companies, and market demand. KARI in collaboration with the public extension services and CGA will be responsible for providing the list of the varieties of cereals and pulses performing well in the targeted AEZ. Varieties of white sorghum will be those selected by the Research and seed Department of East African Breweries Limited (well adapted to beer processing)[[53]](#footnote-53). For pulses, farmers will be free to choose crops and varieties according to their farm management needs. The importance of improved varieties has been well established as an integral part of a package of crop technologies aiming at increasing production and productivity. However, the productivity of improved varieties will remain low unless complemented with improved soil and water conservation practices[[54]](#footnote-54).
13. *enhanced crop nutrition based on healthy soils through crop rotations and judicious use of organic and inorganic fertilizer*. Some of the soil conservation technologies that have been developed and suitable for the area of intervention are as follows: (i) ridging and tied ridging; (ii) inorganicfertilizers (basal and top-dressing will be selected according to soil types and constraints as well as farming systems); (iii) ‘’green fertilizers’’ (green manure and leguminous cover crops such as cow pea, bean, dolichos, green gram, pasture legumes, etc.) can be promoted in situation where farmers have other alternative to using crop residues for animal feeding; (iv) micro-dosing and combined organic and inorganic fertilizer will be developed to offer alternative fertilizer options to farmers; and (v) improved fallows using fast growing leguminous and shrubs such as Sesbaniasesban, tephrosia, pigeon pea, leucaena, etc.
14. *efficient water management by obtaining ‘’more crops from fewer drops’’ while maintaining soil health.* In the semi-arid area, water scarcity is a limiting factor for fertilizer adoption and efficiency because to be absorbed by the plant, nutrients need to be diluted in soil water., Therefore, water harvesting techniques could improve the fertilizer use efficiency. This could be achieved through dissemination and adoption of techniques that maximize moisture storage in the root zone[[55]](#footnote-55). Some of the water conservation technologies that have been developed and suitable for the area of intervention are as follows: (i) ridging and tied ridging; (ii) micro-catchments systems that are basins, pits, bunds and all other water harvesting systems that get their runoff from small areas; (iii) zai-pits that utilizes shallow pits and requiredigging about 30 cm in diameter and 15-20 cm deep and adding manure or compost at the bottom of the pit to enhance soil fertility prior to planting[[56]](#footnote-56). Many of the soil and water conservation technologies entail significant labour input and capital and require a long time to return the investment. As a result, many resource poor farmers lack the incentive to adopt such practices unless government and other agencies provide some sort of support or subsidies. In the semi-arid area where water and soil fertility management is critical for productivity improvement, KCEP will use the e-voucher as an incentive to adopt soil and water conservation technologies.

* *better crop husbandry*. Adequate spacing and seed density, proper prepared seed bed, on-time operations and integrated management of pests, diseases and weeds.
* *Labour saving technologies* that could be promoted by conservation agriculture[[57]](#footnote-57), in particular for women.

1. These activities will be implemented in collaboration with the EU funded conservation agriculture project that will be implemented by FAO.
2. **Technical and financial assumptions made for crop improvement**. Production costs per acre were determined based on information on family labour usage for all reported labour activities, land preparation costs, cash input costs such as fertilizer and purchased seed (non-subsidized). Information on costs of storage bags and marketing was also computed and used in selected runs to examine the extent to which results change when these costs are included.
3. **Estimated yields per acre**. Mean initial yields for maize, white sorghum, finger millet and pulses are reflecting the current practises of subsistence farmers in the targeted areas of intervention, namely: (i) low use of quality seeds, fertilizer and chemicals; (ii) operations carried out by family labour (by hoe) not always on-time; (iii) low water and soil fertility management; and (iv) mediocre crop husbandry.
4. Increased yield assumptions are based on an average rainfall pattern and take into consideration: (i) for maize if the limiting nutrient is N (most of the time), the additional production of grain will be about 15 to 20 kg per N Kg. For instance using 50 kg basal fertilizer of 20-20-20 and 50 Kg top dressing urea (46-0-0), the N supply will be of about 33 Kg and the additional yields will be of 600 Kg in year 1 in normal rainfall conditions and; (ii) maize hybrids will in normal year in the High Potential Area allow an increase in yields of about 100 to 200 Kg; (iii) in the Semi-Arid Area, yield increase will be slower because it will depend on the effect of land and water management techniques (after a minimum of 2 years if rains are satisfactory), thus yields increase in year 1 will be an additional 300 Kg (both due to seeds, SLM practises and fertilizer). After two years of project interventions, farmers should be able to adopt better crop husbandry practices and this is reflected in estimated yields increase.

**Table 3 – Estimated yields (kg/acre) and increase over project duration**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Without Intervention.** | **Improved** | | | |
|  | Current | Y1 | Y2 | Y3 | Y4 |
| Maize | 900 | 1575 | 1710 | 1800 | 1800 |
| White Sorghum | 600 | 930 | 930 | 1110 | 1170 |
| Finger Millet | 700 | 1085 | 1085 | 1260 | 1295 |
| Beans | 360 | 558 | 594 | 648 | 648 |
| Cow pea | 270 | 365 | 392 | 419 | 486 |
| Pigeon pea | 270 | 405 | 446 | 446 | 486 |
| Green gram | 270 | 419 | 432 | 446 | 486 |

Source: Estimate from interviews and literature review.

1. **Gross margins per acre**. Assumptions for gross margins calculation are based on:

* *Labour*: 100% of crop operations are overtaken by family labour (by hand) in High Potential and Semi-arid areas. From year 2, in the semi-arid area assumptions were made that farmers will be able to grow 2 acres of white sorghum and to pay for a part of hired labour (40% of the total labour);
* *Post harvest losses* (PHL) reduction : (i) for maize post harvest losses are reduced from 25% to 15% in year 1 with adoption of hermetic bags provided in the e-voucher, to 10% in year 2 with adoption of good post-harvest handling practises and to 5% from year 3 thanks to storage facilities; (ii) for white sorghum post-harvest losses decrease from 35% to 25% in year 1 with farmer’s group bird scaring (instead of family), to 10% from year 2 with best practises; and (iii) for finger millet PHL are about 35% due to drying and post-harvest handling practises (stone and dust) PHL reduction is about 15% in year 1 and 2 and 7% from year 3 with good post harvest handling practises;
* *Output prices increase* has been considered only for maize and finger millet as white sorghum has a fixed price guaranteed market with EABL. For maize and finger millet, current situation estimate that the quantity sold by small-scale farmers is 100% sold after harvest when prices are low (about 0.2 Ksh/Kg for maize and 0.3 Ksh/Kg for finger millet) while after year 1 and 2, subsistence farmers will be able to sell 40% of the maize and finger millet during the peak time (about 0.4 Ksh/Kg for maize and 0.6 Ksh/Kg for finger millet), and 50% for maize and 60% for finger millet at peak time from year 3.

1. Gross margins increase are as indicated in table 4 below. Gross margins per acre will be multiplied over the Project duration by: (i) eight for maize/bean cropping systems; (ii) more than 3 for white sorghum; and (iii) more than four for finger millet (more details on crops budgets and gross margins see annex 4).

**Table 4 –Estimated gross margins over Project duration (USD/acre)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Without Intervention.** | **Improved** | | | |
|  | Current | Y1 | Y2 | Y3 | Y4 |
| Maize/bean | 53 | 225 | 300 | 398 | 407 |
| White Sorghum/green gram | 8 | 155 | 166 | 235 | 282 |
| Finger Millet/pigeon pea | -89 | 154 | 179 | 338 | 363 |

Source: Estimate from design team.

1. **Objectives and outcomes of component 1**
2. **Objectives.** Component 1 will contribute to transforming current input-low output production systems by addressing main farmers constraints and supporting sustainable crop intensification and diversification by:

* supporting the development of an adequate supply of services and inputs to enable increased volumes and quality of target crops production securing both food security and the development of market surpluses meeting market requirements; and
* supporting farmers’ organizations development and empowerment so that they can articulate an effective demand for support services and strengthen their linkages with other value chain stakeholders.

1. The main expected outcome of component 1 is increased productivity of maize-based systems (and associated pulses) and drought-resistant high value crops (white sorghum, finger millet and pulses). Specific outcome indicators are summarized as follows:

* improved crop yields (average): for maize from 0.9 t to 1.8 t per acre; for white sorghum yields from 0.6 t to 1.2 t per acre; for finger millet from 0.7 t to 1.3 t per acre; and for pulses (including beans, pigeon peas, cow peas and green grams) from 0.3 t to 0.6 t per acre;
* 80% farmers (50% women) adopting recommended technologies;
* beneficiaries’ satisfaction with the project.

1. **Sub-components**

**Sub-Component 1 – Supporting effective supply of services and inputs (3.34 USD million)**

1. The expected outcome of sub-component 1 is farmers’ adoption of available technologies and technical packages meeting their needs. 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 service offered by agro-dealers .

**Adaptation and dissemination of available technologies for smallholder application.**

1. KCEP will focus on adapting and disseminating released technologies and technical packages to farmers. Emphasis will be put on: (i) promotion of drought resistant high yielding varieties (sorghum, millet and pulses); (ii) improved management practises including appropriate crop husbandry, intercropping, rotations, integrated pest management in each targeted agro-ecological systems; (iii) identifying and improving sustainable soil fertility management practises such as: participatory assessment of soil types and micro-nutrient deficits, site-specific fertilizer package, micro-doses testing, deep placement, etc. and build capacity for local level diagnosis of nutrient deficiencies based on observation of nutrient deficiency symptoms and local indicators of soil fertility status; (iv) technologies that promote rainwater use efficiency (i.e. planting furrows and tied ridging in semi-arid areas); and (v) promoting adapted technologies/practises for land preparation and for labour saving especially for women.
2. KCEP will scale-up the dissemination and adoption of existing technologies, based on demand-driven processes.More specifically,activities will include (see Annex 6, detailed activities): (i) on-farm demonstrations of and lead farmers’ capacity building on released technologies and best practices responding to user needs/demand; (ii) soil sampling[[58]](#footnote-58) and multi-location fertilizer trials under diverse soil fertility conditions to develop crop- and site-specific fertilizer recommendation[[59]](#footnote-59); (iii) participatory training on released technologies for agricultural advisory service providers, including national extension services, input providers, farmers’ organisations, and other private or non-governmental stakeholders; (iv) the development and dissemination of extension material, guidelines and mapping of soil fertility and soil nutrient deficit and requirement to support dissemination of best fertilizer management practices; and (iv) farmers’ feedback and data collection on technology adoption and impact on productivity feeding the project M&E system.
3. **Implementation.** Activities will be implemented by KARI through KARI’s Adaptive research programme located in various centres. These are responsible for coordinating the research-extension-farmer linkage activities using a range of approaches such as: Agricultural Technology and Information Response Initiative, farmer-researcher groups and Information, Communication and Technology (ICT)-based technology transfer approaches. KARI will provide training of trainers to groups of about 80 extension workers, lead farmers and service providers such as CGA’s and AGMARK’s agents in order to allow them to disseminate technologies and practises at farmer’s group and agro-dealer level. KARI will also set up - on-farm (lead farmers’, farmers ‘groups) and at KARI research station level- demonstrations plots and trials. At project start-up, a consultant will prepare a contract agreement with KARI and IPNI which will detail the approach, activities and quantified deliverables.
4. IPNI will work with KARI/Soil laboratory to map fertility response from the trials and demonstrations that will be carried out in each location. IPNI will also update its capacity building programme on soil micro-nutrient management and water use efficiency to complete KARI’s training of trainers (targeting extension workers, lead farmers, and service providers such as CGA, AGMARK, etc.). Farmers’ training material will be translated in local languages as appropriate.. Results from on-going IPNI’s research and collaborations will also be used to improve training contents, soil and fertility management recommendations.

**Agricultural advisory services for effective access to and adoption of technologies and technical packages**

1. 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, combining inputs, agronomic practices and technologies allowing yield growth and enhanced adaptation to rainfall variability due to climate change and soil degradation. More specifically, the project will support the following investments.
2. **E-voucher.** KCEP will promotesmallholders’ adoption of adapted inputs and technologies through the provision of the e-voucher card, 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[[60]](#footnote-60); and (iv) the premium for a weather-index based crop insurance[[61]](#footnote-61).
3. In both the maize production area and semi-arid area, the e-voucher will be made accessible to subsistence farmers who are risk-averse and do not yet use commercial inputs. In addition, in the semi-arid area, the voucher will also be accessible to farmers who do use fertilizers, as an incentive for the adoption of soil and water conservation practices, without which fertilizers have limited impact on restoring degraded soil fertility. Farmers eligible to receiving the e-voucher will have to meet the following conditions:

* subsistence farmers unable to procure inputs on their own;
* farmers using fertilizers but no water and soil fertility management practises (specific to the semi-arid area);
* must have minimum one acre of land that they dedicate or are willing to dedicate the specific commodity;
* must be able and willing to provide the beneficiary contribution;
* must be willing to abide with the guidelines of the project;
* must be willing to join cereal banks for efficient marketing.

1. 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 associated to the disseminated technologies/practises. Over a season, the package will be provided in two batches: cereal seeds and basal fertilizer will be provided before planting cereals, and top-dressing fertilizer, pulses seeds, hermetic storage bags and tarpaulin at top-dressing stage.
2. The package will be jointly financed by the project (decreasingly) and by smallholders (increasingly): KCEP will finance 90% of the voucher in year 1, and 60% in year 2.
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. 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.
4. Agricultural advisory services will be offered to subsistence and market-oriented farmers to improve their productivity and quality by accessing information and technical advisory services. However, the approach will be different according to farmers’ group category:

* Subsistence farmers who will receive the technical package (about 40 000 farmers) will be directly supported by field extension workers. Each front-line extension worker will work with 15 farmers’ groups of about 30 farmers. They will be in charge of: (i) providing ToT of lead farmers from subsistence farmers’ group; (ii) supporting demonstration plots at farmers’ group level and exchange visits to other groups (well performing groups and also to discuss specific technical issues between groups); and (iii) visiting farmer’s groups to provide in-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, technical advisory services will be provided on a demand-base (farmers’ group will be empowered to demand for services);
* Market-oriented farmers (about 60 000 farmers) won’t receive any technical package. Nevertheless, they will be supported by KARI/IPNI through training of trainers of lead farmers on identified needs. They will also benefit from demonstrations, field days and fairs organized by agro-dealers localized in their area of production.

1. At project start, an inventory of existing public extension officers and private advisory service providers in target sub-counties will be made by KARI and MoA in order to assess available capacities for the provision of technical advisory services. The project will start its activities in priority in areas where existing service providers are available. Technical advisory services to targeted subsistence farmers will be provided by a combination of public extension workers from the Ministry of Agriculture and field workers hired by the CGA to fill the gaps based on the inventory. The assumption made at project design is that half of the field extension workers required for KCEP implementation will be provided by the MoA.
2. **Implementation**. This set of activities will be implemented by CGA. CGA will coordinate operations between research, technical advisory provision and farmers’ group empowerment. Annual activity 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…) that are represented in agriculture stakeholders’ fora. They will also be reflected in MoA annual planning, to ensure that project activities are mainstreamed into the regular work plans of research and extension services. For that purpose, in each participating county, CGA will assign a county coordinator who will be responsible for supporting the County Agricultural Office in: (i) planning, coordinating and monitoring the work of public extension officers and other service providers, including CGA field workers; (ii) coordinating with KARI in developing the dissemination of research packages; (iii) organising data collection and analysis to monitor performance and provide required information to the PIU to support the Project Learning System and (iv) build the capacities of the county agricultural office to take charge of responsibilities one and two beyond project completion in line with NASEP.
3. The rationale for selecting CGA as the technical service provider is based on 3 critical elements: (i) CGA is the main commodity based farmers’ organization focusing on cereals at grass root level; (ii) working with a member based association will allow increasing number of farmers’ organization involved in umbrella organization and will increase awareness among farmers to be federated; and (iii) CGA already demonstrated its capacities to work closely with farmer’s group on technical advisory services and farmers’ empowerment in similar projects and in the same area of intervention with other donors (USAID, AGRA, etc.).

**Strengthening capacities and expanding the range of service offered by agro-dealers**

1. The objective is to increase the quantity and quality of services offered by agro-dealers at an affordable price for smallholder farmers. Indeed, farmers will be empowered to articulate effective demand for service provision (see sub-component 2) but will need to find a wide range of skilled agro-dealers to support production development.
2. KCEP will register the existing agro-dealers and ensure their readiness for the e-voucher redemption through capacity building on stock planning and management and access to bank loan. In addition, KCEP will assist them in expanding the range of services they supply (for example enabling agro-dealers to offer technical advisory services).
3. Main activities will be as follows:

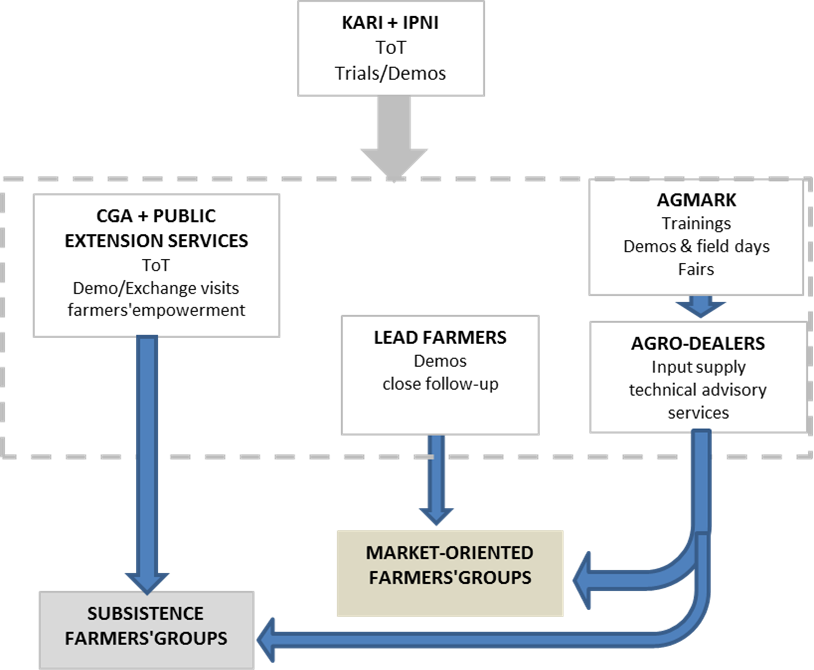
* carry out an assessment of existing agro-dealers in all of the target sub-counties, and identify gaps, potential and interest in participating to KCEP, and for further expanding their activities and number;
* sensitization, registration of the participating agro-dealers and providing specific trainings related to the e-voucher implementation on: product supply and stock management, record keeping, and storage of inputs;
* support in expanding the range of services on agricultural inputs and farming technologies through: (i) creating demonstration protocols for field days and agricultural input exhibitions with private and public service providers at county and sub-county level. These activities will be carried out by agro-dealers and will target subsistence and market-oriented farmers; and (ii) developing the capacities of agro-dealers to provide technical advisory services to farmers through specific trainings on fertilizers, seeds, and crop husbandry. These specific trainings will be provided by trainers who will be trained by KARI/IPNI (ToT) on specific technologies, fertilizer adapted to soil conditions, crop husbandry, etc. (for more detailed activities and costs see Annex 5). Agro-dealers will contribute to their trainings, demonstrations, field days and exhibitions on a 15% basis.
* Capacity building will be provided by equity group foundation on financial literacy to facilitate access to bank services, to ensure that supported agro-dealers have access to the financial resources they require to sustain their activities (more information see Component 3 on financial inclusiveness).

1. **Implementation.** Activities related to agro-dealers support will be carried out by AGMARK which has established itself as a leader in the area of building capacities of agro-dealers with proven method, training materials, experience in voucher Projects and a successful hub-agro-dealer model[[62]](#footnote-62). AGMARK is operational and has the staff and resources available to achieve Project’s objectives. Currently, AGMARK has: (i) 22 permanent employees[[63]](#footnote-63) and a pool of 10 part time commercial trainers; (ii) 2 vehicles, offices in Nairobi, Kisumu and Kilifi; (iii) available training materials on Basic Business Management, Agricultural Inputs Technical knowledge modules and Agricultural Output Marketing modules and; (iv) a strong collaboration with the existing agro-dealer association (KENADA). In addition, AGMARK was selected by MoA to register and train the selected agro-dealers involved in NAIAAP implementation and implements several projects related to agricultural inputs[[64]](#footnote-64) and they already successfully collaborated with CGA in USAID and AGRA funded projects.

**Sub-Component 2 – Supporting demand of services and inputs (0.42 USD million)**

1. The expected outcome of sub-component 2 is farmers’ organizations empowerment to articulate effective demand for support services and strengthen farmers’ participation in the local planning process and value chains/stakeholders’ fora. Activities will be geared towards strengthening farmers’ capacity to engage in collective action. At the same time, farmers groups will be supported to transform into strong organizations that can develop demand for services from various stakeholders both in public and private sectors.
2. 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.
3. Activities will include: (i) identification of the existing groups in the project areas[[65]](#footnote-65) and new ones where required; (ii) farmers’ knowledge and skills empowermentat the grass-root level through intensive training in topics such as: participation, group dynamics, leadership, gender, planning and prioritization of appropriate intervention strategies, participation at stakeholders’ fora level; (iii) farmers’ capacity building and sensitization meetings to link groups to identified input suppliers (bulk procurement of inputs) and trainings on negotiation skills; and (iv) peer exchange visits for mutual learning proved to be very effective in motivating, sharing of experiences and knowledge between different regions. Tailor-made capacity building plans will be jointly agreed with recipient farmers’ organizations, building on prior preparation of business plans and will be reviewed on an annual basis.
4. As supported farmer’ s groups will be the same as the one receiving technical advisory services, CGA will also be responsible for farmers’ group mobilization and empowerment through frontline extension workers including public extension services..
5. Component 1 can be summarized as follows:

**Figure 1 – Implementation (component 1)**



1. **IMPLEMENTATION arrangements**
2. **Project coordination and management (see main report annex 5)**.
3. **RISKS**
4. Main **risks** related to component 1 are as follows:

**Table 5 – Risks and mitigation measures**

| **Risks description** | **Level of risk** | **Actions and mitigation** |
| --- | --- | --- |
| **Implementation** |  |  |
| * Quality and delays in implementation | Moderate | * Pre-identification of existing and performing service providers ; * Annual result-based contracts ; * Strengthening capacities of local agro-dealers) |
| * Lack of application of agricultural inputs in the field due to cashing-in at agro dealers’ shop; use of vouchers by rent seeking by elites | High to Moderate | * community-based participatory selection of agro-dealers; * field check by extension officers of beneficiary lists and voucher redemption and input application in the field; and * peer pressure mechanism by model farmers and beneficiary group members |
| * Gender | Moderate | * To complete |
| **Technical risks** |  |  |
| * Low availability and delayed supply of inputs and seeds ; * Low impact on yields in case of bad or medium crop year; | Moderate | * Sensitization and information campaigns on e-voucher needs targeting agro-dealers well in advance to ensure on-time availability of inputs; * Working on 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; * Inputs adapted to specific AEZ and type of soils will be provided to ensure adapted response to farmers’ needs. |
| * Low farmers’ capacities to use inputs after project intervention | ? | * Linkages between crop production and access to market and warehouse receipt system for maize and a secured market for white sorghum (breweries) ensuring cash to buy inputs for the next crop season * Increasing famers’ contribution to the e-voucher will avoid dependency and will increase farmers’ commitment over year * Link with weather-based insurance system to mitigate risk of drought |
| * Climate change | Moderate | * Identify crop varieties, technologies and water and soil management techniques mitigating drought effects. |

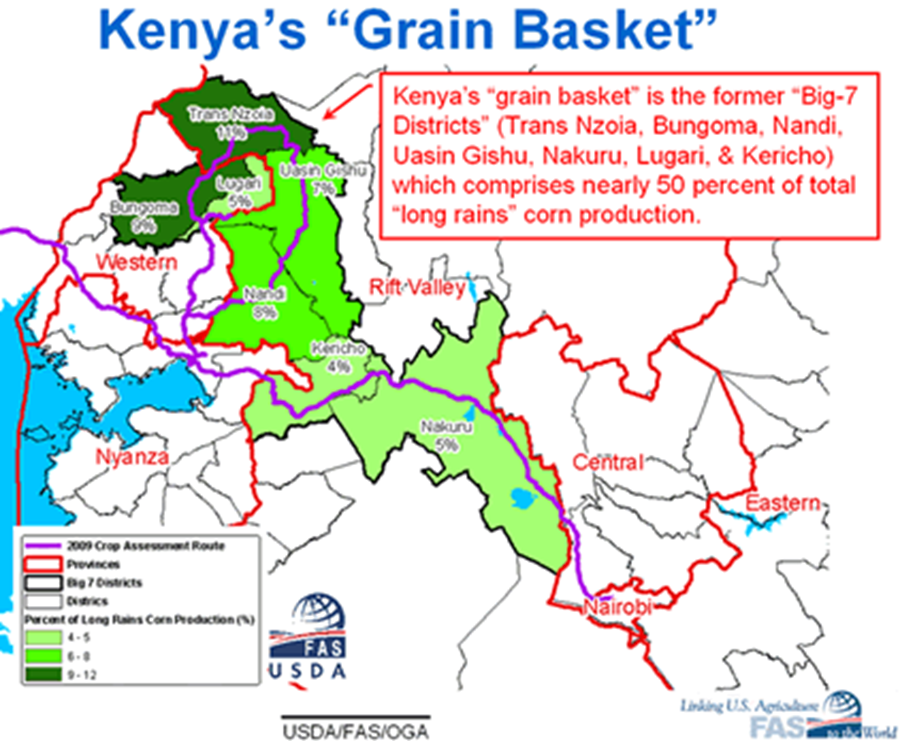
1. **monitoring and evaluation**

**Table 6: Objective, outcome and output of component 1**

|  |
| --- |
| **COMPONENT 1- Objective:** increased productivity of maize-based systems (and associated pulses) and drought-resistant high value crops (white sorghum, finger millet and pulses)  Outcome indicators:   * improved crop yields (average): for maize from 0.9 t to 1.8 t per acre; for white sorghum yields from 0.6 t to 1.2 t per acre; for finger millet from 0.7 t to 1.3 t per acre; and for pulses (including beans, pigeon peas, cow peas and green grams) from 0.3 t to 0.6 t per acre; * 80% farmers (50% women) adopting recommended technologies/packages; * 80% of target farmers accessing technical advisory services; and * beneficiaries’ satisfaction with the Project   Output Indicators:   * 26 ToT provided to extension workers, service providers and lead farmers and 150 on-site demo and trials (KARI/IPNI); * 27 ToT and 4,000 demos carried out at farmers’ group level (CGA/MoA); * 300 agro-dealers trained, 30 fields days/180 demo plots/60 exhibitions trade fairs carried out by agro-dealers; * 1333 farmer’s group trained on institutional management and empowerment |

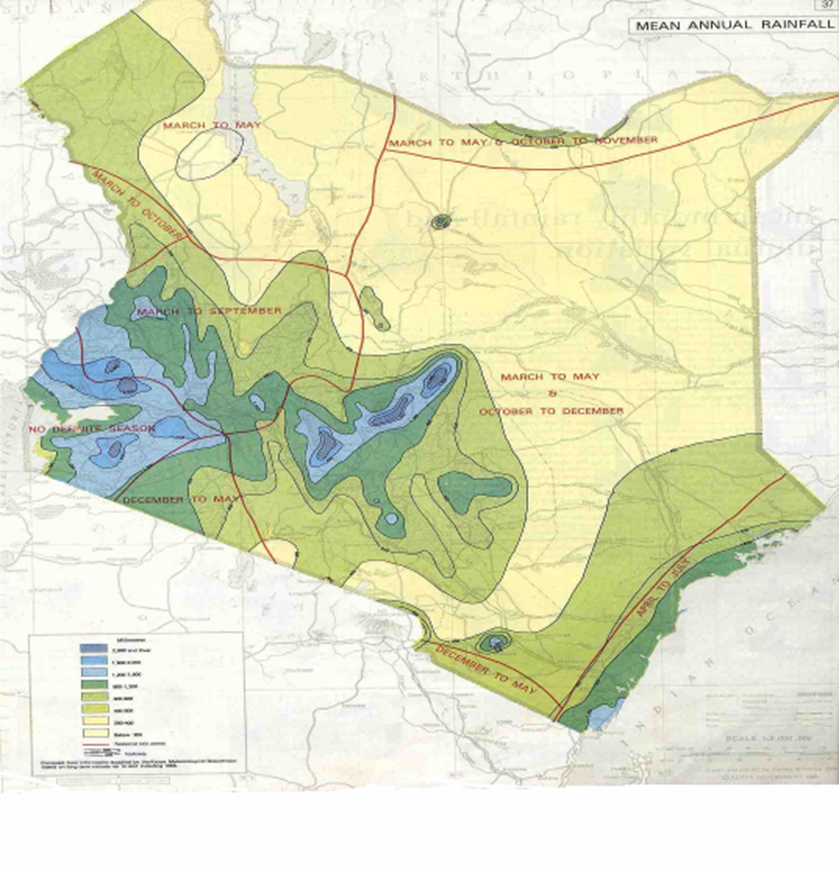
**Annex 1: Area of Intervention**

Map 1: Kenya ‘’Grain Basket’’



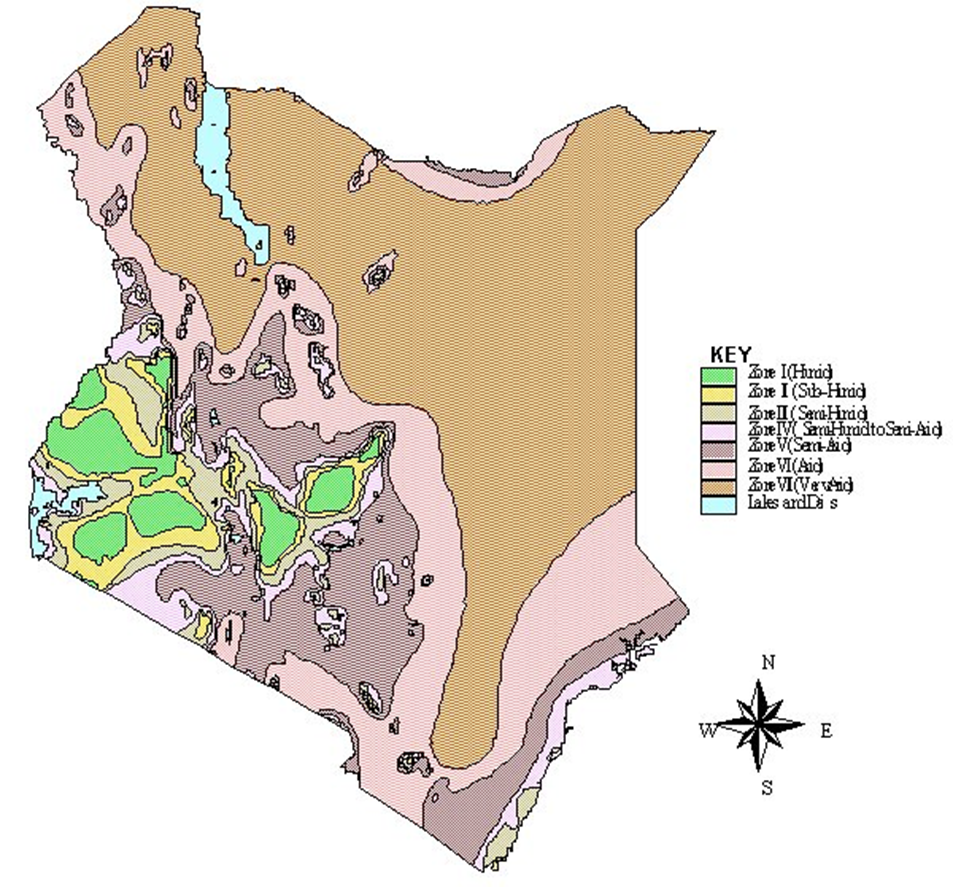
Source: USDA’s Foreign Agricultural Service (FAS), 2009

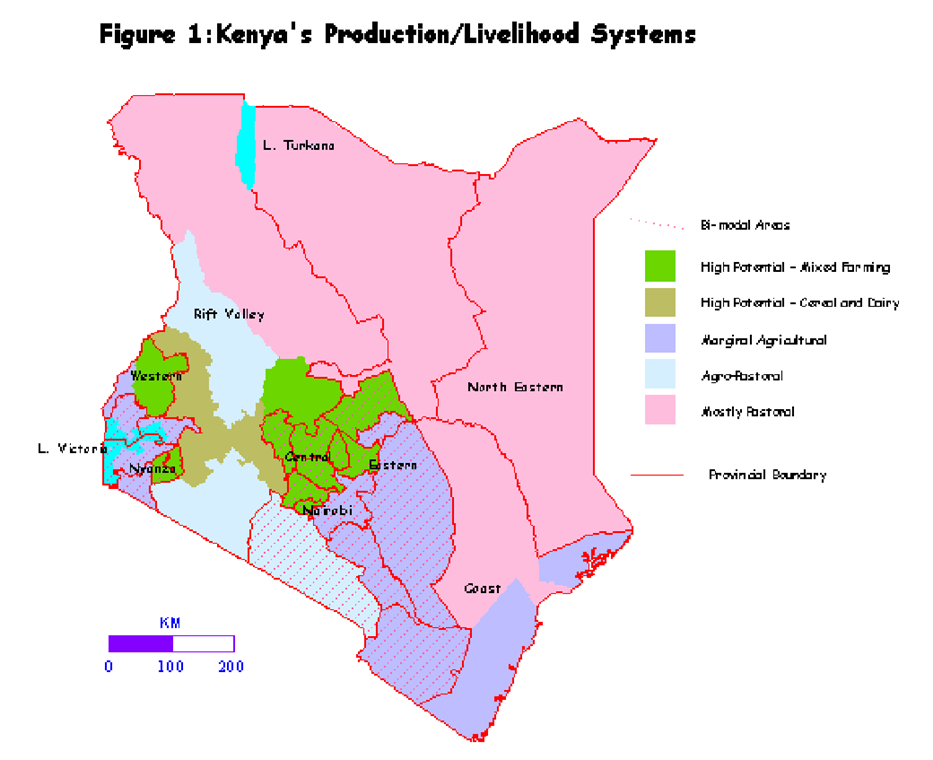
Map 2: Mean annual rainfall in Kenya



Source: Kenya Meteorological Department, 2007

Map 3: Agro-Ecological Zones (AEZ) for Kenya



Map 4: Production Systems in Kenya

**Annex 2: Production of Maize, Sorghum, MilletaAnd Pulses in Kenya by Region (2012)**

**Table 1- Maize Production in Kenya by region, 2012 (90Kg bags)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Region** | **Short rains** | | **Long rains** | | **Total** |
| **Quantity** | **Per cent** | **Quantity** | **Per cent** | **Quantity** |
| **Western** | **234,720** | **3.9** | **5,856,390** | **96.1** | **6,091,110** |
| **Rift Valley** | **1,779,376** | **7.9** | **20,639,690** | **92.1** | **22,439,066** |
| Nyanza | 2,549,545 | 35.2 | 4,702,200 | 64.8 | 7,251,745 |
| Eastern | 4,165,605 | 76.8 | 1,255,305 | 23.2 | 5,420,910 |
| Central | 1,363,328 | 47.7 | 1,493,049 | 52.3 | 2,856,377 |
| Coast | 808,482 | 23.3 | 2,665,355 | 76.7 | 3,473,837 |
| NorthEastern | 3,330 | 48.5 | 3,530 | 51.5 | 6,860 |
| Nairobi | 8,397 | 51.1 | 8,038.5 | 48.9 | 16,436 |
| ***Total*** | ***10,912,783*** | *23.0* | ***36,623,558*** | ***77.0*** | ***47,536,340*** |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

**Table 2- Sorghum production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 3,367 | 78,236 | 81,603 |
| Rift valley | 35,689 | 133,745 | 169,434 |
| Nyanza | 80,595 | 751,640 | 832,235 |
| **Eastern** | **527,728** | **246,592** | **774,320** |
| Central | 6,364 | 3,491 | 9,854 |
| Coast | 22,131 | 58,999.3 | 81,130 |
| NorthEastern | 635 | 284 | 919 |
| Nairobi | 676,519 | 127,302.1 | 194,954 |
| ***Total*** | ***1,353,028*** | ***1,400,289*** | ***2,753,317*** |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

**Table 3- Millet production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 0 | 27,420 | 27,420 |
| Rift valley | 4,377 | 120,560 | 124,937 |
| Nyanza | 99,155 | 91,902 | 191,057 |
| **Eastern** | **267,410** | **182,435** | **449,845** |
| Central | 584 | 690.5 | 1,274.5 |
| Coast | 1,142 | 2,698 | 3,840 |
| NorthEastern | 6 | 0 | 6 |
| Nairobi | - | - | - |
| ***Total*** | ***372,674*** | ***425,706*** | ***798,379.5*** |

**PULSES PRODUCTION**

**Table 4: Beans production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 162,320 | 811,545 | 973,865 |
| Rift valley | 151,945 | 388,540 | 540,485 |
| Nyanza | 761,665 | 955,315 | 1,716,980 |
| **Eastern** | **622,096** | **1,246,828** | **1,868,924** |
| Central | 667,073 | 377,465 | 1,044,538 |
| Coast | 40,948 | 49,095 | 90,043 |
| NorthEastern | 0 | 0 | 0 |
| Nairobi | 3,074 | 2,889.5 | 5,963.5 |
| ***Total*** | ***2,409,121*** | ***3,831,677.9*** | ***6,240,798.9*** |

**Table 5: Cow Peas production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 0 | 0 | 0 |
| Rift valley | 10,749 | 11,570 | 22,319 |
| Nyanza | 14,025 | 23,315 | 37,340 |
| Eastern | 662,631 | 477,258 | 1,139,889 |
| Central | 8,396 | 9,552 | 17,948 |
| Coast | 12,193 | 241,258 | 253,451 |
| NorthEastern | 0 | 0 | 0 |
| Nairobi | 35 | 66 | 101 |
| ***Total*** | ***708,029.5*** | ***763,019*** | ***1,471,048*** |

**Table 6: Pigeon Peas production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 0 | 0 | 0 |
| Rift valley | 42 | 329 | 371 |
| Nyanza | 0 | 0 | 0 |
| **Eastern** | **701,431** | **257,237** | **958,668** |
| Central | 5,315 | 5,388 | 10,703 |
| Coast | 4,025.75 | 12,607.25 | 16,633 |
| NorthEastern | 0 | 0 | 0 |
| Nairobi | 20 | 29 | 49 |
| ***Total*** | ***710,833.75*** | ***275,590.25*** | ***986,424*** |

**Table 7: Green Grams production in Kenya by region, 2012 (90 Kg bags)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Short Rains** | **Long Rains** | **Total** |
| Western | 824 | 501 | 1,325 |
| Rift valley | 1,220 | 10,063 | 11,283 |
| Nyanza | 5,254 | 20,185 | 25,439 |
| **Eastern** | **542,901** | **375,511** | **918,412** |
| Central | 5,817 | 5,820 | 11,637 |
| Coast | 86,191 | 136,800 | 222,991 |
| NorthEastern | 1,165 | 1,220 | 2,385 |
| Nairobi | 3 | 8.5 | 11.5 |
| ***Total*** | ***643,375.5*** | ***550,108.5*** | ***1,193,484*** |

**Annex 3: Seasonal Price Variability**

**Maize price variability in different regions in Kenya, 2012; Farm gate prices for a 90Kg bag (Ksh)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  |  |  |  |  |  |  |  |  |  |  |  |  |
| North Easten | Garissa | 3,200 | 3,200 | 3,300 | 3,300 | 3,500 | 3,500 | 3,500 | 3,500 | 3,000 | 3,000 | 3,000 | 3,000 |
| Rift valley | UasinGishu | 2,750 | 2,250 | 2,400 | 2,650 | 3,250 | 3,000 | 2,850 | 2,850 | 2,700 | 2,600 | 2,400 | 2,400 |
| Nyanza |  | - | - | - | - | - | - | - | - | - | - | - | - |
| Eastern | Embu East | 3,600 | 2,400 | 2,400 | 2,700 | 3,150 | 3,150 | 3,150 | 2,600 | 2,600 | 2,880 | 3,000 | 3,000 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 2,600 | 2,700 |
| Coast |  |  |  |  |  |  |  |  |  |  |  |  |  |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013.

**Beans Price Variability in different regions in Kenya ;Farm gate prices for a 90kg bag (Ksh)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  | - | - | - | - | - | - | - | - | - | - | - | - |
| North Eastern |  | - | - | - | - | - | - | - | - | - | - | - | - |
| Rift Valley | UasinGishu | 6,000 | 6,000 | 6,500 | 8,000 | 8,000 | 0 | 6,400 | 6,400 | 6,500 | 5,550 | 5,550 | 5,550 |
| Nyanza |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern | Embu East | 5,400 | 5,400 | 5,400 | 6,300 | 6,300 | 4,750 | 5,400 | 5,850 | 5,850 | 6,300 | 6,300 | 6,300 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 6,300 | 4,500 |
| Coast |  | - | - | - | - | - | - | - | - | - | - | - | - |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013.

**Sorghum Price Variability in different regions in Kenya ;Farm gate prices for a 90kg bag (Ksh)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  | - | - | - | - | - | - | - | - | - | - | - | - |
| North Eastern |  | - | - | - | - | - | - | - | - | - | - | - | - |
| Rift Valley | UasinGishu | 2,800 | 3,000 | 3,000 | 3,200 | 3,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyanza |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern | Embu East | 4,150 | 3,600 | 3,600 | 4,150 | 4,150 | 3,150 | 3,150 | 3,150 | 3,150 | 3,600 | 3,600 | 3,600 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 4,500 | 1,800 |
| Coast |  | - | - | - | - | - | - | - | - | - | - | - | - |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

**Millet Price Variability in different regions in Kenya ;Farm gate prices for a 90kg bag (Ksh**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  | - | - | - | - | - | - | - | - | - | - | - | - |
| North Eastern |  | - | - | - | - | - | - | - | - | - | - | - | - |
| Rift Valley | UasinGishu | 3,600 | 3,600 | 4,000 | 4,000 | 4,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyanza |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern | Embu East | 4,500 | 3,150 | 3,150 | 4,500 | 4,500 | 3,150 | 3,150 | 3,150 | 3,150 | 3,600 | 3,600 | 3,600 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 6,200 | 5,400 |
| Coast |  | - | - | - | - | - | - | - | - | - | - | - | - |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

**Cow peas Price Variability in different regions in Kenya ;Farm gate prices for a 90kg bag (Ksh**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  | - | - | - | - | - | - | - | - | - | - | - | - |
| North Eastern |  | - | - | - | - | - | - | - | - | - | - | - | - |
| Rift Valley | Elgeyo M | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 |
| Nyanza |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern | Embu East | 5,400 | 4,500 | 4,500 | 5,400 | 4,500 | 3,400 | 3,150 | 4,050 | 4,050 | 4,500 | 4,300 | 4,300 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 4,500 | 1,800 |
| Coast |  | - | - | - | - | - | - | - | - | - | - | - | - |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

**Green grams Price Variability in different regions in Kenya ;Farm gate prices for a 90kg bag (Ksh**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Province | Region | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Western |  | - | - | - | - | - | - | - | - | - | - | - | - |
| North Eastern | Wajir | 6,300 | 6,300 | 6,300 | 6,300 | 6,300 | 6,300 | 6,300 | 6,300 | 7,200 | 7,200 | 7,200 | 7,200 |
| Rift Valley | Elgeyo M | 12,000 | 12,000 | 14,000 | 14,000 | 14,000 | 14,000 | 1,200 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| Nyanza |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern | Embu East | 9,000 | 5,400 | 6,300 | 7,200 | 7,200 | 4,500 | 5,400 | 7,200 | 7,200 | 9,000 | 9,000 | 9,000 |
| Central | Kirinyaga | - | - | - | - | - | - | - | - | - | - | 7,000 | 6,000 |
| Coast |  | - | - | - | - | - | - | - | - | - | - | - | - |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 201

**Annex 4: Detailed Crop Budgets and Gross Margins**

**See Excel Crop budgets**

**Annex 5: Detailed KCEP activities**

**See Excel Detailed budget**

**WORKING PAPER 3 – POST-HARVEST MANAGEMENT AND MARKET LINKAGES**

1. **BACKGROUND**
2. **Introduction: Food Crop Production in Kenya**
3. Food crop production in Kenya comprising cereals, pulses and tubers takes up more than three quarters (77%) of the total land under crop cultivation in the country with an estimated annual value of US$ 2.4 billion (see Table 1). Cereals (maize, sorghum, millet, wheat, rice and barley) account for almost half (47.4%) of the land under crop cultivation; pulses (beans, cow peas, pigeon peas, green grams, chick peas and dolichos) account for 27.2% and tubers (sweet potatoes, cassava, arrow roots and yams) account for 2.3% of the total land under cultivation. Together, cereals and pulses constitute the grain sector and account for over 97% of the land under food crops. Given this dominance of grains in the land under food crop cultivation in Kenya, the term ‘grain sector’ is many times used interchangeably with ‘food crops’ sector.
4. The crops targeted under the Kenya Cereals Enhancement Programme (KCEP) 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.

**Table 1: Crop production in Kenya, 2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crop** | **Area under production (Ha)** | **Production**  **(MT)** | **Yield**  **(MT/ha)** | **Value of Production**  **(Ksh billion)** |
| FOOD CROPS | 4,331,907 (77.0%) | 6,686,109 |  | 194.6 |
| Cereals | 2,670,590 (47.4%) | 4,454,574 |  | 108.6 |
| Maize  Sorghum  Millet  Wheat  Barley  Rice | 2,131,887 (37.9%)  254,125 (4.5%)  111,271 (2.0%)  131,509 (2.3%)  18,832 (0.3%)  22,966 (0.4%) | 3,796,529  159,877  73,396  268,482  65,235  91,055 | 1.78  0.63  0.66  2.04  3.46  3.96 | 87.8  4.1  2.3  8.1  3.1  3.2 |
| Pulses | 1,533,336 (27.2%) | 813,746 |  | 42.3 |
| Beans  Cow peas  Green Grams  Pigeon peas | 1,036,738 (18.4%)  197,980 (3.5%)  159,910 (2.8%)  138,708 (2.5%) | 577,674  81,534  70,225  84,313 | 0.56  0.41  0.44  0.61 | 30.1  3.6  4.7  3.9 |
| Tubers | 127,981 (2.3%) | 1,417,789 |  | 43.7 |
| OIL CROPS | 134,289 (2.4%) | 156,298 |  | 9.4 |
| HORTICULTURE | 566,228 (10.1%) | 7,785,707 |  | 205.2 |
| INDUSTRIAL CROPS | 596,747 (10.6%) | 5,802,916 |  | 186.2 |
| **Total** | **5,629,171 (100%)** | **20,431,030** |  | **595.4** |

Ministry of Agriculture, Economic Review of Agriculture, March 2012.

1. The long rains, usually starting in March in most parts of Kenya, account for over 70% of the total grain produced in the country while the short rains of October-December account for 25 – 30% of total production. The bulk of sorghum (over 80%) is however produced during the short rains and this scenario somewhat also applies to Pigeon peas which are usually planted in the short rains but extent through to the long rains to be harvested in August/September. Overall, this general pattern does however substantially vary from one area to another depending on the uni-modal or bi-modal rainfall patterns of different parts of the country (see Annex 2).

**Table 2: Grain production in Kenya, 2012 (in 90 Kg bags), by season**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Grain** | **Short rains** | | **Long rains** | | **Total** | |
| **Quantity** | **Per cent** | **Quantity** | **Per cent** | **Quantity** | **Per cent** |
| **CEREALS** | **11,961,976** | **24.3%** | **37,176,566** | **75.7%** | **49,138,542** | **100.0%** |
| Maize | 10,912,783 | 23.0% | 36,623,558 | 77.0% | 47,536,340 | **100.0%** |
| Sorghum | 676,519 | 84.2% | 127,302 | 15.8% | 803,821 | **100.0%** |
| Millet | 372,674 | 46.7% | 425,706 | 53.3% | 798,380 | **100.0%** |
| **PULSES** | **4,378,104** | **44.3%** | **5,513,663** | **55.7%** | **9,891,765** | **100.0%** |
| Beans | 2,409,121 | 38.6% | 3,831,678 | 61.4% | 6,240,799 | **100.0%** |
| Cow peas | 708,040 | 48.1% | 763,019 | 51.9% | 1,471,049 | **100.0%** |
| Pigeon Peas | 710,834 | 72.1% | 275,590 | 27.9% | 986,424 | **100.0%** |
| Green grams | 550,109 | 46.1% | 643,376 | 53.9% | 1,193,484 | **100.0%** |
| **Total** | **16,340,080** | **27.7%** | **42,690,229** | **72.3%** | **59,030,309** | **100.0%** |

Source: Ministry of Agriculture, May 2013

1. 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 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.
2. **The maize value chain**
3. Maize is the main staple food in Kenya, generally consumed for breakfast in the form of porridge, and in the form of either grain (usually mixed with pulses or mashed with potatoes) or maize meal (Ugali) for lunch and dinner depending on the community. Although there are varying estimates on per capita consumption ranging from 90kgs – 125Kgs, there is a general agreement that consumption levels are high and have been on the rise (Tegemeo Institute, MOA). While consumption patterns vary from one community to another, maize is consumed in literally all parts of the country cutting across the various income quartiles, but particularly entrenched among poor rural communities across the country. When there is a shortage in maize production in a region, that region has famine regardless of the production levels of the other crops in the area.
4. Perhaps due to the cultural entrenchment of maize in the consumption patterns of most communities in Kenya, maize production is also practiced in all parts of the country, even in the semi-arid and arid areas where it is known that it cannot perform well without irrigation. Under rain-fed production systems which account for over 98% of maize production in Kenya, maize performs well in areas with 450 – 600mm of rainfall during the growing season. It requires warm temperatures with a daily mean of not less than 19oC. Rough estimates show that it is only about half of the land under current maize production that is in areas that are agro-ecologically suitable for optimal production (see Table 3). There are however maize varieties developed for the drier, less suitable zones but these have generally lower productivity levels unless in areas where irrigation is possible.

**Table 3: Maize production in Kenya by main agro-ecological zones**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Agro-ecological Zone | Altitude (m) | Rainfall  Mar – Aug | Mean Temp  oC | Maize area 2001 – 10 | Per cent of cultivated are |
| Lowland tropics | 700 – 1400 | 300 – 550 | 25.6 | 33,000 | 3.2% |
| Dry mid altitude | 1100 – 1500 | 300 – 550 | 22.0 | 79,000 | 7.7% |
| Moist mid altitude | 1100 – 1700 | > 550 | 22.1 | 118,000 | 11.3% |
| Dry transitional | 1100 – 1700 | < 550 | 19.7 | 37,000 | 3.6% |
| Moist transitional | 1200 – 2000 | >500 | 19.7 | 425,000 | 40.9% |
| Highland tropics | 1600 – 2900 | > 550 | 16.7 | 307,000 | 29.6% |

Source: ACDI/VOCA, Maize handbook, 2010

**The supply of Maize in Kenya**

1. **Maize production clusters:** The North Rift, South Rift, Western and parts of Nyanza are the main maize growing areas in Kenya. The key production clusters in these areas are Trans Nzioia, UasinGishu and West Pokot in the North Rift; Transmara, Nandi, Nakuru and Loitoktok in South Rift; and Bungoma and Kakamega in Western regions (see Annex 2). Other important production clusters include Migori, Kisii and Siaya in Nyanza; Meru in Eastern; and Mpeketoni/Lamu and Shimba hills/Kwale in Coast regions. In total, there are at least 41 distinct and identifiable key maize production clusters. Four of these are in the North Rift, 5 in South Rift, 4 in Nyanza, 3 in Coast, 2 in Western and 1 in Eastern. These constitute key geographical nodes for the value chain where innovations and catalytic initiatives geared at transforming the maize sector can have system-wide effects.

**Table 4: Maize Production in Kenya by region, 2012 (90Kg bags)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Short rains** | | **Long rains** | | **Total** | |
| **Quantity** | **Per cent** | **Quantity** | **Per cent** | **Quantity** | **Per cent** |
| North Rift | 48,823 | 4.1 | 11,770,349 | 95.9 | 11,819,172 | 100.0 |
| South Rift | 1,744,073 | 4.9 | 8,586,753 | 95.1 | 10,330,826 | 100.0 |
| Nyanza | 2,549,545 | 35.2 | 4,702,200 | 64.8 | 7,251,745 | 100.0 |
| Western | 234,720 | 3.9 | 5,856,390 | 96.1 | 6,091,110 | 100.0 |
| Eastern | 4,165,605 | 76.8 | 1,255,305 | 23.2 | 5,420,910 | 100.0 |
| Coast | 808,482 | 23.3 | 2,665,355 | 76.7 | 3,473,837 | 100.0 |
| Central | 1,363,328 | 47.7 | 1,493,049 | 52.3 | 2,856,377 | 100.0 |
| Nairobi | 8,397 | 51.1 | 8,038.5 | 48.9 | 16,436 | 100.0 |
| North Eastern | 3,330 | 48.5 | 3,530 | 51.5 | 6,860 | 100.0 |
| **Total** | **10,912,783** | 23.0 | **36,623,558** | **77.0** | **47,536,340** | 100.0 |

Source: Ministry of Agriculture, Provincial Annual Production Reports, May 2013

1. While there are clear regions in Kenya that are leading in maize production and have agro-ecological comparative advantage, it is important to note that maize production is currently spread throughout the country. Technological advancements in cultivar adaptation to various agro-ecological zones even without irrigation make it possible to cultivate maize in many parts of Kenya. The range of areas suitable for maize production expands even further once irrigation possibilities are introduced (such as in Tana River, Garissa and even Turkana). Some of these other less notable production clusters have distinctive competitive advantages, some in terms of proximity to areas of perennial deficits (such as Loitoktok, Shimba Hills and Mpeketoni), while others have advantages in proximity to large urban markets (such as some Central/Eastern Kenya clusters) where almost 50% of maize cultivated is already starting to enter the market as green maize.
2. The main motivation (and driver) for smallholders farmers to cultivate maize is, first and foremost - for own household consumption with the main goal being food self-sufficiency beyond which surpluses can be sold for cash income. In the agro-ecological zones where maize is still the cereal with the highest productivity levels (up to L2 -4), this key driver is likely to remain in force well into the foreseeable future. This is something that initiatives geared at developing the maize value chain should bear in mind when making decisions on geographic targeting. While promotion of maize cultivation should obviously be promoted only in zones where it is agro-ecologically possible to achieve economic levels of production, clusters outside the main maize producing zones should not be neglected on account of not being top ranked. This is something that KCEP should take into consideration, at least in the scale up phase.
3. **Seasonal variability in production/supply**: For the production clusters in North Rift, Western and even many parts of the South Rift, maize is produced uni-modally with planting taking place in February/March and harvest coming in November/December depending on the maturity period of the variety planted. Farmers must therefore acquire all key planting inputs and have completed harvesting by mid-February to be ready for the onset of the long rains in March. Depending on the area, maize supply increases once harvesting starts from November through January/February although there are minor variations depending on the elevation and seed varieties planted. In these areas, readiness for harvesting, grain conditioning (drying) and storage is therefore essential in October/November. It is also at this time that activities related to market access such warehousing infrastructure and establishment of business partnerships need to be in place to effectively support the maize marketing window of November – March. Owing to the uni-modal nature of maize production in these zones, farmers usually must store sufficient grain to last them to the next harvest season - usually 12 months away. This long period of storage generally exposes farmers to significant post-harvest losses if appropriate storage practices are not adopted.
4. Although maize production clusters with bi-modal rain patterns are not as important as those with uni-modal rains in terms of total production, they constitute an important advantage in the supply of maize in Kenya. In these clusters, long-rains production is harvested in July/August while short-rains production is harvested in February/March. The varying production cycles, usually bring an important stabilizing factor in maize supply in Kenya. It is however also a major point for uncertainty in the sector, particularly in terms of futures market. Given that almost all maize in the country is produced under rain-fed conditions, farmers in one production zone are usually not too sure on how long to store their maize before selling in case other producing zones experience good harvest and flood the market. This is an important consideration in planning for a warehouse receipting system, which is based on price appreciation between the time of harvest and the point of selling. In general terms however, maize prices are highest in June/July.
5. For most maize production clusters, the transition period from harvesting to planting in February always poses a challenge to many farmers and accounts for significant post-harvest losses and deterioration in the quality of maize, particularly when the March rains have an earlier than normal on-set. In the Eastern region, the alarming prevalence of aflatoxin in recent years has emerged due to poor weather conditions during harvesting/drying period. This overlap in seasons also imposes significant demands on family labour and, combined with inefficiencies in accessibility of farm inputs and services for land preparation, account for significant reduction in production due to late planting or late application of essential inputs. This is a specific period that KCEP must take measures to ensure that targeted farmers are adequately equipped to deal with the challenges posed by this transition period.

**Table 5: Maize production and marketing calendar for different regions in Kenya**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Region | Jan | | Feb | Mar | Apr | May | Jun | Jul | Aug | | Sep | Oct | Nov | Dec |
| Western |  | | Planting (L/R) | |  |  |  |  |  | | Planting (S/R) | |  |  |
|  | | Harvesting (S/R) | |  |  |  |  |  | |  | Harvesting (LR) | | |
| Marketing | | | |  |  |  |  |  | |  | Marketing | | |
| North Rift |  |  | | Planting (L/R) | |  |  |  |  | |  |  |  |  |
| Harvesting | | |  |  |  |  |  |  | |  |  | Harvesting (L/R) | |
| Marketing (L/R) | | | |  |  |  |  |  | |  |  | Marketing (L/R) | |
| South Rift |  | | Planting (L/R) | |  |  |  |  |  | | Planting (S/R) | |  |  |
|  | |  | Harvesting (S/R) | |  |  | Harvesting (L/R) | | |  |  |  |  |
|  | |  | Marketing (S/R) | | |  | Marketing (LR) | | | |  |  |  |
| Nyanza |  | | Planting (L/R) | |  |  |  |  |  | | Planting (S/R) | |  |  |
| Harvesting (S/R) | | |  |  |  |  | Harvesting (L/R) | | | |  |  |  |
| Marketing (S/R) | | | |  |  |  | Marketing (L/R) | | | |  |  |  |
| Eastern |  | |  | Planting (L/R) | |  |  |  | |  |  | Planting (S/R) | |  |
|  | | Harvesting (S/R) | |  |  |  | Harvesting (L/R) | | |  |  |  |  |
|  | | Marketing (S/R) | | |  |  | Marketing (L/R) | | | |  |  |  |
| Central |  | | Planting (L/R) | |  |  |  |  |  | |  | Planting (S/R) | |  |
|  | | Harvesting (S/R) | |  |  |  | Harvesting (L/R) | | |  |  |  |  |
|  | | Marketing (S/R) | | |  |  | Marketing (L/R) | | | |  |  |  |
| Coast |  | |  |  | Planting (L/R) | |  |  |  | |  | Planting (S/R) | |  |
|  | |  |  |  |  |  |  | Harvesting (L/R) | | |  |  |  |
|  | | Marketing (S/R) | | |  |  |  | Marketing (L/R) | | | |  |  |

Source: Adapted from COMPETE Staple Foods Value Chain Analysis, 2010

1. **Trends in maize production:** Maize production in Kenya has been on a general upward but at times erratic trend over the last decade, rising from 27.3 million bags in 2004 to 37.5 million bags in 2011. Provisional figures from the Ministry of Agriculture, Livestock and Fisheries (MALF) suggest that production in 2012 increased to 47.5 million bags mainly accounted for by the good weather conditions experienced during the year. This represents an average annual growth rate of about 5% over the period to the year ending 2011. The two major factors accounting for this growth are expansion in land under cultivation, which increased from 1.82 million hectares in 2004 to 2.13 million hectares in 2011 (2.5% average annual growth) and increases in maize yield per hectare planted, which has increased from 15.0 bags in 2004 to 17.6 bags in 2011 (a 2.4% average annual increase).

**Table 5: Trends in maize Production in Kenya 2004 - 2012**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012\* |
| Area (Ha) | 1.82 | 1.76 | 1.89 | 1.62 | 1.79 | 1.89 | 2.01 | 2.13 | 2.16 |
| Quantity (bags) | 27.25 | 32.42 | 36.09 | 32.54 | 26.30 | 27.14 | 38.49 | 37.52 | 47.5 |
| Yield (bags/ha) | 15.0 | 18.0 | 19.0 | 20.1 | 14.7 | 14.5 | 19.2 | 17.6 | 22.0 |
| Avg. Price Ksh/bag | 1,482 | 1,363 | 1,300 | 1,200 | 2,500 | 2,614 | 1,619 | 2,341 | - |
| Consumption (bags) | 31.13 | 32.12 | 33.11 | 34.10 | 36.0 | 43.85 | 41.01 | 41.38 | - |
| Import (bags) | 2.7 | 0.6 | - | 1.12 | 2.71 | 16.76 | 2.55 | 3.99 | - |
| Population (m) | 34.70 | 35.62 | 36.54 | 37.49 | 38.46 | 39.46 | 40.51 | 41.61 | 42.75 |
| Per capita consu’tn | 80.7 | 81.2 | 81.6 | 81.9 | 84.2 | 100.0 | 91.1 | 89.5 |  |

Source: Ministry of Agriculture, Livestock and Fisheries; Provincial Annual Production Reports, May 2013

1. Despite the positive growth in maize production, Kenya has not yet been able to attain self-sufficiency in maize production and continues to rely on imports to bridge the demand-supply gap – usually ranging from 2 – 4 million bags annually. This is mainly accounted for by the compounded annual population growth of 2.73% in the face of an increasing per capita consumption of maize which has risen from 80 Kgs in 2004 to about 90kgs in 2011 (see table 5).
2. Whereas the rising population and per capita consumption are important factors explaining the continued supply - demand gap in maize, many keen observers of the industry feel these factors alone cannot fully explain the continued deficits. They feel that a significant portion of the deficits are explained by post-harvest losses which are variously estimated to range from 10 – 30%. Overall, the general agreement is that Kenya is likely to continue facing maize deficits into the foreseeable future unless significant efforts are made to reverse the situation. Given that the limits for rainfed expansion of land under production has generally been reached, main efforts must focus on increasing land productivity and arresting post-harvest losses. KCEP is therefore highly relevant given these are the two main issues it is designed to address. The third area presenting significant promise for bridging the continued maize deficits in Kenya is expansion of maize production under irrigation. This is however an intervention area that requires a longer term planning horizon to achieve meaningful results.

**The demand for maize in Kenya**

1. **Maize utilization**: The bulk of maize produced in Kenya is used in human consumption either as whole grain or processed into flour. Other important uses are in animal feed processing accounting for 3 % of total production, and seed production through either retention of grain by farmers for planting or by seed companies for sale in the domestic and regional markets. Although there are variations from year to year, post-harvest losses are estimated to account for between 10 – 30% of total maize production and, although it occurs at all levels of the value chain, more than 60% of losses occur at the producer farmer level (NCPB, Ministry of ALF, Tegemeo).

**Figure 1: Maize utilization flow chart, 2011**

Source : USAID COMPETE (2010) ; Ministry of Agriculture, Livestock and Fisheries (2013)

Medium and large scale production

Production = 11 million bags (MT 1.0 m)

Smallholder production

Production = 26 million bags (MT 2.3 m)

Total production = 37 million bags

Animal feed

= 3%

(1.1 m bags)

P/harvest losses = 10 – 30%

(4 – 11 m bags)

Seed = 1%

(0.4 m bags)

Other uses (industrial etc) = 1%

(0.4 m bags)

Human consumption = 85%

(32 m bags)

1. **The demand for maize in Kenya** can be viewed from two broad angles/segments – the demand for own household consumption needs by maize producing households and the demand for maize beyond the needs of producing households. Estimates by KARI suggest that Kenya has about 3.0 – 3.5 million maize farmers each with an average household size of 6.2 members. Using the average per capita maize consumption in Kenya of 90kgs per person per year, the rough estimated demand for own-consumption by producing households can be roughly estimated to be 18.6 million bags. This is however likely to be a conservative estimate given that producing households (and rural households in general) have higher per capita maize consumption levels than the general population estimated to be in the region of 125Kgs per person per year implying that the demand for own-consumption by maize producing households is likely to be between 18 – 25 million bags per year. Estimates by Tegemeo Institute however show that only about 30 - 40% of maize farming households produce enough maize for their own consumption, with surpluses to sell. The majority of farmers do not produce enough maize for their own household consumption and are therefore net buyers of maize. Although there are no accurate estimates on the deficit levels among the 60 - 70% of maize farmers who do not produce enough for their own household consumption, anecdotal information suggests that the deficit levels could be 40-50% of their annual maize consumption needs. This roughly translates to a deficit of 6 – 10 million bags among maize producing households.
2. Own-consumption, driven by the need for food self-sufficiency, is the main driver for maize production among most smallholder farmers. Overall estimates suggest that 12 – 15 million bags (35 – 40%) of maize produced in the country are retained by producing households for own-consumption. This however still leaves a gap of 6 – 10 million bags which must be met through purchases in the market. The general increase in maize prices over the last decade (from an average of Ksh 1,482 in 2004 to 2,341 per bag in 2011 – see Table 5) which makes it more difficulty for smallholder farmers to afford purchasing maize from the market continues to fuel further the need for smallholder farmers to produce maize for their own consumption. With continued population growth, this ‘demand’ is likely to continue growing, pushing farmers to produce maize even in agro-ecological zones where maize cannot perform well. This is an area of demand that KCEP must address. The economic returns of investments made towards meeting this demand for food self-sufficiency must however be measured against the financial outlays these net-buying producer households would have spent in purchase of maize rather than the mere increase in incomes resulting from increased productivity.
3. **Marketed maize accounts** for 60 -65% of total maize produced without taking into account post-harvest losses which take place at all levels of the value chain. This portion of production largely goes to four main market segments: rural households; low income urban households; medium and high income urban households; and the animal feed industry, each with some distinct characterization. The **rural household demand** for maize is accounted for by maize farming households who do not produce enough for their own consumption; households who do not produce maize at all either due the agro-ecological zone or their occupational inclination (esp. pastoralists); or are based in rural commercial centers away from their farms. It also includes institutions based in rural areas – schools and other learning institutions; hospitals; hotels and restaurants. Given that about 75% of Kenya’s population is based in rural areas, it is estimated that about 30 million bags of maize are consumed in rural areas – 12 – 15 million bags produced by consuming households and the balance supplied through the market. Rough estimates suggest that about half of maize in this market segment is consumed in the form of grain and about half in the form of flour. Between 60 – 75% of flour consumed by rural households is milled by small scale posho/hammer mills as a service to farmers who take maize to the miller in the form of grain and, at a fee of Ksh 10 – 15, get their grain milled into un-sifted (grade 2) or sifted (grade 1) flour, respectively. The rest of flour is purchased in rural retail outlets in the form of packaged sifted maize flour mainly milled in urban areas by medium and large scale industrial millers

**Figure 2: Kenya Maize Subsector Map, 2013**

Market/End use

Urban hh – low income

Urban hh – M & high income

Animal Feed market

Rural hh

Retailers (grain & flour

Wholesale &Retai

Agrodealers

Wholesale/distribution (Grain & flour)

WFP

Hammer/posho millers

2.4 million bags

Sifted maize millers

Animal feed millers

Processing

Bulk Grain handlers

Trader stores

Community warehouses

NCPB

110 facilities

7 m bags

Storage

**Imports : 2 – 4 m bags**

Medium & Large Grain traders

Small scale traders and brokers

Aggregation

Medium and large scale farmers

Transportation

Production

Smallholder farmers :

commercial

Smallholder farmers

Subsistence

Own seed ; farmyard manure

Input

Supply

Input suppliers (seed, fertilizer, agrochemicals, others

Research

KARI ; CYMITT, Univesities

**CHANNEL 2**

Industrial processed maize channel

**CHANNEL 1**

Whole grain maize channel (Dry & Green)

1. In general, rural households can be said to constitute the biggest market segment for maize in Kenya, accounting for up to 80% of the total maize consumed in the country. This is a market segment with deeply entrenched consumption habits for maize where availability and price are the most important considerations and quality is of secondary importance. Demand in this market segment is expected to continue growing driven by increasing population, declining capability of households to produce for their own consumption as a result of adverse climatic changes and positive (albeit modest) growth in incomes.
2. **Urban households** comprise the second most important market segment for maize with low income households accounting for over two thirds of consumption estimated at 7 – 8 million bags annually. An estimated 20 – 30% of the total maize consumption by the **urban poor** reaches the consuming households in the form of grain, partly supplied by producing households and partly purchased at grain wholesale and retail markets (USAID COMPETE, 2010). To cut down on cost of flour, poor urban households will usually purchase maize in the form of grain and process it into flour at small scale posho/hammer mills which dot all low income settlements in Kenya. With increasing maize retail prices (going for up to Ksh 40/Kg in urban areas), this option has however increasingly become untenable and many urban low income households are therefore increasingly turning to packaged maize flour which retails at between 90 – 100 Ksh per 2Kg packet (for grade 2 flour). The share of sifted maize flour consumed in the urban poor household market segment has therefore been increasing at it is now likely to be much higher than the 70 – 80% of maize consumption in this segment estimated 3 years ago. Like in the rural households market segment, maize constitutes the main foodstuff in this market segment and, given low incomes, availability and price are the key most important considerations rather than quality, packaging and other aesthetic attributes. Unlike the rural households, many of whom partly produce their own maize, maize accessibility in the urban poor market segment is extremely important and has significant political sensitivities. Demand in this market segment is expected to continue growing fuelled by increasing population of base populations, increased rural-urban migration, and increasing incomes.
3. The **urban middle and high income** market segments, though small, with an estimated 2 – 4 million bag annual demand represents an important growth trajectory for the value chain especially for diversified products. Consumption is largely in the form of sifted grade 1 flour retailed through high end retail chains, green maize and breakfast cereals.
4. The **animal feed industry** takes an estimated 1.1 million bags of maize and although accounting for only about 3% of total maize consumption in the country, it still constitutes an important market segment. This is particularly given its close association with the human-consumption milling industry which supplies it with byproducts from the maize milling process. The continued growth and commercialization of the dairy, chicken, pork and apiculture industries provide good prospects for growth of this market segment.

**Organization of the maize value chain**

1. Compared to the other value chains targeted under KCEP, the maize sub-sector is by far the largest and most well developed with a significant number of players at all levels of the chain. Figure 2 (above) presents a simplified map of the sub-sector along the various functional areas, starting from research and development to wholesale and retail trade to the various market segments discussed in (b) above.
2. **Research and Development**: Due to the central place of maize in Kenya’s food security, the value chain has a fairly well developed research and development support infrastructure. The key institutions involved in research are the Kenya Agricultural Research Institute (KARI), the Maize Breeders network for Africa, the International Maize and Wheat Improvement Center (CIMMYT) and public Universities. Major research efforts have been in cultivar/seed variety development for yield, agro-ecological adaptability and tolerance/resistance to various diseases, pests and weeds. There is fairly strong public-private partnership in research, particularly involving private seed companies. Until 2010 over 70 maize varieties had been developed and 50 of them are currently in the market, 20 of them with widespread adoption by farmers. While continued research and development is required, a key issue at this level is the transfer of R&D knowledge for adoption, particularly by smallholder farmers.
3. **Input supply**: The key inputs in maize production are seeds, fertilizer and agrochemicals (besides land and labor). Detailed discussions of the sector organization and key issues at this level are covered in detail in Technical Working Paper I relating to Component I. With regards to seed production and supply it is however worth noting that Kenya has at least 15 registered seed companies/organizations (including KARI) involved in supply of maize seed in Kenya. Two thirds of these are local and the rest are branches of international companies, including Monsanto. Kenya Seed Company (KSC), a privatized government parastatal still with government shareholding is the oldest and largest with a market share estimated at 87% of the total certified maize seed sold to farmers (USAID COMPETE). Appendix 2 provides a list of the main seed companies and their seed varieties available in the market.
4. The Seed Trade Association of Kenya (STAK) is the main association of stakeholders in the seed supply in Kenya and its members control over 98% of the certified maize seeds sold in the country. Every year, STAK publishes a list of the maize seed varieties available in the market with recommendations on areas suitable for their cultivation, seed planting rates for different AEZs and expected yield levels. In 2011 a total of 24, 694 MT of seed maize was supplied in Kenya (88% locally produced). With a recommended seed rate of 10kgs per acre, the total seed supplied would be sufficient for only 1m of the 2.13 million hectares of land planted with maize in that year. This would suggest that the estimates provided by Tegemeo Institute suggesting that 30 – 40% of maize farmers in Kenya do not use certified seed may actually be quite conservative. It is a key area of concern which must be addressed for improved yields.

**Table 6: Yield levels of selected maize varieties in Kenya by agro-ecological zone suitability**

|  |  |  |  |
| --- | --- | --- | --- |
| Altitude/AEZ (in metres above sea level) | Variety | Yield (90kg bags/acre) | Maturity (in days) |
| 1. **Highlands: 1,500 – 2,800** |  |  |  |
| 1,700 – 2,100 | H6213 | 52 | 160 – 190 |
| 1,700 – 2,100 | H6210 | 50 | 160 – 190 |
| 1,700 – 2,400 | H614 | 38 | 160 – 190 |
| 1. **Medium zones: 1,000 – 1,700** |  |  |  |
| 1,000 – 1,800 | H624 | 32 | 140 – 180 |
| 1,200 – 1,800 | H520 | 32 | 140 – 180 |
| 1,000 – 1,800 | H513 | 24 | 100 – 150 |
| 1. **Dryland zones: 800 – 1,200** |  |  |  |
| 800 – 1,200 | DH04 | 19 | 100 – 120 |
| 800 – 1,200 | DH02 | 15 | 100 – 120 |
| 1. **Lowland zones: 0 – 1,200** |  |  |  |
| 0 – 1,200 | PH4 | 20 | 90 – 120 |
| 0 – 1,200 | PH1 | 15 | 75 – 120 |

Source: Kenya Maize Handbook; ACDI/VOCA, 2010

1. A second issue of concern in the area of seed supply is the adoption rate of new maize varieties, particularly by smallholder farmers. Information available from various sources including KARI, Ministry of Agriculture and STAK show that the highest yielding maize seed variety widely adopted by farmers is H614 from Kenya Seed Company – with estimated yield levels of 38 bags per acre. This is however a variety that has now been in the market for over 18 years and other more adapted and higher yielding varieties have since been developed and released to farmers (such as H6120 and H6213) with estimated yield levels of 50, and 52 bags per acre, respectively (see Table 6). The adoption of these newer seed varieties is however still quite low. The extent to which improved seed varieties are adopted by smallholder farmers and combined with good crop husbandry practices to reach a good proportion of the recommended yield levels is a key area that must be addressed. The national average yield of 7 – 8 bags per acre (18 bags per hectare) is a far cry to the yield levels of up to 50 – 52 bags per acre (10 – 13 MT/hectare) which seed companies and research institutes claim to be possible. This is an area KCEP must conscientiously address.
2. **Fertilizer**: Kenya has experienced a steady increase in annual consumption of fertilizer from 220,000 MT in 1990 to 530,000 MT in 2012 (an average of 6% annual growth). Despite this steady increase, fertilizer use in the country is still quite low. With a recommended basal and top-dressing application rate of 50kg per acre (for each) for maize, this would imply that the total supply of fertilizer in Kenya would hardly be sufficient to meet the annual fertilizer requirement for the 2.16 million hectares planted with maize in 2012. Estimates by Tegemeo (thought by many to be on the higher side) show that although 70% of maize farmers use fertilizer, the application rate remains low standing at 59 Kg/acre (against recommended level of 100 kg/acre). Fertilizer use is however higher in the high maize potential zones (going as high as 90%) while it is quite low (30%) in lower potential zones (Tegemeo).
3. Almost all (98%) fertilizer used in Kenya is imported. The main players in fertilizer supply in the country include 11 fertilizer importers, 500 wholesalers/distributors and about 8,000 retailers. Over a long time, private commercial importers accounted for 80 – 90% of total fertilizer imports with the balance accounted for by government and various donor programs. Over the last five years, the government has however stepped up its involvement in importation, distribution and subsidization of fertilizer through various programs. Over this period, the government supply of fertilizer has increased from 4,500 MT (1.3% of total) in 2008 to 99,116 MT (25.6% of supply) in 2012. Table 7 below shows the level of government subsidization of the main types of fertilizer in the market in 2012 in a bid to increase the accessibility of fertilizer among smallholder farmers. The ultimate target by government to reduce the cost of fertilizer and to increase its accessibility to farmers is to establish a fertilizer manufacturing plant in Kenya. Although this is something that is at advanced stages of planning, it is expected that Kenya will continue depending on imported fertilizer during the implementation period of KCEP.

**Table 7 : Government fertilizer subsidies, 2012**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/no. | Fertilizer Type | Market price for 50kg bag (Ksh) | Subsidized price for 50kg bag (Ksh) | Subsidy rate (%) |
|  | DAP | 4,200 | 2,500 | 40% |
|  | CAN | 2,500 | 1,600 | 36% |
|  | NPKs | 3,800 | 2,000 | 47% |

Source : Economic Review of Agriculture 2013; MALF, April 2013.

1. **Production:** 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.
2. The second category of smallholder maize farmers comprises small-scale farmers who are able to produce maize quantities beyond their household consumption needs. 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. Given the large numbers, initiatives aimed at influencing production among smallholders must however be designed with an inbuilt mechanism for scale. They must be capable of reaching large numbers.
3. Medium and large scale maize farmers comprise only about 1% of total producers but account for about 30% of total production largely due to higher efficiency levels related to mechanization, use of inputs and wider adoption of good agricultural practices. In general, yield levels are however still much lower than in benchmark countries generally accounted for lower than average application of inputs and adoption of modern technologies.
4. The horizontal linkage between players at the production stage is generally poor in the maize value chain, particularly among smallholder farmers. At the national level, there are two main relevant farmer associations: the Cereals Growers Association (CGA) and the Small scale grain Growers Association (SSCGA).
5. The **Cereals Growers Association (CGA)** of Kenya is a membership organization of cereals growers established in 1996 following the liberalization of the grain sector in Kenya and the collapse of the government-managed Kenya Grain Growers Cooperative Union (KGGCU). Its mandate is to “organize farmers into fully functioning business structures and offer business support services that will grow their farming businesses and improve livelihoods”. Its operations are spread around 3 broad thematic areas including: farmer mobilization, training and provision of extension services; farmer linkages to input, service and output markets (including post-harvest services); and policy and advocacy services. Current information shows that it has a total of 240 members (groups and individual members) spread across various parts of the country with a strong presence in the key maize and wheat growing areas of the Country. At the national level, it is affiliated to the **Kenya National Federation of Agricultural Producers (KENFAP)** as the main commodity association representing maize and wheat farmers at the national level. It is also a member of the **Eastern Africa Grain Council (EAGC)**. Partly because CGA is considered as the main national farmer representative body for maize growers, it has been an implementing partner for all major past and current development programs targeted at the maize sector in Kenya over the past decade including USAID/ACDI-VOCA KMDP (2002-2012); USAID/COMPETE; USAID/MLI; WFP –F4P; and AGRA. Overall assessment is that CGA is a fairly strong organization which can foster stronger horizontal linkages among smallholder farmers in the maize sub-sector for faster and more inclusive integration into the value chain.
6. **The Small Scale Cereal Growers Association (SSCGA)** is also a membership organization for farmers in the cereals sector in Kenya. It was formed to specifically address the plight of smallholder farmers who felt that their needs were not sufficiently being addressed by the broader association of the sector (CGA) which incorporates large-scale grain growers (largely of wheat, barley and maize). Although with noble ideas for representation of smallholder farmers and their full integration into the cereals value chains, the association is fairly weak and requires support for it to fulfill its mandate. Given that KCEP’s target is the very small scale maize farmers, support for the strengthening of SSCGA is something that strongly merits consideration. This should however be done upon further assessment of the two sector associations to ensure that the existence of the two associations does not bring confusion and undue duplication of services among smallholder farmers.
7. **Post-harvest handling, aggregation and marketing:** Since the liberalization of the maize sector in Kenya in the 1990s, marketing of maize in the country has become heavily dominated by traders - small, medium and large-scale, handling produce assembly, bulking and transportation to wholesale markets and supply to bulk buyers – mainly millers, bulk grain handlers and the National Cereals and Produce Board. Although bulk buyers do not have a deliberate policy of not buying from smallholder farmers, their operations generally inhibit smallholder farmers from accessing their buying facilities. This is mainly accounted for by distance of buying facilities and economic volumes for transportation, grain quality standards, and period of waiting before payment is released (for NCPB, sometimes going to 6 months). As a result, these market outlets for maize producers are generally only directly accessible to medium and large scale producers. Only a small percent (2%) of smallholder farmers, operating in organized form are currently able to access these market outlets. The rest of smallholder farmers are forced to sell their maize through small and medium scale traders, usually at farm-gate or village level shopping centers generally soon after harvesting. At this time, prices are usually at rock-bottom, in 2012 ranging from Ksh 1,500 – 1,800 per 90 Kg bag.
8. Table 8 shows the main parameters for maize quality in Kenya. These standards have now been harmonized within the Eastern Africa region and are supposed to be enforced in cross-border trade. Most large buyers only purchase Grade 1 and 2 maize (K1 and K2) and therefore smallholder farmers wishing to penetrate these markets (which offer better prices even at harvest time), must adhere to. The main quality shortfalls for smallholder farmers result from poor drying practices (moisture content; rot, discoloration and foreign matter presence; and aflatoxin); poor shelling (broken/cleanliness), and poor storage (disease/insect infestation). These are also the areas that account for significantpost-harvest losses among smallholder farmers. For market access, improved food safety and reduction in post-harvest losses, these are areas that need to be effectively addressed.

**Table 8: Kenya Maize Quality Standards**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Purity attributes | Maximum Per cent by weight | | | | | |
| Grade 1 (K1) | Grade 2 (K2) | Grade 3 (K3) | Grade 4 (K4) | Other | Reject |
| Foreign Matter (Max %) | 1 | 1 | 1 | 1 | >1 | >1 |
| Broken maize (Max %) | 2 | 3 | 4 | 6 | >6 | >6 |
| Pest damaged (Max %) | 3 | 5 | 7 | 10 | >10 | >10 |
| Rotten and diseased maize and discoloured | 2 | 3 | 4 | 6 | >6 | >6 |
| Other colored maize (Max %) | 2 | 3 | 4 | 8 | >8 | >8 |
| Moisture content | 13.5 | 13.5 | 13.5 | 13.5 | >13.5 | >13.5 |
| Aflatoxin (ppb) | <10 | <10 | <10 | <10 | <10 | >10 |

Source: EAGC, 2013; Kenya Maize Hand Book , 2010.

1. **The National Cereals and Produce Board (NCPB)** is a key player in maize marketing in Kenya. One of its key mandates is maintaining the National Strategic Food Reserves by purchasing from farmers during periods of surplus and offloading into the market during periods of deficit. To perform this function, the Board has a total of 112 storage facilities strategically located across the country with a total capacity of 20.9 million bags or slightly more than 50% of total maize production in the country (see table 9). For various reasons however, the current capacity utilization is significantly low estimated to be below 15% comprising 2.4 million bags under the National Strategic Food Reserves and grain stored under leasing arrangements with private sector grain handlers, grain merchants and some large scale farmers. This is an existing storage capacity that presents a significant opportunity for improved grain handling and storage for the maize value chain. KCEP should explore mechanisms for exploiting this opportunity for the advantage of targeted smallholder farmers.

**Table 9: Distribution of National Cereals and Produce Board (NCPB) Grain Storage facilities, 2013**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Region | Number of facilities | Grain capacity | | |
| In 90 kg bags | In MT | Per cent |
| 1. Rift Valley | 49 | 10,555,000 | 949,200 | 50.3% |
| 1. Western | 12 | 2,170,000 | 195,300 | 10.4% |
| 1. Nairobi | 3 | 2,115,000 | 190,350 | 10.1% |
| 1. Eastern | 16 | 1,899,000 | 170,910 | 9.1% |
| 1. Nyanza | 13 | 1,652,000 | 148,680 | 7.9% |
| 1. Central | 8 | 1,225,000 | 110,250 | 5.8% |
| 1. Coast | 8 | 973,000 | 87,570 | 4.6% |
| 1. North Eastern | 3 | 380,000 | 34,200 | 1.8% |
| Total | 112 | 20,969,000 | 1,886,460 | 100.0% |

Source: NCPB, 2013

1. Besides the NCPB, the other major players in maize storage include medium and large grain handling companies; millers and grain merchants. Grain Bulk Handlers, Lesiolo Grain Handlers and Export Trading Company are three of the main bulk grain handling firms with significant storage capacity. All these have more that 100% capacity utilization of their facilities and at times hire out facilities owned by NCPB. All these specialized grain handlers express willingness to work with smallholder farmers and could provide an avenue for partnership with farmers in professionalizing management of farmer/community owned storage facilities. Other important private sector players with significant capacity and experience in grain handling include millers and a number of large scale maize farmers such as Ole Rai farm in Narok. These add to the list of potential private sector partners who could be used to professionalize the operations of farmer-driven warehouse facilities without losing the advantages of farmer ownership.
2. **Processing:** The main form of processing for maize in Kenya is milling of maize grain in flour. Milling in Kenya is undertaken by three broad categories of players comprising: medium and large industrial millers for maize and wheat numbering 109; small scale millers estimated to be in their hundreds (perhaps upwards of 500) and micro level millers who generally offer milling services using hammer/posho mills to consumers who bring their grain to the mills. Rough estimates put the total number of posho/hammer mills in Kenya to around 10,000.
3. The medium and large industrial millers are horizontally linked to each other through their association – the Cereal Millers Association (CMA) whose membership stands at 109. Out the 109 members, 19 are estimated to have large scale operations with a daily processing capacity of over 1,000 MT. CMA estimates that these large scale processors account for over 85% of the total installed milling capacity in Kenya. Unga limited visited during the KCEP Design Mission has a daily processing capacity of 25,000 bags (2,250 MT). The other large scale millers include Mombasa Maize Millers; Pembe Flour Mills; and United Millers. Discussions with millers show a cautious but positive willingness to source from smallholder farmers. Positive willingness largely due to their big installed milling capacities, the unmet demand for maize flour and the perennial deficit in maize production which always brings an uncertainty on whether they will get enough supplies to meet their processing targets and capacity utilization. As a result of this, most millers continuously accept maize from any supplier at their factory gates and always aim at having sufficient stocks in their stores to meet 1.5 – 2 months of their processing needs, which acts as a significant drain to their working capital. For this reason, a number of millers express willingness to purchase from farmers provided farmers can assure quality and provide volume sufficient to be viewed as attractive. The cautious willingness arises from past experience of millers in direct contracts with smallholders, which invariably failed largely due to weaknesses in farmer organization and compliance to contractual agreements. For smallholder farmers to have direct linkages with millers, deliberate measures must be put in building miller confidence that the targeted farmers will provide a worthwhile raw material sourcing alternative on the one hand, and building the capacity of the smallholder farmers to be attractive business partners on the other hand.
4. Like their larger industrial counterparts, small scale millers are also horizontally linked to each other through their association – the United Grain Millers and Farmers Association (UGMFA). Unlike CMA however, UGMFA is however fairly weak and requires significant strengthening to provide required organization and service to its membership.
5. **Food Industry Fortification law**: On June 4, 2013, the Food Industry Fortification law became effective in Kenya. This new law seeks to have all flours and edible oils fortified with essential minerals and nutrients to meet the nutrition standards set by the Ministry of Health for improving public health. It is in line with international food standards adopted in many countries as advocated for by the World Health Organization (WHO). Discussions with industry players show that this law, while beneficial to the nation, imposes significant burden on the milling industry for compliance. This is largely in relation to the increased investment in plant expansion to include a fortification segment (line) and increased cost of the fortification raw materials in the face of the very limited room for price increments. Considered opinion is that this law is likely to lead to the exit of a significant number of small-scale millers unless they receive capacity development support to adjust their operations for compliance.
6. **Vertical linkages**: Although the maize sector has a large number of players most of whom have some levels of horizontal linkages, the value chain can be said to be poorly developed in terms of vertical linkages between players at different functional areas. The **Eastern Africa Grain Council (EAGC)** established in 2006 as a membership organization for all value chain players in the grain sector in the Eastern Africa region is perhaps the only major sector-based initiative to create vertical linkages across the entire value chain. Linkages in the value chain, particularly linking smallholder farmers to input, service and output markets are however still weak and need strengthening.
7. **Sorghum and Millet Value Chains**
8. **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 oC. 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.

**Table 10: Sorghum production in Kenya, 2008 - 2012**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | 2008 | 2009 | 2010 | 2011 | 2012 |
| Area (Ha) | 104,041 | 173,172 | 225,782 | 254,125 | 223,799 |
| Production (90 Kg bags) | 602,910 | 1,055,051 | 1,822,950 | 1,776,412 | 1,851,410 |
| Yield (bags/Ha) | 5.8 | 6.1 | 8.1 | 7.0 | 8.3 |
| Price (Ksh/bag) | 1,230 | 3,285 | 2,576 | 2,298 | 3,686 |
| Value (Ksh billion) | 0.7 | 3.5 | 4.6 | 4.1 | 6.8 |

Source: MALF, Economic Review of Agriculture, 2013; May 2013

1. **Key production areas:** Eastern and Nyanza regions are the main sorghum growing areas in Kenya both accounting for over 80% of the land under production as well as total output. A distinct variation in these regions is however the yield levels. Although Eastern region has the largest acreage under Sorghum production (alone accounting for 63% of land under cultivation), productivity is quite low estimated at 5.9 bags per hectare compared to yield levels of 13.1 bags per hectare in Nyanza region. The other distinct variation in the two regions is the season for production. Sorghum production in Eastern region is a short rains crop planted in October/November and harvested in February/March, while in Nyanza it is a long rains crop planted in March/April and harvested in July/August. From a market perspective, promotion of sorghum cultivation in these two areas would help in evening out supply of the commodity in the market.

**Table 11: Distribution of Sorghum production in Kenya by region, 2012**

|  |  |  |  |
| --- | --- | --- | --- |
| Region | Area (Ha) | Quantity (90 kg bag) | Yield (90 Kg bags/Ha) |
| Eastern | 140,805 | 825,657 | 5.9 |
| Nyanza | 55,604 | 727,235 | 13.1 |
| Rift Valley | 12,704 | 157,196 | 12.4 |
| Western | 9,408 | 115,678 | 12.3 |
| Coast | 2,553 | 8,059 | 3.2 |
| North Eastern | 530 | 919 | 1.7 |
| Nairobi | 18 | 44 | 2.4 |
| Total | 223,799 | 1,851,410 | 8.3 |

Source: MALF, Economic Review of Agriculture, 2013; May 2013

1. **Market linkages**: 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).
2. The involvement of EABL in the sorghum value chain is organized in a two pronged manner. Farmer mobilization, training and capacity development for increased production is organized through one partner, a non-governmental organization – EUCORD. With a 50:50 funding arrangement between EABL and its UK parent company Diageo, EABL has entered into a contract with EUCORD to coordinate its farmer mobilization activities in all targeted areas. EUCORD works with a network of 35 non-governmental and private sector organizations to mobilize farmers and provide them with the necessary training and capacity building to produce the sorghum variety required by EABL. On its part, EABL attends important mobilization meetings to provide first-hand information to farmers and give the market assurance farmers need for them to confidently enter into sorghum production.
3. The second line of involvement for EABL is in direct contracting of vendors to supply the sorghum produced by farmers to the company. For each main production cluster, EABL has identified and appointed buying agents to supply sorghum. Each buying agent is issued with a short-term supply contract to supply agreed volumes of sorghum. The current price structure is Ksh 24 per Kg to the farmer and Ksh 32 per Kg to the agent after delivering the product at the factory in Nairobi. Buying agents in turn operate with sub-agents who operate collection centers spread throughout the production clusters. Buying agents get Ksh 1 per Kg which also includes the cost of bagging (i.e. 50 Ksh per bag for the agent and Ksh 40 for purchasing the PP bag). Discussions with some of the leading agents show that assembly and transportation accounts for about Ksh 3 per Kg and the agents are left with Ksh 3 per Kg as a gross margin for their involvement. Most agents have a financing arrangement with their farmers for seed supply on credit which they deduct after the sale of produce. Although the mobilization of farmers and capacity building is done through a farmer group approach, most agents do not formalize their dealings with farmers either as individuals or organized farmer groups. This is with the exception of a few (such as Smart Logistics Solutions) whose formalization process through forward contracts is still at its early stages of development. This is an area that requires further development which KCEP could consider supporting.
4. **Market linkages with EABL**: Discussions with EABL show that there are clear areas of possible partnership with KCEP in integrating more smallholder farmers into this profitable value chain offered by the growing unmet demand for sorghum by the beer company. The main areas include:
5. Existing production clusters: For existing production clusters where the initial farmer mobilization has been done and farmers have started production of the sorghum varieties required by EABL, key areas of support are in building up supply of sufficient volumes of good quality product to sustain the commercial relationship. EABL sees this at two levels: the farmer and the supply agent. At the farmer level, EABL feels that farmers can only sustain the business relationship with the company if they increase their farm productivity to levels where they can make money. This is the only way EABL will be assured of continued supply of sorghum without undue pressure to increase prices beyond unsustainable levels. Capacity development of farmers to increase productivity is therefore a key area of possible partnership with KCEP in the already existing clusters. Within these clusters, other areas requiring support include post-harvest handling to ensure good quality product, particularly at the level of drying, threshing and aggregation. At the commercial agent level, EABL sees building sufficient volumes at the production level for sustaining the business of the farmers and the supply agents as the key area of support. The capacity of agents to handle volume including working capital to pay farmers on time (upon delivery), produce aggregation (collection and bulking centers) and minor processing (particularly cleaning and de-stoning) are further areas that require support.
6. Newly established clusters: EABL started its partnership with smallholder sorghum farmers in the Upper Eastern region of Embu, Meru and TharakaNithi. These areas are now fairly well developed and commercial operations are already starting to take shape. Further work in increasing the number of farmers, building volumes and deepening established commercial relationships is however still required as described in (i) above. The second Phase of EABL’s expansion was into the Lower Eastern region of Kitui/Mwingi, Machakos and Makueni. EABL sees these new areas as having great potential for building supply. Work has however just started and significant efforts are still required in farmer mobilization and introduction of the new variety of sorghum required by the company. With KCEP partnership, EABL feels that building a farmer production base capable of sustaining continued development of commercial relationships in these newly established clusters can be fast-tracked.
7. Expansion in the Western/Lake region: Sorghum production in the Eastern block is done during the short rains of Oct/Nov. while production in the Western block is during the long rains of March/May. EABL sees expansion into the Western block as beneficial in expanding/diversifying the production base to ensure a year-round supply. These are areas where only scouting work has been done but significant investments in farmer mobilization and introduction of the crop are required before fully commercial relationships can start taking shape.
8. The other major buyer for sorghum is World Food Program (WFP) whose annual requirement is estimated to be 50,000 MT. Along with EABL, these two bulk buyers of sorghum are likely to be the key drivers of farmer motivation in sorghum production and present an unmet demand estimated to be in the tune of 100,000 MT. EABL has already asked EUCORD to start mobilizing farmers in Nyanza and Western regions. Discussions with EUCORD show that the four areas now targeted by EABL – Upper and Lower Eastern and Nyanza and Western regions – present an immense potential for growth in the value chain. Support is however required in farmer mobilization, training and capacity development to achieve minimum thresholds of production required not only for them to operate profitably but also for the targeted clusters to have the volumes required to be attractive to the buyers.
9. **Millet**: Like sorghum, millet is a drought tolerant crop generally cultivated in the same agro-ecological zones as sorghum. Kenya cultivates different types of millet but the most common are two: Bulrush millet (also called pear millet) and finger millet. The Ministry of Agriculture, Livestock and Fisheries does not provide disaggregated figures for the two types of millet for all regions. Information from areas where this information is available in disaggregated form however suggests that Bulrush is more widely cultivated and finger millet only accounts for 20% or less of total production.

**Table 12: Millet production in Kenya, 2008 - 2012**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2008 | 2009 | 2010 | 2011 | 2012 |
| Area under production (Ha) | 53,155 | 104,576 | 99,124 | 111,271 | 118,378 |
| Production (90 Kg bags) | 426,923 | 626,856 | 598,678 | 815,509 | 832,410 |
| Yield (90 Kg bags/Ha) | 8.0 | 6.0 | 6.0 | 7.3 | 7.0 |
| Average price (Ksh/90 Kg bag) | 2,700 | 4,680 | 4,689 | .. | 5,700 |
| Value (Ksh billion) | 1.2 | 2.9 | 2.8 | .. | 4.76 |

Source: MALF, Economic Review of Agriculture, 2013; May 2013

1. Millet production in Kenya has been on an upward trend over the last five years with production rising from 427,000 bags valued at Ksh 1.2 billion in 2008 to slightly over 832,000 bags valued at Ksh 4.8 billion in 2012. This increase has largely been accounted for by 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 renames Traditional High Value crops). Yield levels have generally remained unchanged, somewhat showing a declining trend. This is an area that requires attention.
2. Just like in the case of Sorghum, Eastern and Nyanza are the leading producers of millet. Agro-ecologically, bulrush millet is known to perform in even harsher zones than sorghum even in AEZs L6 – 7 unlike sorghum which performs best up to AEZ L5. Finger millet is however not as hardy as bulrush millet and performs best up to AEZ L4. Makueni, Kitui and Machakos in Eastern region and Busia in Western region are thought to be the main finger millet growing areas in Kenya. Acreage is however small, rarely going beyond ½ acre at most and cultivated mainly for home consumption – usually in the form of porridge for children and the elderly.

**Table 13: Millet production in Kenya by region, 2012**

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | **Area (Ha)** | **Production (90 Kg bags)** | **Yield (90 Kg bags/Ha)** |
| Eastern | 77,860 | 453,733 | 5.8 |
| Nyanza | 22,791 | 191,057 | 8.4 |
| Rift Valley | 12,704 | 157,196 | 12.4 |
| Western | 4,513 | 27,420 | 6.1 |
| Coast | 247 | 705 | 2.9 |
| North Eastern | 89 | 12 | 0.1 |
| Nairobi | .. | .. | .. |
| **Total** | **118,289** | **832,398** | **7.0** |

Source: MALF, Economic Review of Agriculture, 2013; May 2013

1. 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 farmers. Discussions with a number of millers (including Unga limited) show that there is significant unmet demand in the supply of 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 in the discussions would include the expected volume of supply and quality of the produce, particularly in relation to cleanliness (de-stoning) and contamination from mico-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.
2. Bulrush millet has no distinct market pull agent at the moment. It is however noted that it still accounts for over 80% of current total production of millet and is, indeed the hardiest of the cereals targeted under KCEP. The fact that it does not have a distinctive large buyer at the moment should therefore not necessarily imply that it will not be targeted under the program. As a substitute food crop targeting own-consumption needs of producing households, it merits support. It is also quite realistic to expect that efforts targeted at market development of this value chain could also bear fruit in the short to medium term.
3. **COMPONENT DESCRIPTION**
4. **Rationale**
5. As discussed in Section I, smallholder grain farmers in Kenya face two key interrelated challenges after harvesting their crop. The first relates to poor handling and management practices, which contribute to significant deterioration of the quality of grain and subsequent losses currently estimated to be as high as 30%. Losses are believed to be one of the major reasons why Kenya continues to be insufficient in food supply even when crop yields and land under cultivation have been increasing. The second challenge relates to market access. Most smallholder farmers sell their grain individually to traders in their villages shortly after harvesting. As a result, they get quite low prices compared to what they would have earned if they had stored their grain and sold it 3 – 6 months after the harvest period. This is particularly a serious challenge given that many of smallholder farmers will usually need to buy again grains for household consumption when prices have significantly shot up.
6. The main purpose of this component is therefore to safeguard the gains farmers are expected to make in productivity increases arising from investments made under Component 1, by addressing the twin problems of heavy post-harvest losses and access to profitable markets
7. **Objectives and Outcomes**
8. The main objective of Component 2 is to contribute to KCEP overall goal through improved post-harvest management of grains to ensure quality and reduce post-harvest losses, and increased earnings from improved access to profitable markets. The specific objectives of the component are to:

* *Increase the adoption of improved on-farm grain handling and management technologies and practices* among smallholder farmers, to minimize post-harvest losses of targeted grains from the current estimated levels of 30%, to the industry acceptable levels of below 5% by the end of the program period. This reduction in post-harvest losses is expected to increase the volume and quality of produced grain available to farmers by 35% - or an equivalent of 18,000 MT valued at US$ 6.75 million among the primary target group (Category 1) of the program which would have been lost under current handling practices.
* *Increase the accessibility of profitable grain markets by smallholder farmers* to enable them sell their produce at more favorable terms and prices. The improved market access for farmers is expected to lead to at least 30% increase in prices offered to targeted farmers for their grain, and a corresponding increase in earnings.

1. Component 2 component has two sub-components. The first deals with issues of post-harvest handling and management of grains by smallholder farmers while the second sub-component deals with improved market access for farmers’ produce through value addition and better market linkages. However, prior to implementing the project, a scoping study needs to be carried out to map existing facilities and service providers in target areas, so as to ensure that project interventions are well adapted to the current situation
2. **Scoping Study**
3. To ensure that this sub-component is implemented appropriately taking into account the specific conditions and circumstances prevailing in the areas selected for implementation, KCEP will carry out a participatory scoping study to identify value chain stakeholders that will participate in project implementation and to lay out business development opportunities that have potential for increasing the income of smallholders and farmers, in the target sub-counties. The scoping study will also supply baseline data upon which to base monitoring and evaluation. It will cover the following areas:
4. **Value chain analysis:** Value chain analysis will map all of the key players in the targeted value chains and their inter-relationships. It will focus on maize and pulses in the maize project area, and on sorghum, millet and pulses in the sorghum/millet area. Value chain analysis will be implementation-focused and will cover: (i) the mapping of key service and input suppliers, as well as potential for further expanding the existing range; (ii) production clusters; (iii) organization of farmers (number and capacity of existing groups, including areas requiring fresh group formation – and the specific capacity building needs):; (iv) specific post-harvest handling practices in the targeted areas; and (v) market players and their relationship with farmers, as well as market opportunities for smallholders.

* **Mapping of grain handling and storage facilities**: The study will conduct a full census of all grain handling facilities in the targeted sub-counties, including: specific location; ownership and management; storage capacity; level of utilization (for various grains); condition of the facility vis-a-vis the statutory required standards for grain handling facilities and certification for warehousing; capacity to provide attendant services in grain handling such as cleaning and drying. Facilities expected to be covered include grain stores and warehouses owned by grain merchants, bulk grain handlers, millers and other private sector players; storage facilities owned by the National Cereals and Produce Board (NCPB), and other government bodies including Ministry of Agriculture, Cooperatives, Irrigation Board, among others; community/farmer cooperative storage facilities; and facilities owned by NGOs and other institutions. The existence of these facilities will be compared against an assessment of the required capacities for grain handling facilities within the targeted areas to indicate any gaps that may exist. This study will be expected to identify existing facilities that can be used right away by farmers without any need for support, those that are ready for use but require certification, and those which may require some refurbishment to attain required standards for certification. The study will also identify areas that are not well served by existing storage facilities and require construction of new facilities. The storage facility mapping study will build on the work done under USAID Regional Agricultural Trade Expansion Support program (RATES) which attempted to map all grain storage facilities in Eastern and Southern Africa in 2010 but, perhaps due to the wide coverage, is thought to have left out many facilities in Kenya. The RATES study identified and mapped a total of 183 storage facilities in Kenya – 95 private, 58 Government; 19 cooperatives; and 11 by NGOs. The fact that NCPB alone has 112 storage facilities and there are many other government bodies known to have similar facilities (including 15 recently constructed by the Ministry of Agriculture) suggests that there is need for a more comprehensive study to closely guide implementation of the program on matters related to grain storage facilities.
* **Value addition and processing capacity gap analysis:** Discussions with key players in the grain sector in Kenya during the design mission suggest that although there are strong indications that there are significant gaps in processing and value addition capacity particularly following the coming into force of the Food Industry Fortification law, the depth and breadth of these gaps are not fully understood. To make sure that interventions by KCEP in processing and value addition are well targeted, the study will: (i) identify constraints and opportunities (i) in maize processing particularly among small scale and medium millers, also covering issues related to the enforcement of the new law, as well as specificities of the animal feed industry; and in (ii) sorghum and millet processing, including issues of cleaning and de-stoning; and (iii) in processing of pulses particularly in areas of cleaning, polishing and packaging for high end markets. The study will identify business opportunities in processing and value addition for the targeted value chains with an indication of geographical spread of required investment opportunities.

1. **Implementation:** The scoping study will be carried out as part of the Preparatory Activities to be implemented as soon as the EU-IFAD Grant Agreement is signed. Full terms of reference will be developed by the Agri-Business consultant to be recruited as part of the Preparatory Activities (see Appendix 5 – Institutional and Implementation Arrangements). A total amount of USD 68,000 is available for the scoping study.
2. **Sub-Component 1: Post Harvest Management (Usd4.6 Million)**
3. 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.

**On-farm grain management**

1. General industry estimates of the grain sector in Kenya suggest that upwards of 30% of grains produced in the country are lost due to poor post-harvest handling and management. The bulk of these losses occur at the farm level due to poor grain drying and grading practices, low accessibility of efficient technologies for shelling and threshing, and poor storage. It is also at these three levels of post-harvest handling of grain that the quality of produce is significantly affected. KCEP will support improved on-farm grain management through farmers’ capacity building, demonstrations, and the provision of e-vouchers.
2. **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:

* **Grain drying.** Most smallholder farmers depend on open-ground sun-drying for their cereals and pulses. This usually happens at two levels: immediately after harvesting before the grain is extracted and after shelling/threshing. Drying on open ground exposes the grains to contamination with micro-toxins, sand/granules and soil coloration. To address the losses and quality deterioration related to the current grain drying practices, KCEP will provide farmers organized under Component 1 (40,000 farmers in Category 1) with practical training on better grain drying and handling practices. Farmers will be trained on the moisture content standards for different grains and the best methods of drying their produce to the required moisture levels under different weather conditions experienced in their area;
* **On-farm storage**: All farmers, big or small, require some level of on-farm storage facilities for handling their grains both in the short-term for grain to be sold and longer-term for that portion of harvest that is to be designated for home consumption or seed for planting (for open pollinated varieties which can allow for seed recycling). For regions with one season harvest, grain storage for home consumption is generally required for up to 12 months. Regardless of the period of storage required and the volume of grain needing to be stored, it is important that facilities used by farmers meet basic standards for food handling and minimize losses through insect infestation, rodents, oxidation and temperature-related quality deterioration. Farmers also need to ensure that the grain to be stored is adequately dry. Most smallholder farmers lack information on good food storage practices and do not have appropriate storage facilities. KCEP will provide required training to participating farmers on grain 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.

1. **Demonstration.** 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. The modalities whereby demonstration will be organized will be developed by the service provider implementing the component. 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 without incurring the extra costs associated with removing and returning the grain once there are sudden weather changes or at the end of the day if the grain has not fully dried; (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. Farmers who, further to the demonstration, wish to have their own dryer cases, metal silo or other technology, will be linked to financing options available in Component 3.
2. *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, particularly during the February/March harvesting period. These demonstration equipments will be established in 20 strategically located collection centers and storage facilities throughout the project area. Smallholders and farmer groups who, further to the demonstration, wish to have their own dryer cases, mechanized/diesel dryers, metal silos or other technology, will be linked to financing options available in Component 3.
3. **Threshing and shelling equipment**. The cleanliness of grain and its quality are significantly determined by the method used for extraction. Most smallholder farmers use manual methods to extract their cereal and pulse grains, generally through pounding. The manual methods are not only inefficient but also account for significant grain quality loss through breakage and, for sorghum, millet and most pulses, losses due to inadequate extraction. The program will make investments in developing a service market for increased accessibility of both shelling and threshing services. This will be achieved through a mix of different types of financing arrangements, which are described in Component 3.
4. **E-voucher.** The e-voucher that will bemade accessible to all of the 40,000 farmers of category 1 will include:

* **Tarpaulin:** the e-voucher includes the provision of one tarpaulin to ensure clean drying**.** This mass adoption of tarpaulins as a basic grain drying practice among participating smallholder farmers is expected to spur further adoption of this technology among neighboring farmers who will be able to see the benefits;
* Hermetic bags, using the ‘modified atmosphere’ bagging technologies to reduce grain losses caused by insect infestation. A provision of up to 10 hermetic bags per farmer is made in the e-voucher to allow farmers to have sufficient storage for the part of grain production required for household consumption estimated at 6 – 8 bags of cereals and 2 – 4 bags of pulses per household.

1. Delivery modalities for e-vouchers are described in Component 1, financing modalities are described in Component 3.
2. **Implementation:** This sub-component (with the exception of shelling/threshing) will be implemented by the service provider responsible for implementing Component 2 (see Overall Implementation Arrangements). 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 activities under Components 1 and 2.

**Produce aggregation and warehousing**

1. Smallholder grain farmers in Kenya generally sell their produce to middlemen shortly after harvesting when prices are usually low. The main objective of this set of activities is to provide participating smallholder farmers with an alternative channel for marketing their surplus produce through an organized mechanism that allows: (i) to aggregate their produce to attain volumes that are sufficient to attract bulk buyers; (ii) appropriately store the grain to await price appreciation; and (iii) allowing farmers to leverage their stored grain to access credit to meet immediate financial needs.
2. To promote this alternative channel for marketing smallholder produce, KCEP will invest in: (i) village collection centres; and (ii) the development, certification and operation of storage facilities.
3. **Village collection centers:** Smallholder farmers with an average of 10 or so bags cannot access grain storage facilities located about 20kms away unless they first assemble their produce in one point to attain sufficient volumes for efficient transportation to the bulk aggregation and storage facilities. Following on successfully tested models by EAGC, SLS and other players in the grain sector in Kenya, it is envisaged that production clusters of about 10 groups (200 farmers) would require a produce collection center for assembling their produce before on-ward transportation to the warehouses. KCEP will organize farmer groups to confederate into local associations at the production cluster/village level and develop mechanisms for having their own produce store. It is envisaged that farmers will be able to rent storage space of a capacity of about 100 – 200 bags in a centrally located area within the production cluster. From experience, such facilities are available at village level shopping centers at a reasonable cost affordable by smallholder farmers. Once rented out, these collection centers become important focal points for interaction of the farmers and other key players in the sector, including for purposes of training. They can also act as stores and distribution points for farm inputs in the period when not being used for grain collection.
4. KCEP will support 100 groups of 200 farmers each (total of 20,000 farmers in Category 1) to have the minimum required equipment at collection centers. This includes a weighing machine, moisture meter, 2 tarpaulins, pallets, and a manual sieve for cleaning any grain that may be brought to the collection center when it is below the minimum required standards of cleanliness. The tarpaulins will be used for proper checking of the quality of grain supplied by each farmer, while the moisture meter is for testing the moisture content for grain supplied. The objective is to have no grain rejections for farmers taking place at the collection center before farmers incur extra cost in transportation to the warehouses. 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[[66]](#footnote-66). This activity will be implemented by the service provider implementing Component 2.
5. **Construction/refurbishment, equipment and certification of storage facilities:** The scoping study will indicate potential areas requiring construction of new facilities or refurbishment of existing ones. Each storage facility will be equipped with two weighing machines, tarpaulins, pallets and a moisture meter, and will be certified for warehouse receipting by a competent certification body, such as SGS or Bureau Veritas.
6. **Equipment and certification support for existing storage facilities:** In addition, KCEP will fund the equipment and certification of existing facilities that are in good condition but not sufficiently utilized by smallholder farmers. These include newly constructed community facilities by the Ministry of Agriculture, Constituency Development Funds, donors or farmer organizations.
7. **Capacity building for storage management and certification.** All 60 Facilities personnel will be trained for proper storage management including managing the stores to meet food safety standards, minimize grain losses associated with poor storage practices and safeguard pilferage. In addition, KCEP will finance the capacity building of the managers, board members and key leading farmers for all KCEP facilities in improved business management skills to ensure efficient operations of the facilities. Training and coaching will be provided by Equity Group Foundation, as part of Component 3 (details in Working Paper 4).
8. Pre-certification training for all personnel running a warehouse is mandatory for warehouses to qualify for certification. This training includes (i) warehouse operations and management covering grain intake procedures, quality standards, testing and grading, grain care and management, storage, fumigation, and equipment maintenance; (ii) Health and safety standards; (iii) Record keeping and inventory control; (iv) Warehouse receipting system; (v) Grain safety and security management; (vi) Grain dispatch; and (vii) Customer service. All 60 facilities will be targeted for certication.
9. **Operating losses.** In addition to investment costs, KCEP will also contribute to covering operating losses for each of the 60 supported storage facilities, which are expected to occur in the first (and residually in the second) year of operations, as farmers are expected to only gradually start using the warehouses. The modalities whereby this will be implemented are described under Component 3.
10. **Implementation**: 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 4 – Financial Inclusion (para. 59). A specialised service provider[[67]](#footnote-67) will be contracted for the implementation of the whole component 2. In addition to the other tasks described in the component, it will ensure the capacity building of (i) farmer groups and the personnel managing the collection centres and the storage facilities respectively; and (ii) the personnel of the facilities for meeting 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 Component 2. The PIU engineer will take responsibility for the civil works associated with the construction/refurbishment of the storage facilities. The design and management of works of these facilities will be contracted out to qualified civil works consulting vendors under standard arrangements for such works.
11. **Sub-Component 2: Market Linkages and Value Addition (USD2.1 Million)**
12. 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.

**Capacity building for market linkages and value addition**

1. **Objectives**. *Developing remunerative and equitable market linkages.*Most smallholder grain growers in Kenya have no direct linkages with large buyers who are able to offer good prices and take all their produce when they want to sell. Yet at the market end, large buyers generally have shortfalls in supply of the grains they require and express cautious willingness to buy directly from smallholders provided the farmers are able to assure volumes, quality and consistency of supply. Experience with market linkages for smallholder farmers shows that while farmer organization and aggregation of good quality produce is a necessary first step in establishing direct linkages will large volume buyers, this in itself cannot guarantee that these linkages will take place on their own. Deliberate efforts must be taken to establish and nurture the required business partnerships. Large volume buyers such as millers have already established raw material sourcing models. For most millers, for instance, this involves produce delivery at their factory gates at spot prices, usually by traders who are able to make frequent supplies and therefore have established consistency which is one of the valued parameters in market engagement. To enter into market linkage arrangements built around commodity futures market principles where relationships are established long before the grain is produced and prices agreed in advance (which is what farmers favor for them to have confidence in investing in production), large volume buyers need to be convinced of the value-added they will get from going into this sourcing arrangement;
2. *Improving value addition through adequate processing.* Rough estimates of the maize value chain show that there are many regions where there are still big gaps in maize processing both for human consumption and animal feed. Similar but more pronounced gaps exist in the processing of sorghum, millet and the four pulses targeted under KCEP. Furthermore, although the maize value chain has a fairly well developed processing industry comprising large, medium and small scale milling companies, the coming into effect of the Food Industry Fortification Law in June 2013 has put many operators at cross-roads where those who do not upgrade their operations to comply with the new law will be forced to close down. Many small and medium millers of maize face technical and financial constraints related to the necessary plant upgrading required for compliance with the new law. To increase value addition and processing of grains cultivated by targeted farmers for better market access and higher earnings, KCEP will make targeted investments in increasing the capacity for processing of produce from participating farmers. While the financing of both processing facilities and of the management capacity building to run them profitably and to the benefit of farmers is handled in Component 3, this sub-component focuses on the building of technical capacities required to properly operate the facilities and deliver qualities and quantities of products that meet market requirements.
3. **Activities** carried out under this part of the sub-component will include (i) the training and coaching of FOs to develop business partnerships between farmers’ organization and buyers and strengthening of farmer organizations for sustained market presence; (ii) the organisation of initiatives at local level aimed at building commercial partnership with buyers; and (iii) Technical capacity building for newly established processing initiatives.
4. **Training and coaching for business partnerships.** The starting point for smallholder farmers to have direct market linkages with large volume buyers who are able to offer good prices is farmer organization for joint action in quality control and produce aggregation, to get the needed to engage directly with lead buyers. Through capacity building initiatives to be undertaken under Component I and sub-component 2.1, it is expected that this first step towards market linkages will have been achieved. Farmers will already be organized into cohesive groups, have surplus production to market, be trained into good post-harvest handling practices, and be already able to aggregate their produce into collection centers and certified warehouses.
5. KCEP will develop market linkages for smallholder farmers for all the targeted value chains. It is anticipated that building partnerships will be easier for crops where large volume buyers are already experiencing significant shortfalls such as in sorghum and millet. For these value chains, forward contracts will be encouraged to provide the confidence farmers require to invest in production. For value chains where supply channels by lead buyers are already established, KCEP will be more flexible to allow building of business partnerships which do not necessarily require forward contracting. In concrete terms, this subcomponent will provide support for both types of market linkages (spot and future market linkages) through:

* *Identification and establishment of contacts with potential buyers.* This will involve building a business case on what farmers can offer and testing this with various buyers to identify those with sufficient interest to warrant moving forward. At this point, the potential buyers with interest also indicate their requirements;
* *Discussion with farmer groups to inform them* of the requirements of potential buyers and process required to enter into the business partnership;
* *Holding of farmer-buyer meetings* to discuss and agree on various terms and conditions for the business partnership to be established. It is anticipated that it will take several meetings before farmers and buyers can reach a point at which contracts can be discussed and signed;
* *Hand-holding in contract negotiations and signing*. This will involve working with farmer groups to ensure that all of the farmers fully understand the terms and roles of different parties laid out in the contracts and then managing the contract signing process, including advising on who should witness the contract.

1. **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:
   * 1. For linkages involving spot-market type of buyer relationships (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.
     2. For market linkages likely to use the commodity futures market model (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.
2. 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.
3. **Training of farmer organization for sustained market relevance.** It is one thing for smallholder farmers to enter into produce supply contracts with lead buyers, and another, for them to remain into those markets. To sustain those markets, farmers must adhere to agreed supply schedules particularly in terms of consistency – timeliness (produce aggregated by agreed period/time), quality and volume. These are usually not easy target for smallholder farmer contracted units (of 20 individual farmers as group; 5 – 10 groups of 100 – 200 farmers as an association/cluster; or 5 – 10 cluster of groups with 500 – 1,000 farmers at the warehouse level) to meet, and require significant cohesiveness and organization within the contracted units. KCEP will provide capacity building to strengthen farmer organizations in key areas required to manage their relationship with established markets. This will involve support in the following 5 areas:

* *Pre-production planning for fulfillment of market supply targets agreed with buyers* - starting with the estimation of total surface area/land and productivity levels required as a whole for the contracted unit and breaking this down to individual farmer commitments. KCEP will work to ensure that there is buyer presence at these initial stages to provide details farmers may require about the market and offer the confidence farmers need as they plan to invest in production;
* During production *monitoring of progress* to ensure continued farmer to adherence to agreed supply targets, and continuously estimate supply projections for the buyer to effectively plan for required produce collection logistics;
* *Harvesting and post-harvesting* planning and support for quality control and timely produce aggregation;
* *Produce delivery management* to service orders agreed with buyers; and
* *Post-produce purchase management* involving individual farmer payments and reconciliations to ensure efficiency and transparency. Many times smallholder market linkage programs collapse as a result of poor management of the payment arrangements when individual farmers feel their payments are unduly delayed, their payments are not reconciled with what they supplied, or accounting for expenses in not transparent. KCEP will provide training and capacity building support to establish systems capable of addressing these concerns. This will be covered by the same yearly lumpsum of 200,000 USD to the Service Provider responsible for implementation of Component 2.

1. **Technical capacity buildingsupport for newly established processing initiatives:**KCEP will build the technical capacities required to attain the levels of efficiency required for successful operations. Business management capacity building will be provided by the Equity Group Foundation as part of Component 3.
2. **Implementation**: This set of activities will be implemented by the same service provider selected for implementing Sub-component 2.1. Tender documents outlining the specific roles and implementation modalities of the service provider will be prepared as part of the project Preparatory Activities. Provisions are made in the budget for:

* An annual lumpsum for the service provider to develop all the capacity building activities including (a) the development of business partnerships between farmers’ organization and buyers; (b) the strengthening of farmer organizations to manage their relationship with established markets; and (c) technical capacity building to ensure adequate processing.
* A lumpsum for each of the 60 project-supported storage facilities to organize commercial partnership building initiatives with buyers.

1. 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.

**Road Spot Improvements of Access Roads**

1. The state of access roads to produce aggregation centers remains one of the key constraints that face smallholder farmers in Kenya in their efforts to access markets. Whereas the general improvement and maintenance of access roads is beyond the scope of KCEP and must be dealt with elsewhere, a provision is made for targeted spot improvements of key access roads to warehouses as a first priority, and to village collection centres as a second priority.
2. To ensure that the spot improvement civil works are appropriately targeted and linked to the immediate needs for produce accessibility to aggregation centers, a mapping exercise will be carried out at the start of the project. A ranking exercise will then be carried out to prioritize the key road access points which require spot improvements under the program. Arrangements for on-going maintenance for the spots by the mainstream government ministry in charge of access roads will be a key pillar in implementation of this activity.
3. **Implementation**: Road spot improvements will be implemented by the civil engineer in the PIU who will be responsible for preparation of bids, evaluation of proposals and overall review of the quality of work performed.The design and management of works for identified spot improvement areas will be contracted out to qualified civil works consulting vendors under standard arrangements for such works. Supervision of the actual civil works will be undertaken by the Ministry of Transportation and Infrastructure under an agreement to be signed at the program start-up phase.
4. **OVERALL IMPLEMENTATION ARRANGEMENTS**
5. **Program Implementation Unit.** The PIU will be responsible for the overall implementation oversight and management of this component. Within the PIU, Component 2 will be managed by the agribusiness specialists in the two sub-units and civil engineer in the central PIU.
6. The PIU will organize the tender for the selection of the service provider, based on the tender documents that will be prepared during the Preparatory Activities. It will then negotiate and sign the contract with the selected service provider. The PIU engineer will take responsibility for the civil works related to the construction/refurbishment of the storage facilities. The implementation of the road spot improvement programme will be the responsibility of the PIU engineer. An MOU between the programme and the Ministry of Transport and Infrastructure will be signed for the supervision of actual civil works.
7. **Specialised service provider.** A specialised service provider will be contracted for: (i) building the capacities of farmers on post-harvest handling and management (on-farm drying, proper warehousing, meeting certification standards) in close connection with CGA and farmers’ capacity building activities developed in Component 1; (ii) assisting the PIU/Financial Services Specialist in carrying out sensitization/awareness campaigns in target communities on project opportunities for developing storage/processing facilities; (iv) capacity building to farmers’ groups for developing and sustaining business partnerships; and (v) technical capacity building for owners of processing facilities.
8. **RISKS**
9. Two main risks are envisaged under this component: weather variability/crop failure risk; technology adoption failure risk; and procurement inefficiencies risk in implementation.
10. **Weather variability/crop failure risk**: Kenya has increasingly become prone to frequent droughts whose occurrence over the last 10 years has been every 2-3 years with a major drought occurring every 6 - 8 years. Given that KCEP targets farmers produce grains under rain-fed farming systems, occurrence of a major drought would affect the productivity of farms and reduce the possibility of surplus grains for marketing under the structures and processes laid out under Component II. Whereas drought mitigation measures have been put under the financing arrangements of Component 3 to protect farmers’ investments under Component 1, investments to be made by the program under Component 2 would remain exposed to the risk of drought.
11. **Technology adoption failure risk**: Whereas measures have been put in place in the design of KCEP to ensure the adoption rate of technologies promoted under the program is quite high, there still remains some risk that farmers may fail to adopt the technologies at the anticipated rates. The biggest risk for Component 2 is the failure of farmers to adopt the warehouse-based produce aggregation and marketing model. At the moment, negligible grain produced by smallholder farmers is marketed through this channel, largely because this is a new model and the country has only 7 certified warehouses currently. There is therefore some level of risk that participating farmers may fail to fully embrace this model, leading to underutilization of the warehouse capacities to be developed under the program. Measures have however been put in place to ensure that the program provides extremely favorable conditions for farmers to adopt the model and therefore the overall assessment of the design mission is that this risk is quite minimal.
12. **MONITORING AND EVALUATION**
13. The following log-frame extract presents the indicators and targets for the various outcomes and outputs expected to be achieved by KCEP under Component 2.

| Outcomes and outputs | Key performance indicators | Means of verification | Risk/assumptions |
| --- | --- | --- | --- |
| **Outcome 2**: Post-harvest practices and market linkages for targeted VCs improved | * 40,000 category 1 smallholder farmers adopt improved grain drying technologies by the end of the project * 40,000 category 1 smallholder farmers adopt hermetic bag grain storage technologies by end of project; * 100,000 smallholder farmers use certified warehouses to aggregate and sell their produce – 40,000 category 1, 60,000 category 2 * Post-harvest grain losses among participating category 1 farmers reduce from 25% to 5% by end of project; * Participating smallholder farmers sell their grain at 20% higher price than prevailing farm gate prices by end of project; * 80% of participating warehouses attain operational self-sufficiency by the end of the project | * Program progress reports * End of program evaluation | * Weather/crop failure risk does not occur; * Technology adoption failure risk minimal; * Warehouse Receipt System (WRS) Bill is passed by parliament and enacted into law |
| Output 2.1: Improved post-harvest technologies | * 40,000 category 1 smallholder farmers are trained on post-harvest grain management by end PY3; * 40,000 farmers receive post-harvest grain management kit by end of PY3; * 1,000 smallholder grain storage demonstration sites are established by end of PY3 * 60 warehouses certified and offering WRS services to smallholder farmers by end of PY4; * 100 produce collection centers established and equipped by end of PY3; | * Program progress reports | Procurement inefficiency risk minimal |
| Output 2.2: Improved market access for smallholder farmers | * 15,000 Sorghum farmers, 5,000 millet farmers and 5,000 maize farmers with supply contracts with leading buyers of their produce by PY4; * 30 spot improvement projects of access roads in targeted program areas completed by PY3 | * Program progress reports; | * Procurement inefficiency risk minimal; * WRS Bill is passed into law before end of 2014 |

**WORKING PAPER 4 – FINANCIAL INCLUSION**

1. **RATIONALE AND LESSONS LEARNT**
2. 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, including Equity Bank;
* *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*.*

1. Key lessons learnt related to financial services identified by NAAIAP evaluation include the following (Appendix 3 details other lessons learnt):

* *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;
* *agro-dealers:* challenges faced by agro-dealers 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;
* *access to inputs beyond ‘voucher year’:* farmers that had received the input package market 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;
* *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.

1. The financial sector in Kenya is well developed and offers sophisticated products and services to clients, including a very extended mobile phone banking system (M-Pesa). However, smallholders in rural areas have difficulties accessing these products and services mainly because of the lack of collateral. Equity Bank is the leading player in financial inclusion in Kenya, and it has the largest network of branches and operations in the rural areas. It has expressed its interest to participate in the project with the implementation of e-vouchers and e-cards for project-supported target beneficiaries. Equity Bank’s participation will be three fold:

* *Setting up the technical platform:* it will develop the system for delivering e-vouchers, including the software, web portal and Management Information System;
* *Financing the cost* of setting up the system, including e-cards;
* *Indirect financial contribution* through increased losses when lending to the agricultural sector. As Equity Bank is lending at an interest rate that does not cover its operating costs (around 12% for agriculture sector and between 18% to 24% for other sectors), any increase of this lending activity aggravates the losses incurred by Equity Bank, which have to be off-set by profit made on lending to other sectors of activity.

1. The insurance sector is much less developed than banking. Only two insurance companies/brokers are providing insurance products covering the risks related to agriculture production: Equity Group Insurance and Syngenta. Weather-index based insurance products are increasingly promoted by these two insurance companies, but adoption rate with smallholders is still minimal. However, because of the high risks associated with climatic variability, particularly in the semi-arid areas, the project should promote this product through a subsidized package and adequate capacity building and awareness among beneficiaries, in line with NAAIAP recommendations.
2. **DETAILED DESCRIPTION OF THE COMPONENT**
3. **Objective**. The objective of the component is twofold: (i) ensure financial inclusion of project-supported smallholders, and (ii) finance investments within selected value chains aiming at increasing project-supported smallholders’ income and empowerment.
4. **Sub-component 1: Financial Inclusion**

**Financing Smallholders Activities**

1. ***E-card (VISA/MasterCard-branded debit card)***. Each KCEP-supported smallholder in Category 1 will receive from Equity Bank a debit card allowing him/her to access the Bank’s range of financial products and services.
2. The activation of the e-card (including the e-wallet – see below) will be done when the smallholder will have deposited his/her contribution into his/her account opened at the Equity Bank. The amount of the contribution to be deposited upfront should at least be equal to the portion of the package not subsidized by the project (10% of the package to be borne by each smallholder in year 1) plus possibly other costs not subsidized by the project (pesticides for sorghum and pulses production).
3. The following table illustrates the breakdown of activities between Equity Bank Limited (EBL), the Government of Kenya (GoK) and IFAD for the development and implementation of the e-card and e-voucher mechanism.

**Table 1: Responsibilities for the development and implementation of e-cards and e-vouchers[[68]](#footnote-68)**

|  | Activity | Description | Responsible Authority |
| --- | --- | --- | --- |
| 1 | Process Mapping | * Identification of project geographical location and subsequent assessment of EBL readiness (agents, Infrastructure, merchants…..) * Identification of all critical activities and mapping them to process flow chart. This will inform the Operational manual plus Processes and procedures. | * GoK - Identify locations and share with EBL * EBL - Gap Analysis * IFAD - Process flow chart. |
| 2 | Cards | * Design * Procurement * Production & Personalization * Issuance/Distribution * Training * Case Management-Customer Experience | * EBL, IFAD &GoK * EBL * EBL * EBL &GoK * EBL &GoK * EBL &GoK |
| 3 | Point of Services | * Farm Inputs Data * Customization * Configuration * Training * Hardware Maintenance | * GoK * EBL * EBL * EBL & GOK * EBL |
| 4 | WEB Portal & MIS | * Requirement gathering * Design * Building * Testing ( Internal) * Testing (Dry Run) * Deployment | * EBL &GoK * EBL * EBL * EBL * EBL &GoK * EBL |
| 5 | Contractual | * MoU /Partnership Agreement * Merchant Agreement * Agent agreement * Terms & Conditions-Direct Debit Mandate | * IFAD, EBL &GoK * EBL * EBL * EBL &GoK |
| 6 | Agro Dealers | * Identification * Mapping * Training * Recruitment to Bank Agents * Training * Set Up | * GoK * EBL * EBL &GoK * EBL * EBL &GoK * EBL |
| 7 | Farmers | * Targeting * Mobilization * Enrollment into a Payment System | * GoK * GoK * EBL &GoK |
| 8 | e-Vouchers Processing | * List generation * Authorizing Instructions * Execution of Instructions * SMS Alert notification * Account Settlement * Reconciliation * Reports | * GoK * GoK * EBL * EBL * EBL * GoK& EBL * GoK& EBL |

*Source: Equity Bank and IFAD missions. See details in Annex 4 to KCEP Concept Note.*

1. The above breakdown of responsibilities results in a financial breakdown between Equity Bank and the project illustrated in the following tables. The total cost of development and implementation of the e-cards and e-vouchers amounts to USD 4.22 million; the project share of that total cost amounts to USD 0.44 million (Table 2a), while the contribution of Equity Bank to the project amounts to USD 3.70 million (inclusive of staff salaries and documentation for e-card/e-voucher literacy) (Table 2b). In addition, transaction fees charged to project-supported smallholders will amount to around USD 175 000 for the duration of the e-voucher (2 years).

**Table 2a: IFAD-borne costs for the implementation of e-cards/e-vouchers**

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*Source: Equity Bank*

1. The system is planned and costed for 40 000 beneficiaries over a period of 2 years and around 100 agro-dealers, of whom it is assumed that 20 do not yet have a point of services (PoS) and have no access to energy.

**Table 2b: EB-borne costs for the implementation of e-cards/e-vouchers**

**

*Source: Equity Bank*

1. ***E-voucher***. Aside to regular financial products, each debit card offered to KCEP beneficiaries of Category 1 will feature an electronic voucher (e-voucher). This e-voucher will be materialized in an e-wallet independent from the current and savings accounts attached to the e-card. The e-voucher will give access to a package of inputs, small equipment and insurance premium, which will be tailor-made to KCEP target crops and areas so as to increase productivity (yields) and reduce post-harvest losses. E-vouchers can only be redeemed at agro-dealers registered with Equity Bank (registration of new, additional agro dealers will be supported by Component 1, sub-component 1.1).
2. The package includes:

* *inputs* consisting of improved seeds (cereals and pulses) and fertilizers aiming at improving yields and increasing productivity (see Component 1). Prices of these inputs have been calculated at current market price;
* *small equipment* consisting of tarpaulins and hermetic bags for home storage of self-consumed production aiming at reducing post-harvest losses (see Component 2). Price has also been calculated using market price;
* *annual premium of weather-index based insurance*.

1. Considering lessons learnt from NAIAAP experience, each subsistence smallholder will have access to the e-voucher for a period of two consecutive years. However the proportion of the package cost that will be borne by the project will decrease: from 90% in the 1st year, that percentage will decrease to 40% in the 2nd year, with the contribution of subsistence smallholders increasing accordingly (inputs will be fully paid by subsistence smallholders from year 3 onward). Table 3 details the cost of the package for each value chain and the breakdown of financing by the project and by beneficiaries.

**Table 3: Package cost and breakdown**

*Source: Mission findings. See annex 1*

1. Access to the package will be adapted to the specific crops and locations.The variability of market prices has been considered in the amount of resources allocated for the e-vouchers in the form of price contingencies included. The e-wallet will not be based on a pre-determined financial amount but rather on quantities of each specific element that each smallholder will have access to. At the beginning of each 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 target counties.
2. The e-wallet will be designed in such a way that smallholders will access the annual package in two batches, in accordance with the crop calendar. In the first year, the first disbursement would allow smallholders to receive cereal seeds and basal fertilizers, and the second disbursement would cover top dressing fertilizer, and small equipment. In the second year, two payments will also be processed in line with the crop calendar (same disbursement pattern , but only for seeds and fertilizers). Payments will be processed directly to the agro-dealer’s bank account, no funds can be cashed from resources allocated by the project in the e-wallet. Payment of the insurance premium will be included in the first disbursement.
3. The insurance premium needs to be affordable for farmers in order to reach at least 60% adoption rate. The premium amount depends on the compensation that is expected as well as on the amount that will be insured. Premium rates offered by insurance companies with similar products range from 5 to 15% of the value insured, mostly depending on the location of the insurant. Considering that the project will target smallholders farming in semi-arid areas with high exposure to droughts, which are appearing more regularly and are increasingly severe, a premium of around 12% of the value insured has been considered as most likely - the premium will however vary from location to location. More precise estimates will be possible when using climate information available for each project location (see below Section on Insurance). In the first year, the value insured will correspond to the market value of the full package (in case of a compensation by the insurance company following a disaster, the insurant household would have the possibility to buy a new package for the next season. The insurance company will pay the compensation directly to the agro-dealer), while in year 2 the value insured will correspond to the market value of the full package and the value (at market price) of the production self-consumed by the insurant family. The portion of the premium included in the package will be paid directly to the insurance company (on insurance, also see Section on Smallholders’ Capacity Building below).
4. The overall cost of the package for the three selected crops amounts to USD 11.2 million, of which USD 7.1 million will be borne by the project and USD 4.1 million will be borne by the beneficiaries. Table 4 details the cost per year and per crop considering the number of smallholders benefiting from the package in each value chain, i.e. 20,000 for maize, 15,000 for sorghum, and 5,000 for millet. A profit and loss account as well as a projected cash-flow situation for smallholders for each of the three value chains are presented in annex 1.

**Table 4: Cost breakdown of e-voucher per value chain; marketable production and income per household**

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1. To mitigate the risk of misuse of e-vouchers, KCEP will promote small groups (up to a maximum of 30 members), where members know each other and share common interests and objectives, and will foster peer pressure among the group. Each group will commit to the proper use of vouchers through the signature by each single member of a document describing: (a) obligations linked to the use of the e-voucher, and (b) system adopted by the group to monitor members’ compliance with these obligations (for example, assigning focal points to accompany members when they redeem the voucher). Additionally, the issuance of the voucher for the second year will be contingent to the proper use of the voucher in year 1. The same principle of group solidarity used in solidarity lending will be applied: 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. 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. This sanction will be included in the document signed by the group. The document will be co-signed by the county or sub-county agriculture offices. Furthermore, information and capacity building will be provided to agro-dealers registered to participate in the programme. Agro-dealers 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. Other measures to prevent misusing e-vouchers are listed in Appendix 2 of the Project Design Report and detailed in Working Paper 1 – Poverty, Targeting and Gender.
2. ***Other financial products and services***.Each smallholder will have access to a wide range of financial products and services offered by Equity Bank, including:

* *savings account.* Through awareness campaigns, Equity Bank will promote savings for all KCEP-supported smallholders. Through the contracting of a local consultant for 3 months, the project will assist Equity Bank to assess the different types of savings that would meet the needs of KCEP-supported smallholders;
* *short-term working capital loan*. Even though financial projections show that smallholders have sufficient cash to self-finance their package, they will be able to access short-term loans along the following terms and conditions: interest rate: 12%; duration: in accordance with the production cycle; repayment: one single instalment at maturity; guarantee: either forward contract (see below) or group guarantee.

1. ***Warehouse receipt financing***. In all KCEP-supported storage facilities, the project will implement together with Equity Bank a warehouse receipt financing mechanism.
2. Each project-supported smallholder as well as larger farmers in the catchment area of the storage facility will have the possibility to store part of their production at harvest pending higher market prices (generally after 4 to 5 months). However, since project-supported farmers are mainly subsistence farmers with little financial resources, the absence of financial income resulting from storing away part of their produce has to be compensated by a short-term loan extended by a financial institution over the duration required for the price of commodities to reach their higher level.
3. The loan will be based on 75% of the quantity stored by each smallholder and on the average price of each commodity during the previous season. Over the project duration (four years) resources to be allocated by Equity Bank for the provision of these short-term loans to project-supported smallholders amounts to USD 7.5 million (with approximately 1 000 farmers using a storage facility of whom 400 are project-supported ones belonging to Category 1). Interest rate is set at 1% per month (current interest rate charged by Equity Bank on agricultural loans), the production stored will constitute the guarantee for Equity Bank (no additional guarantee/collateral will be requested). In addition, to cut down transaction costs and simplify procedures, such loans will be referred to as purposeless loans (no need to indicate any purpose for the loan by the smallholder, it can be used to finance productive investments, consumption goods or social events). Equity Bank will support the total cost of bridge loans, while KCEP will contribute to warehouse construction/refurbishment and certification.
4. In the short-term, Equity Bank will apply its current procedure for warehouse receipt financing. The manager of the storage facility will issue to the farmer a specific pre-registered manual voucher detailing the commodity, the quantity stored and the name/reference of the smallholder. When in need of a bridge loan, the smallholder will submit his/her request to an Equity Bank loan officer. After Equity Bank has reviewed the adequacy between the requested loan amount and the value of the production stored, the loan amount will be transferred to his/her account and will be accessible through the e-card.
5. In the medium-term, Equity Bank will finance the development a specific application allowing the bank to monitor in real time the flow of production stored and calculate the maximum loan amount any smallholder can receive from the bank. With information fed by the manager of the storage facility, a specific e-wallet will record any on-and off-loading from the storage facility (in quantity of bags for each commodity) and will automatically inform the smallholder of the maximum amount of the loan he/she can pretend to access to. In the menu, the smallholder will select the amount of the loan which will be automatically transferred to his/her bank account and immediately accessible through his/her e-card.
6. In both cases (manual voucher or e-application), the production stored is deemed to belong to the bank until the bridge loan has been fully repaid.

**Smallholders’ Capacity Building**

1. Smallholders’ capacity building provided to the 40 000 project-supported smallholders (Category 1) by specialized institutions contracted by the project will include: (i) comprehensive financial literacy training, and (ii) promotion of risk-mitigating instruments. The expected outcomes include: (a) smallholder’s ability to gain knowledge and skills, have a positive behavioral change in financial management and build confidence when using financial tools in order to improve his/her livelihoods, and (b) smallholder’s ability to reduce the risk inherent to his/her activity and build confidence when using such risk-mitigating tools.
2. ***Comprehensive financial literacy training***. The project will develop an integrated approach aiming at creating a pathway to greater financial access (financial literacy training, access to savings and loans services) as well as providing financial advisory services to help develop, strengthen and grow project-supported smallholders. It will provide skills and knowledge to project-supported smallholders on how to manage finances in their activities and more generally in their lives. This will enable them to make more focused, informed and strategic decisions, and hence to plan for and realize their goals. The overall objective of the training is to strengthen those behaviors that lead to increased saving, more prudent spending and borrowing for sound reasons.
3. The project aim is to empower project-supported smallholders with financial knowledge and skills to enable them having positive financial attitudes that will lead them to adopt good financial management practices, be financially included and ultimately transform their lives and livelihoods as they transform agriculture from subsistence to commercially sustainable business. Training will be provided to project-supported smallholders by the Equity Group Foundation, which has extensive experience in this field, and has developed training and coaching packages. Training will include the following modules:

* Module 1: Budgeting. This module aims at developing understanding budgeting, goal setting, planning, budget development, living within means;
* Module 2: Savings. This module aims at appreciating savings, developing a savings plan, ways to save and how to save. This module will also analyze together with the trainees the types of saving products that are meeting their requirements Such an identification of smallholders’ needs will also enable Equity Bank to adjust the terms and conditions of its savings products;
* Module 3: Financial services. This module aims at improving the understanding of financial institutions, understanding their financial services and products, and choosing the most appropriate financial services Loan applications, terms and conditions of different loan products, and Equity Bank’s procedures will be detailed;
* Module 4: Debt Management. This module aims at further appreciating debt financing, sources of debt, selecting the appropriate debt, and the management of a debt. Several case studies will serve as discussion topics during the training;
* Module 5: Insurance. This module aims at identifying the types of risks, the types of insurance coverage, at improving the management of such risks, identifying the source of insurance, and selecting the appropriate insurance. This module will focus on weather-index based insurance but also on other type of risks that need to be covered (crop disease, health insurance).

1. Training and capacity building for financial literacy will be provided to the 40 000 recipients of the e-voucher (target category 1). Each module’s duration varies from 3 to 6 hours that will be spread over 3 to 6 weeks (one hour per week per module). One training session will include approximately 2 groups of 10 farmers each. Each module will have an initial training and an advanced/refresher training course that will take place a year after. Content of the advanced/refresher courses will be similar to the initial training modules package, but will mainly focus on lessons learnt, experience, problems and constraints faced by project-supported smallholders. Prior to engaging with the e-voucher scheme, project-supported smallholders should have started their training.
2. Considering its extensive experience in providing financial literacy related to Equity Bank products and services the provision of financial literacy training will also be the responsibility of Equity Bank through its foundation: Equity Group Foundation. A Memorandum of Understanding will be signed between the PIU and the Foundation detailing the provision of training and capacity building to the 40 000 project-supported smallholders. The provision of training during a period of three years (considering the staggered inclusion of smallholders in the project) will require 35 trainers, 2 regional supervisors, and 1 coordinator from Equity Bank. Each trainer will be responsible for the training of 150 smallholders per quarter.
3. The cost of training and capacity building of 40 000 project-supported smallholders is estimated at USD 525 600 (base cost) comprising of: (i) training costs (inclusive of training manuals, training of trainers costs) USD 251 200; (ii) supervision costs USD 177 500; (iii) monitoring and evaluation costs USD 110 700 (inclusive of knowledge dissemination); (iv) capital costs USD 49 300, and (v) management fees of 10% of the total amount. The all-inclusive cost of financial literacy training provided by Equity Group Foundation would amount to USD 13.14 per smallholder.
4. ***Promoting risk-mitigating instruments.*** Two risk-mitigating instruments are promoted by the project: (i) forward contracts between smallholders (or smallholders’ groups) and buyers, processors or intermediaries, and (ii) insurance products.
5. ***Forward contracts.*** The project will promote forward contracts in each target value chain to be signed between smallholders (or smallholders’ groups) and processors, intermediaries, agro-dealers, or buyers. Such a contract, stipulating a pre-determined purchasing price subject to compliance with pre-agreed quantity and quality, can be used as a collateral by Equity Bank or any other financial institution when extending a short-term working capital loan. The project will assist smallholders and smallholders’ groups to enter into such contractual arrangements. To that effect, capacity building will be provided by Equity Group Foundation to smallholders’ groups as part of the financial literacy training package.
6. ***Insurance products.*** Two insurance companies (Equity Bank and Syngenta) are currently proposing weather-index based insurance products for farmers in Kenya, with a third one attempting to roll out on a large scale a similar product before the end of 2013. Equity Bank has developed its own scheme for its clients, while Syngenta has already insured over 100 000 clients in both Kenya and Rwanda.
7. Two agricultural insurance models have been implemented by insurance companies The first model, ‘Weather Index’, offers a succession of risk coverage: (a) germination cover during planting stage; (b) drought coverage (during vegetative and flowering stage), and (c) prolonged rainfall and storm coverage (during flowering, maturity and harvest). Two payout points are foreseen: the first one at the end of the germination period and the second one at the end of the harvesting period. This first model is monitored via satellite and automated weather stations that are already operating in Kenya. The second model, ‘Area Yield Index’, is covering any crop production shortfall from planting to harvesting period with a unique payout point some time after harvest when the yield of the area has been validated.
8. As a first approach to insurance for smallholders, the project will promote the ‘Weather Index’ insurance. To facilitate adoption, the premium will be included in the package financed by the project to smallholders during the first two years (with an increasing percentage of the premium cost to be borne by the smallholder - 10% and then 60%). To avoid an excessive financial burden for smallholders, during the first year, the value insured will correspond to the market value of the input package (seeds and fertilizer) while for year 2 the value insured will correspond to the market value of the input package and the value (at market price) of the production self-consumed by the family (including cereals and pulses). It is expected that thanks to awareness campaigns undertaken by the selected insurance company, a large proportion of smallholders will adopt insurance and will continue to cover their risks.
9. A Call for Expression of Interest will be launched by the project at its inception to compare the terms and conditions of Weather Index insurance available (risk covered, premium cost, payout points). The selected insurance company will provide the project with its definitive estimates on the premium cost, based on project-selected counties and sub-counties and climate information. That amount will be included in the e-wallet/package for each smallholder.
10. The project will also work with the selected insurance company to further expand its coverage and, in particular, to include crop diseases. To that effect, the project will assist the selected insurance company to gradually offer a mix of ‘Weather Index’ and of ‘Area Yield Index’ insurance. A study financed by the project will assess the feasibility of such product as well as financial terms and conditions that would be charged to smallholders.
11. **Sub-component 2: Value Chain Financing**

**Investing in Value Chains**

1. While the project first step is to enable smallholders to graduate from subsistence to commercial farming, the second step aims at ensuring that smallholders can increase their share of the final value added in the target value chains, through in the storing, processing and marketing of their produce. In that respect, investments considered within each value chain include: (i) storage facilities, and (ii) processing facilities such as: shelling and threshing, milling and cleaning-polishing for pulses.
2. ***Objective*.** Increase processing and storing capacities with a substantial number of these facilities owned by project-supported smallholders, hence increasing their share of the added value and increasing their income.
3. ***Needs identification***. The project will support the construction/rehabilitation of storage facilities and the development of processing facilities such as threshing/shelling; milling; and cleaning/polishing/packaging for pulses. Although some of these facilities are already well implemented in Kenya and in the project area, existing processing/storing capacities are not sufficient to absorb the incremental production resulting from the input package and technical assistance provided to smallholders under the project.
4. The final locations and types of facilities promoted (as well as their ownership) will be fine-tuned at project inception on the basis of results of a mapping exercise carried out by consultants hired by the PIU as part of preparatory activities at project start and further to a Call for Expression of Interest (see Section III on Implementation Arrangements below).
5. ***Legal set-up*.** Two different legal set-ups will be considered for the implementation of selected facilities: (i) farmers’ group-owned facilities, and (ii) private investor-owned facilities. In addition, for existing storage facilities a third legal set-up will also be considered: ownership by the government (as in the case of National Cereals and Produce Board of Kenya - NCPB) or by a private-public institution (as in the case of the Eastern African Grain Council - EAGC).
6. Facilities owned by farmers’ groups will be implemented within a limited liability company (LLC), the share capital of which will be equally distributed among all users (project and non-project-supported users), and which will have the storage facility as its asset. Main advantages of LLCs are that: (i) they offer stronger security for smallholders (shareholders) as in case of bankruptcy, their liability is limited to the amount subscribed to the company’s equity; (ii) they allow easier access to credit because they can offer assets as collateral; (iii) partners (including private ones) can join the ownership. Each LLC will be steered by a Board of Directors whose members will be appointed among users’ communities. To ensure proper and efficient management, the Manager of each LLC will be jointly selected by the PIU and Equity Bank, with an endorsement by the Board.
7. ***Financial set-up*.***Farmers’ groups-owned facilities* have been conceived to be not-for-profit entities so as to lower the cost of services charged to farmers, thus increasing their profit (a for-profit organization would in addition have to pay income tax, which would further increase the cost of its services). Nevertheless, operating costs of each facility have been calculated so as to include amortization of the building/machinery, thus enabling the LLC to self-finance their replacement. *Private investors-owned* facilities are considered to generate a return on investment.

* *Farmers’ groups-owned storage facilities.* Financing the facilities will be twofold: (i) contribution from project and non-project-supported farmers, and (ii) grant from the project. Considering the extremely limited financial capacity of farmers, their contribution has been estimated at 10% of the total investment cost with a maximum contribution of USD 5 000 for 1 000 users;
* *Farmers’ groups-owned processing facilities.* The financing of processing facilities will be made available in a limited number of farmer-owned storage facilities as demonstration. In order to facilitate replication, the financing of demonstrations will be threefold: (i) contribution from project and non-project-supported farmers (same as above); (ii) grant from the project amounting to a maximum of 20% of the total investment cost, and (iii) debt financing through a medium-term loan extended by Equity Bank, the amount of which will represent approximately 75/80% of the total investment cost;
* *Private investor-owned facilities*. Financing these facilities will be twofold: (i) performance-based grant from the project, and (ii) contribution from the private investor (either from its own resources or from borrowed resources). The project grant will not exceed 10% of the total investment cost. The grant will be disbursed in two installments: (a) 1/3rd at procurement of goods or services, and (b) 2/3rd subject to outreach indicator meeting target (number of project-supported smallholders using the facility). Since the project will only support private investors that are not already operating in the project area, the grant will constitute an incentive to start operations in those project areas. Capacity building (see below), and the security of sourcing produce from smallholders supported by the project will constitute additional incentives. For the project-supported smallholders such a new facility in their neighborhood will reduce their transportation cost (some farmers are transporting their production up to 30 km), thus increasing their income. Grants will also improve the return on investment during the first years of operations, especially when the production will not have reached its peak.
* *Financing operating losses.* Losses will mostly be incurred during the first year of activities, especially for the Storage facility. It is expected that not all 1 000 users will effectively store part of their production in the storage facilities, in their first year of operation, hence resulting in a loss for the LLC. Considering the low level of financial resources of most farmers, the project will have to compensate the operating losses in the form of a grant to each LLC. Such a grant will offset losses and will leave the LLC with its initial equity. Losses will be financed by the project for all the storage facilities supported. However, project-supported private sector-owned storage facilities supported by the project will have to bear the financing of the total amount of losses from their own resources.

1. ***Storage Facilities.*** Access to a storage facility enables farmers to store their marketable production and wait for higher market prices (generally after 3 to 5 months) instead of selling their production at harvest time to intermediaries who will pay the lowest price possible. In addition, the storage facility can also play the role of a large collection center which would facilitate the relationship between farmers and buyers. Farmers will be able to get a higher price than the one at harvest when grouping a large quantity of products in a single location (collection point), while for buyers it will reduce transaction costs. Storage facilities will be supported by the project only for the maize and finger millet value chains. Sorghum production is by far inferior to total demand and end-users are buying the production from farmers at harvest. Storing the production would not lead to an increased price of the commodity.
2. The situation of storage facilities in the project area is as follows:
3. Existence of storage facilities (private or public-owned) which are in good state and only require certification to be able to provide additional services such as warehouse receipt financing;
4. Existence of storage facilities (mainly public ones) which, in addition to the certification, also require some minor or major rehabilitation works;
5. Existence of production areas where no storage facility is available.
6. In addition, in terms of capacity used, privately-owned storage facilities are generally over-utilized, while public-owned ones are largely under-utilized. The few farmers’ owned storage facilities are also largely under-utilized mainly because of an absence of proper and skilled management.
7. The objective of the project with regards to storage facilities is to ensure that all e-voucher beneficiaries have access to a storage facility, which will enable them to fetch higher market prices for their marketable production, hence increasing their income.
8. Financial projections are based on a 1 000-user storage facility, the maximum capacity of which is 48 000 bags and the effective annual capacity is set at around 30 000 bags. The 1 000 farmers using the facility are: (i) 400 project-supported smallholders for maize and 500 for millet (from Category 1), and (ii) 600 non-project-supported farmers for maize and 500 for millet. Consequently and considering only the maize and finger millet value chains, the project has to support 60 storage facilities for its 25 000 e-voucher beneficiaries[[69]](#footnote-69). The support of the project will be threefold:
9. *Construction and certification of 15 new farmers’ group-owned storage facilities*. A limited liability company (LLC) will be created for each investment with its equity equally shared among the 1 000 users. The LLC will own the storage facility. The LLC will be governed by a Board of Directors which will appoint a Manager. To ensure a proper development and management of the LLC, the project will select an external Manager (young graduate from a business or agricultural university) who will be responsible for the management of the LLC during the 4 years of the project. Its selection will be endorsed by the LLC Board of Directors. Adequate assistance and training will be provided by the project for the creation of the LLC, the training and capacity building of its directors and managers as well as key leading farmers of the communities (see below).

The total investment cost for a 1 000 users/48 000 bags capacity storage facility amounts to USD 86 750 comprising of building construction, equipment and certification costs (see annex 2). Land will be either donated/leased by a farmer or by the local municipality. Considering the financial constraints of project-supported smallholders, their financial contribution is expected to be USD 5 000, the balance of the investment (i.e. USD 81 750) will be financed by the project in the form of a grant. The LLC share capital will correspond to the investment cost, thus leaving room for the LLC to contract a loan from a commercial bank to finance its working capital or new investments. Assets of project-supported smallholders will also be secured under the LLC legal structure as smallholders’ liability will be limited to their equity participation in case of LLC bankruptcy.

10 new farmers’ owned storage facilities will be financed under the project in the project area with maize as the main value chain while 5 new farmers’ owned storage facilities will be financed in the finger millet target area. Since these new farmers’ groups owned storage facilities will be certified, they will be able to enter into warehouse receipt financing, hence their location in the maize and millet production areas. No warehouses are planned in the sorghum area because of the lack of price fluctuation and the unbalanced supply/demand market, which do not allow developing any warehouse receipt financing.

1. *Rehabilitation and certification of 35 existing storage facilities.* These storage facilities are generally public sector-owned. The global cost for their rehabilitation, equipment and certification amounts to USD 15 500 (see annex 2). The project will finance USD 10 500 in the form of a grant, while users will contribute USD 5 000 (in most cases these storage facilities are not operating or are operating well below their capacity). In addition, as in the case of farmers’ owned new storage facilities, the project will also provide assistance to users to appoint their Board of Directors and their Manager (selected by the project during the first 4 years of operations) and it will also provide training and capacity building to directors, the manager and key leading farmers.

30 existing storage facilities will be rehabilitated, equipped and certified in the maize production area and 5 existing storage facilities in the finger millet production area (same reasons as above will apply for not rehabilitated existing storage facilities in the sorghum production area).

1. *Certification of 10 existing storage facilities.* Certification costs as determined by the East African Grain Council and purchase of necessary equipment amount to USD 5 500 (see annex 2). Contribution of owner/operator/users will finance the totality of this cost. In addition, as in the case of the farmers’ owned new storage facilities financed under the project, the project will also provide assistance to users to appoint their Board of Directors and their Manager (selected by the project during the first 4 years of operations) and it will also provide training and capacity building to directors, the manager and key leading farmers.
2. A scoping study and a mapping exercise of existing storage facilities in the project area will be undertaken at project inception by PIU hired consultants. This scoping study and mapping will enable the project to fine-tune its intervention and determine the number of storage facilities to be built and/or rehabilitated in each of the two production zones. The definitive locations would be based on catchment areas which should include at least 1 000 farmers (of whom 400 will be project-supported smallholders) with adequate production capacity.
3. In addition to investment costs, the project will also finance the operating losses for each of the 60 supported storage facilities. Each storage facility will be established as a non-profit center, so that the service charged to each farmer when storing his/her production will be reduced to the minimum (break-even point)[[70]](#footnote-70). However, losses will occur during their1st year of operations (and possibly also during their 2nd year of operations) because most farmers will not stored their entire marketable production in the storage facility but will rather use the storage facility as a collection point and sell to millers/processors. Gradually, as they will be able to fetch higher market prices, an increasing percentage of their marketable production will be deposited in the storage facility. Losses during the 1st year of operations have been estimated at around USD 11 600 per storage facility (with eventual losses amounting to USD 200 during the 2nd year). The project will allocate USD 0.7 million for the financing of these operating losses.
4. Finally, the certified storage facility will lead to the possibility of setting up a warehouse receipt financing scheme for the benefit of its users. The mechanisms previously described will enable farmers to get a bridge loan from Equity Bank in order to finance their households’ needs or any other needs. Farmers will pay back their credit when they will sell their production at higher market prices and will cash the difference. For farmers’ households, such a mechanism leads to two additional cash inflows for each production cycle (first cash inflow with the bridge loan when marketable production is stored and second cash inflows at the sale of the stored production). The estimated resources that Equity Bank should allocate to finance bridge loans to the project-supported smallholders amount to USD 7.5 million USD, revolving over one year period (increasing from USD 0.65 million during 1st year of operations to USD 7.5 million during 4th year of operations).
5. ***Processing Facilities.*** Several types of processing activities will be supported under the project: (i) shelling and threshing ; (ii) milling , and (iii) cleaning, polishing and packaging for pulses. As in the case of storage facilities, the scoping studies and mapping exercise will enable the project to fine-tune possible locations for each processing facility.
6. *Shelling and Threshing facilities.* It has been estimated that approximately 60% of e-voucher beneficiaries will access existing shelling and threshing facilities, the project will support the setting up of new facilities for the remaining 40% (i.e. 16 000 smallholders). Considering groups of 1 000 farmers of which 400 are project-supported smallholders, the project will support the setting up of 40 new shelling and threshing facilities.
7. 15 facilities will be implemented in the same locations as the 15 new farmers’ owned storage facilities financed under the project and will be owned by the LLC. These facilities, for the same reasons as for the storage facilities, will be considered as not-for-profit facilities. The remaining 25 facilities will be developed with private investors.
8. The global investment for a shelling and threshing facility amounts to USD 36 250 and consists of a tractor and the shelling/threshing equipment. Shelling and threshing activities will take place during 4/5 months per year while the tractor can then be used for farming activities for the benefit of the 1 000 farmers (during 4/5 months per year) and for transportation during the remaining 2 months per year.
9. The financing of the 15 facilities that will be farmers’ owned (through the LLC) will be as follows: (i) contribution from beneficiaries estimated to be USD 5 000, and (ii) grant from the project for the balance (USD 31 250). The financing of the 25 facilities that will be owned by a private investors will be as follows: (i) performance-based grant from the project of 10% of the investment cost, and (ii) contribution from the private investors for the remaining amount either with his/her own resources and/or with borrowed resources. The performance-based grant will be disbursed in two installments: (a) 33% at the procurement of the equipment, and (b) 67% after 2 years of operations subject to the effective outreach of the activity with regard to the number of project-supported smallholders meeting the pre-determined target (300 project-supported smallholders). An eventual working capital loan will be extended by Equity Bank.
10. Annex 3 illustrates the financial projections for one threshing and shelling facility.
11. *Milling facilities.* According to field visits and interviews, the milling capacity is sufficient in most of the project area, with however some pockets where a milling facility is required. In addition, a new Law passed in April 2013 forces existing milling facilities to upgrade their production standards. In that respect, the project support for the milling activity will be threefold: (i) financing of 2 new farmer-owned milling facilities as a demonstration. These 2 facilities will be implemented in the same location as new storage facilities financed under the project; (ii) co-financing with private investors of 5 new milling facilities; and (iii) co-financing with private investors of the cost related to the upgrading of 20 existing milling facilities.
12. The global investment cost amounts to USD 100 000 for the milling equipment installed at a storage facility. With a view to stimulate further adoption of similar equipment by other LLCs, the financing of the 2 farmer-owned demonstration sets will be as follows: (i) contribution from users estimated at USD 5 000; (ii) a grant from the project representing 20% of the investment cost, and (iii) a medium-term loan from Equity Bank for the remaining.
13. For milling facilities implemented together with private investors, the global investment cost will amount to USD 160 000 (inclusive of building cost). This investment will be financed through a performance-based grant from the project (10% of the total investment) and a contribution from the private sector (own resources or borrowed funds). 33% of the project grant will be disbursed at the construction of the building and 67% of the project grant will be disbursed after 2 years of operations subject to the effective outreach in terms of number of project-supported smallholders meeting the target (300 project-supported smallholders to access the milling facility). The cost for upgrading existing milling activities for their compliance with the new Law has been estimated at USD 31 250. The project will finance 10% of that cost through a performance-based grant (with similar disbursement conditions as in the case of new milling facilities built with the private sector) with private investors financing the balance.
14. *Cleaning/Polishing/Packing facilities for pulses.* A very limited number of these facilities is operational in the project area. The project will support the implementation of 2 demonstration farmers’ owned facilities (through farmer-owned LLCs owning storage facilities) located in the same site as the new storage facilities promoted under the project and of 10 other facilities that will be mostly financed by the private sector.
15. The global investment cost amounts to USD 75 000. The financing of these facilities will follow the same pattern as for the milling facilities i.e. (i) for the two demonstrations facilities, the project will finance 20% of the investment cost in the form of a grant; users will finance up to USD 5 000, and Equity Bank will extend a medium-term investment loan (15% interest rate, 3 years of duration with annual installments) to finance the balance of the investment cost, and (ii) for the 10 facilities developed together with the private sector, the project will contribute to 10% of the investment cost in the form of a performance-based grant (similar disbursement conditions as in the case of milling facilities) while the private investor will finance the balance of the investment cost.

**Stakeholders’ Capacity Building**

1. To ensure adoption of best practices in business and financial management leading to a sustainable implementation and development of facilities, the project will finance training and capacity building for 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. Training and capacity building modules will include the following topics: (i) financial management (credit, repayment, elaboration of loan applications); (ii) business management (elaboration of business plan); (iii) marketing and commercialization (elaboration of marketing studies, marketing channels); (iv) price determination; (v) legal and tax environment; (vi) budgeting; (vii) reporting and accounting (financial statements); (viii) procedures; (ix) role and responsibilities of governing bodies’ members; (x) internal control and audit, and (xi) quality control and international/national standards.
2. Training and capacity building courses will be provided by Equity Group Foundation (2nd level of their financial literacy training). Training will consist of one initial training course starting during the procurement period of goods and services, and one or several refresher courses during the next two years (number and content of refresher courses will depend on problems, constraints, issues faced by entrepreneurs, managers and Board members). Scoping studies will also provide Equity Group Foundation with identification of major subjects to be included in the training courses in order to strengthen each selected value chain.
3. An amount of USD 175 200 has been allocated for the provision of training and capacity building to managers, board members, micro- and small entrepreneurs, private investors and key leading farmers.
4. **IMPLEMENTATION ARRANGEMENTS**
5. KCEP will partner with PROFIT, an IFAD-funded project that aims at strengthening the Kenyan microfinance sector through the implementation of specific financial instruments (innovative grants and guarantee facility). PROFIT’s role will be to collaborate with KCEP on the implementation of Component 3 financial instruments and to manage KCEP-financed grant component included in the financing of processing and storing facilities. To this effect, the project will finance the cost of a Financial Services Specialist who will be responsible for managing KCEPgrants, liaising with Equity Bank and with the service provider of component 2, and collecting and analyzing data for KCEP M&E.
6. *The implementation of the ‘Financial Inclusion’ sub-component* will be outsourced to local specialized institutions and/or service providers that will sign a contract/Memorandum of Understanding with the project.

* The financial inclusion sub-component will be implemented by Equity Bank.
* Training and capacity building for project-supported smallholders, value chain stakeholders, entrepreneurs, private investors, LLCs Board members and managers, as well as key leading farmers will be provided by Equity Group Foundation (EGF) has already trained several thousands of farmers and entrepreneurs in financial literacy and management. Training modules are based on a graduation mechanism for trainees that starts with basic financial literacy training (for project-supported smallholders) and evolves to more advanced financial and business management (for entrepreneurs, Board members, managers and private investors);
* 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. Three insurance companies operating in Kenya will be short-listed and contacted for their expression of interest: Syngenta, Equity Insurance and Jubilee. The Call for Expression of Interest will be launched by the PIU and an evaluation committee will be set up composed of: one representative from KCEP, one representative from PROFIT and one representative from the Ministry of Agriculture.

1. *The implementation of the ‘Value Chain Financing’ sub-component* will be as follow:
2. Scoping study/mapping exercise. The scoping study and mapping exercise to be carried out during preparatory activities (see Appendix 5 and Working Paper 3) will identify among others existing infrastructure, areas where infrastructure are required as well as their type (private, farmer-owned, public). It will also identify locations with a potential of around 1 000 farmers of which 400 are project-supported smallholders from target Category 1
3. Sensitization/Awareness campaign. In the target counties/sub-counties, both the Service Provider selected for Component 2 and the Financial Services Specialist will visit communities identified in the scoping studies/mapping exercise and will detail the different aspects of the project with a specific focus on its productive investments component (e-vouchers and e-cards, storage and processing facilities). This awareness campaign will target also potentially interested private entrepreneurs;
4. Call for Expression of Interest. Every year and in accordance with the project phasing, the PIU (Agribusiness Specialist) will issue 3 calls for expression of interest: one in the maize/bean production area, one in the finger millet/pigeon peas production area, and one in the sorghum/pulses production area. Each Call for Expression of Interest will target farmers and county-level private investors interested in benefitting from project financing to invest in storage/processing facilities, as well as private investors interested in leasing public storage facilities. The answer to the call should be motivated, i.e. the community/private entrepreneur should explain the reasons for the selected type of investments and provide the project with data related to population, poverty, current level of production, existence of similar investments in the vicinity, and level of financial contribution. Concomitantly to the local calls for expression of interest, the PIU will launch a national call to identify interested investors beyond the target counties;
5. Ranking of Expressions of Interest. An evaluation committee composed of one representative from the PIU, one representative from the Ministry of Agriculture, one representative from Equity Bank and one technical expert from each project-supported value chain will rank expressions of interest submitted by communities and private entrepreneurs. The technical expert will be contracted by the PIU and will receive a per diem and a small honorarium. He/she has an extensive knowledge of the value chain, especially on his technical aspects, enabling him/her to assess the expression of interest. The ranking will be based on the following criteria: (i) willingness of the community to financially participate in the financing of the investment; (ii) willingness of the community to participate in the governance of the investment; (iii) production growth projections; (iv) number of farmers willing to use the investment; (v) number or project-supported smallholders willing to use the investment; (vi) distance to the nearest similar investment or level of maintenance of similar investments in the vicinity of the community, and (vii) poverty level of the community. The project will finance projects in each category, and each area of production until resources allocated are exhausted;
6. Assistance to farmers’ groups to form their LLC. A legal advisor contracted by the PIU, jointly with the Cereal Growers’ Association supporting farmers’ group development in Component 1, will assist communities to form their LLC in the case of the project financing new storage facilities. Assistance will also focus on LLC Board creation and members selection, drafting of internal rules and regulations, registration of the LLC with local authorities;
7. Support to setting up management arrangements for public facilities: the legal advisor 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;
8. Drafting technical and financial feasibility study and tender documents. In the selected communities, the PIU civil engineer will draft a technical and feasibility study of the proposed investment with close community participation (farmers’ owned investments). This technical and financial feasibility study will form the core documentation of the tender documents that the PIU civil engineer will also prepare. For non-farmers’ owned investments, the private investor/operator will draft its own financial and technical feasibility study, along a pre-determined format, and submit it to the PIU civil engineer for approval;
9. Tenders. Tenders will be launched by the PIU according to the procurement rules and regulations in force in Kenya. The PIU will launch tenders for construction and procurement of equipment for storage facilities developed as LLCs. The PIU will act on behalf of the LLC Board and Manager. The specific committee to evaluate bids will be constituted according to the Kenyan procurement rules and regulations. Companies being awarded contracts will sign a contract with the PIU;
10. Training to governing bodies and lead farmers. Concomitantly, Equity Group Foundation will provide training and capacity building modules to governing bodies members and lead farmers of selected communities. The training and capacity building will target Board members, managers of investments, leaders of farmers’ groups, lead farmers in the communities, private investors, and operators of existing facilities that will be rehabilitated/upgraded under the project;
11. Mobilization of users’ contribution. Users’ contribution will be mobilized and deposited in a specific account opened at Equity Bank in the name of the LLC or the group, with adequate authorized signatories. No investment will be implemented without the proper financial contribution from users;
12. Other contributions. Contributions from private investor(s)/operator(s) will be materialized by a bank statement indicating the capacity of private investor(s)/operator(s) to co-finance the investment. The bank statement will be forwarded to Equity Bank and to the PIU;
13. Procurement. The PIU will procure goods and services related to farmer- owned investments (on behalf of the LLCs owning these investments). For investments in partnership with private investors or for investments taking place in public-owned facilities, the PIU will also procure the related goods and services (this condition will be stipulated in the tender documents and its acceptance will be a criteria to select the public-owned, private-owned proposals for investment);
14. Delivery of goods and services. Communities will be associated in the delivery and acceptance report for each goods or services procured;
15. Payment. Equity Bank will pay the contracted service provider for construction/equipment delivery on behalf of users (users’ contribution that has been deposited on a specific account at the Bank), the private investor/operator will pay directly the contracted service provider for its share and the PIU will process the payment of the project’s share of the investment. In that respect, the project based on its Annual Work Plan and Budget and procurement contracts will transfer the adequate amount to PROFIT which will manage IFAD/project contribution in each investment (LLC share capital, grants and performance-based grants for new and existing processing and existing storage facilities). For non-farmers’ owned investments, the project’s grant financing will be processed based on the delivery and acceptance report of the investment (first installment) as well as on the fulfillment of the performance-based indicators for the second installment of the project financing.
16. **PERFORMANCE INDICATORS**
17. Specific indicators need to be monitored by the project in order to measure its performance and impact as well as the performance of service providers. Such performance and impact indicators include:

* E-vouchers: Adoption rate of inputs package after subsidy from project;
* Insurance: # of farmers paying their premium from Year 3 onward (once the subsidy of the project stops); # of claims submitted to the insurance; # of claims accepted, and amount of compensation paid;
* Forward contracts: # of project-supported smallholders involved in forward contracts;
* Warehouse receipt financing: number and total amount of loans extended; PAR and repayment rate;
* Storage facilities: Cost per bag for storing and processing (shelling/threshing, milling and cleaning); # of facilities breaking-even; # of LLCs/facilities still operating at project completion;
* Processing activities: Cost per bag of service provided; # of investments operating at project completion;
* Lending activities: number and total amount of loans extended by Equity Bank to project-supported smallholders for (i) working capital, and (b) investment; PAR, repayment rate and loan amount written-off;
* Savings: number and total amount of savings mobilized by project-supported smallholders (disaggregated by gender); # of new savings products implemented by Equity Bank;
* Limited Liability Companies: # of women in governing bodies positions; % of variance in price per bag; % of shareholders and non-shareholders using SF;
* Training: # of project-supported smallholders trained (financial literacy) disaggregated by gender; # of entrepreneurs trained (advanced financial training) disaggregated by gender and by positions (Board members, managers, private investors, operators, entrepreneurs, agro-dealers).

1. In addition, for each value chain a sample of 50 project-supported smallholders should be defined at project inception and followed throughout the project to analyze:

* The change in production level in the selected value chain;
* The change in income in relation with the selected value chain production.

1. Each value chain should also be analyzed at project inception and completion to determine the following changes:

* Distribution of added value from production to marketing between different stakeholders;
* Change in percentage of added value retained by project-supported smallholders;
* Change in prices fetched from buyers.

**Annex 1:Profit and Loss and Change in Cash Position for Project-Supported smallholders**

1. The following tables illustrate the profit and loss as well as the changes in the cash position of a project-supported smallholder in the three selected value chains: maize/bean; sorghum/pulses, and finger millet/pigeon pea.
2. The main financial options included in the profit and loss statement for each value chain are as follows:

* Inputs packages are subsidized by the project up to 90% for the 1st year and 40% for the 2nd year;
* Post-harvest losses are decreasing following training and capacity building provided to smallholders by the project;
* The insurance premium included in the package is based as follows: a/ the premium during the first year is based on a compensation the amount of which is equal to the cost of the package, and b/ the premium during the 2nd and subsequent years is based on a compensation the amount of which is equal to the cost of bags used for the household’s own consumption. It is expected that gradually project-supported smallholders will increase the amount of the premium based on a compensation the amount of which will be equal to the global value of the harvest;
* Storage facilities are gradually being used by project-supported smallholders and other farmers as the increase of the percentage of their marketable production stored indicates. The cost of storage facilities derives from the profit and loss statement of a model of a new farmers’ owned storage facility;
* Labor has been considered to be fully provided by members of the household. Labor cost is not included in the P&L statement.

1. The main assumptions for the changes in the cash position are as follows:

* In year 1, it has been assumed that project-supported smallholders will have the necessary cash available to finance the non-subsidized part of the inputs package (whether own resources or borrowed). This assumption has been cross-checked with other projects;
* The cash position is calculated before and after labor cost.

1. The models show that for each selected value chain: a/ the cash generated by the activity is sufficient to pay for the labor cost calculated at market rate; b/ the cash available after payment of labor is sufficient to cover next year’s purchase of inputs; and c/ there is a growing cash surplus after labor cost and financing next year’s activity which can be used to finance household’s expenses.

**Maize/bean producing smallholder**

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**Sorghum/pulses producing smallholder**

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**Finger Millet/pigeon pea producing smallholder**

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**Annex 2:Storage Facilities - P&L statement**

1. Table 1 illustrates the phasing of smallholders benefiting from project’s interventions.

**Table 1: Incremental and consolidated number of beneficiaries**

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1. Storage facilities will be used by an average of 1 000 users of whom 400 will be project-supported smallholders. Considering that for the sorghum value chain there is no need for storage facility, and considering that the project should support the access of all project-supported smallholders to storage facilities, 60 storage facilities have to be supported by the project. Based on field trips, it has been assumed that:

* 10 new storage facilities (farmers’ groups owned) in the maize production area and 5 new storage facilities (farmers’ groups owned) in the millet production area will be financed by the project (with a small contribution from users);
* 30 existing storage facilities in the maize production area and 5 in the millet production area will be rehabilitated, equipped and certified;
* 5 exiting storage facilities in the maize production area will be equipped and certified.

1. The construction cost has been evaluated at USD 86 000, the cost of equipment is evaluated at USD 5 000 and the cost of certification at USD 500. The certification is necessary to enable the storage facility to enter into warehouse receipt financing.
2. The following tables 2 and 3 illustrate the characteristics of a storage facility (table 2); the breakdown by type of storage facility and the timeframe for their implementation (table 3), and

**Table 2: Main characteristics of storage facility**

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**Table 3: Breakdown by type of storage facility and implementation timeframe**

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1. The total investment cost of USD 86 750 for a new storage facility is detailed in table 4. The land has been considered as being provided either by a large farmer or by the municipality. Building cost includes the cost of design and supervision of the work (respectively 4% and 6%). Certification cost of USD 500 is currently charged by an accredited company for two visits.

**Table 4: Investment cost**

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1. The following table details the operating costs of one new storage facility. External labor is used to off-load and on-load bags from trucks and is paid by the number of bags carried. Insurance premium is calculated on the value of average number of bags stored plus the value of the building itself. Table 5 also details the profit and loss statement for one new storage facility. In order not to increase the financial burden for each producer, the storage facility is considered to be a not-for-profit LLC. In that respect, LLCs will not pay taxes that would have increase the cost borne by each smallholder. However, the cost per bag (table 3) includes the amortization of the investment.

**Table 5: Profit and Loss Statement for a storage facility**

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1. Certified storage facilities will be able to enter into warehouse receipt financing enabling smallholders and other farmers to store part of their marketable production pending higher market prices. However, farmers storing part of their production need access to bridge loan in order to compensate the loss of income as a result of their storing. The storage facility is associated with Equity Bank which will extend short-term loans to storage facility users. The amount of its loan will depend on: (i) the average price of the commodity during the previous season, and (b) 75% of the number of bags stored by each individual. Such a calculation minimizes the risk for Equity Bank the loan of which will be collateralized by the production stored. The following table details the amount of resources to be allocated by Equity Bank for warehouse receipt financing in each new storage facility, according to gradually increasing effective stored capacity. Total amount is USD 145 000 for one storage facility which gradually increases from year 1 of operations to year 4, then all things being equal, no incremental resources shall be needed.

**Table 6: Warehouse Receipt Financing - Resources to be allocated**

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**Annex 3: Shelling and Threshing Facilities**

1. Table 1 illustrates the cost of equipment necessary for the shelling and threshing activities, consisting of a machine and a tractor. This mobile equipment will be providing services from farm to farm. Based on field visits, it has been considered that approximately 60% of project-supported smallholders have access to existing facilities. The remaining 40% will have access either from shelling/threshing facilities implemented at the level of the 15 new farmers’ groups owned storage facility or from facilities implemented together with the private sector.

**Table 1: Cost and type of investment**

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1. Table 2 details: a/ the number of months the equipment is used. The shelling/threshing can be used for a maximum duration of 4 months to absorb the production of the 1 000 farmers using the storage facility, the tractor can then be used alone for farming during approximately 4 months and then the remaining 4 months the tractor can be sued to provide additional services such as transportation; b/ the operating costs of the equipment (tractor and machine), and c/ the cost per bag processed and per acre farmed. These costs are for equipment owned by a LLC. If owned by a private investor and based on current market price for similar services, the cost determined in the table is approximately 50% below the market price, leaving ample margin for the private investor to make a profit and to have a strong position vis-à-vis its competitors.

**Table 2: Cost per bag processed/ cost per acre farmed**



**WORKING PAPER 5 – FEASIBILITY STUDY FOR AN ELECTRONIC VOUCHER PLATFORM**

1. **INTRODUCTION**
2. The EU will finance a 22 million USD (€ 17.6 million) initiative building on the National Accelerated Agricultural Inputs Access Programme (NAAIAP). Under this programme, IFAD will implement the Kenya Cereal Enhancement Programme (KCEP) including maize, sorghum and millet value chains to be implemented over 3 years under the MOA.
3. This concept note explores the electronic voucher options available in Kenya and makes recommendations for the selection of the most suitable Payment Service Provider (PSP). Due to the need to launch and roll out an electronic voucher programme by the long rains in March 2014, it is also recommended that IFAD adopt a Partnership approach in the selection of the Payment Service Provider (PSP) and not follow a long and often protracted procurement exercise whereby interested parties would be invited to submit Expressions of Interest (EOIs) and proposals under a public Request for Proposals (RFP) mechanism. We have been informed that a procurement process of this nature can take anything from 12 – 18 months, thereby substantially delaying the launch of the electronic voucher programme. IFAD should also be mindful of the fact that the innovative and world first solution proposed in this concept note makes use of a product that one of the banks, namely Equity Bank already has in the market (VISA debit card), but requires of the PSP customise this standard product by adding what we have termed the IFAD e-Voucher wallet to the standard debit card. This additional functionality will need to be developed by the development team at the bank in partnership with the technical team of the chosen payment scheme (VISA or MasterCard). This development may take anything from 3 – 6 months and as such, it is recommended that IFAD consider partnering with Equity Bank that has a good relationship with VISA, is already (in principle) willing to invest in the development of the product under a Partnership arrangement and has substantial experience in rolling out innovative payment solutions for social cash transfer programmes in Kenya.
4. Kenya has a very strong financial inclusion policy agenda, however, recent data published by the World Bank shows that only 42% of all respondents aged 15+ surveyed for the Global Findex initiative have an account at a formal financial institution. This implies that the remaining 57.7% remain unbanked and outside the formal financial system. Programmes such as the IFAD e-voucher programme can do a lot to advance the financial inclusion agenda by selecting a financially inclusive payment mechanism from the start and not being tempted to roll out a proprietary closed loop single purpose e-voucher. For this reason, it is recommended that IFAD select a payment mechanism that serves two purposes. Firstly, it enables beneficiaries to redeem their electronic vouchers at specific agro-dealers by “purchasing” goods from a specified list, and, secondly, the same electronic voucher can be used over the long run in the same manner as a conventional open-loop debit card allowing beneficiaries to make deposits through various channels, including bank branches and agents into a fully functional bank account, earn interest on positive balances, use the card to make purchases in the retail environment at Point of Sale (PoS) and to withdraw cash at an ATM. This innovative approach allows IFAD and its partner bank to pilot a unique payment mechanism that meets to programmes primary objective (getting inputs to beneficiaries in an efficient and transparent manner through an electronic voucher) and at the same time, advances Kenya’s financial inclusion agenda by banking all of the programmes beneficiaries and building the branchless banking agent network by recruiting and registering all of the Agro-dealers chosen to participate in the programme as agents of the bank. Section 2 of the Concept Note covers Kenya’s financial inclusion agenda and presents data on the current levels of financial inclusion in the country.
5. Seven different voucher options are discussed in section 3. These are 1) paper vouchers; 2) SMS vouchers generated by a Voucher Management System such as the I-Card system currently being piloted by NAAIAP; 3) scratch card vouchers; 4) proprietary smart cards; 5) prepaid cards; 6) bank issued debit cards; 7) various mobile solutions. The advantages and disadvantages of each are discussed in detail.
6. Section 4 details the specific requirements of the IFAD e-voucher. In particular, it has been decided that:

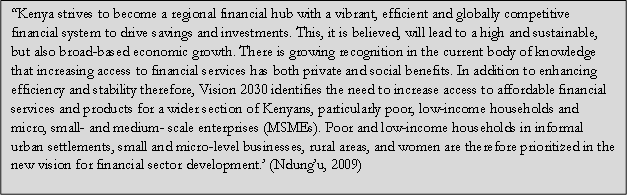
* the e-voucher must be redeemable at specific pre-selected Agro-dealers for specific pre-defined goods. (The subsidy must therefore be “ring-fenced” separated from the beneficiaries transactional/savings account.) This e-voucher wallet will be closed loop / proprietary;
* the e-voucher is only activated upon a beneficiary co-contribution having been made;
* the same e-voucher (token/mechanism/process/system) should allow the beneficiary to save in the long run, make deposits at participating agents / Agro-dealers, access saved funds and conduct other transactions through a number of channels (ATMs, branches, mobile banking and potentially cash-out at PoS);
* the voucher should be VISA or MasterCard branded allowing for greater acceptance and wider use. Proprietary PSP specific closed loop solutions should be discouraged as limit access points in the long run;
* beneficiaries should be able to use the proposed e-voucher (token/mechanism/process/system) to save and build a credit history which could later be used to access credit;
* all transactions must be processed online in real-time and Agro-dealers reimbursed instantaneously when the e-voucher is redeemed;
* the ability to link payment for insurance premiums (weather based insurance) to the redemption of the voucher is a distinct advantage.

1. The required solution is unique in that it requires the development of a product which includes both a mainstream transactional/savings account linked to a debit card and a separate “ring-fenced” wallet that can only be used for a specific purpose. A financially inclusive solution is therefore required and as such, IFAD will need to partner with a Kenyan Bank to develop and roll out the solution.
2. In many countries, given poor infrastructural development and the limited reach of banks, programme designers are often forced to make a compromise and to issue beneficiaries with single purpose vouchers that once redeemed, have served their purpose and cannot be used for anything else. In Kenya however, given the sophistication of the banking sector, an appetite for innovation, extensive coverage and reach of the banks in terms of the deployment of ATMs, PoS devices and an ever increasing branchless banking agent network, it is recommended that IFAD use this opportunity to roll out an electronic voucher that advances the financial inclusion agenda, whist at the same time meeting the needs of the programme. Section 4 of this concept note sets out the proposed solution, components and activities and the innovative and replicable nature of the products proposed.
3. **KENYA’S FINANCIAL INCLUSION AGENDA**

**Defining financial inclusion**

1. Policy makers, academics and private sector players all have a different take on the meaning and scope of financial inclusion. For instance, the Indian Institute of Banking and Finance Financial define financial inclusion as “the delivery of banking services at an affordable cost ('no frills' accounts,) to the vast sections of disadvantaged and low income group. Unrestrained access to public goods and services is the *sine qua non* of an open and efficient society. As banking services are in the nature of public good, it is essential that availability of banking and payment services to the entire population without discrimination is the prime objective of the public policy."[[71]](#footnote-71) The Center for Financial Inclusion proposes a multi-dimensional definition of financial inclusion as follows “full financial inclusion is a state in which all people who can use them have access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, and with dignity for the clients. Financial services are delivered by a range of providers, most of them private, and reach everyone who can use them, including disabled, poor, rural, and other excluded populations.”[[72]](#footnote-72)
2. For the purposes of this report, the definition provided by the Center for Financial Inclusion is preferred as the definition puts clients rather than banks or technologies at the forefront. It recognises that the financial-service needs of the poor have fundamental similarities to those who are better off. If the definition is broken down into its four components, it is important to look at:
3. **What is provided:**A full range of services, which includes a basic product in each of the four main areas: savings, credit, insurance, and payments.
4. **How it is provided:**With quality - convenience, affordability, safety, and dignity of treatment—and with client protections operating.
5. **Who receives:**Everyone who can use the services, including the poor, rural, informal, and groups who are often discriminated against (women, ethnic minorities, disabled).
6. **Who provides:**A range of providers led by mainstream financial institutions, but also including organizations from the private, social, and government sectors.[[73]](#footnote-73)

**Kenya’s progress in achieving financial inclusion from a policy perspective**

1. To realize its financial inclusion goals, Kenya introduced Vision 2030 in 2009. This Vision states

As noted by the Alliance for Financial Inclusion “in pursuit of this vision, CBK initiated a number of policies and innovations to provide access to financial services for segments of society who have historically been financially excluded. This effort also aims to increase the usage of diverse financial services within the entire Kenyan populace, while embracing diversity in sector-wide developments. The ultimate objective is to create access to affordable financial services.”[[74]](#footnote-74) Important financial inclusion milestones achieved over the past twenty years in Kenya include:[[75]](#footnote-75)

1. The licensing of K-Rep Bank in 1999, which opened the door for transforming of microcredit organizations into regulated financial institutions;
2. The enactment and operationalisation of the Microfinance Act in 2006 and Regulations, which provided a window for licensing deposit–taking microfinance institutions;
3. The evolution of Equity Bank from a microfinance building society to a commercial bank and the leading player in financial inclusion in Kenya;
4. The conversion of Family Bank from a building society into a fully-fledged bank in May 2007.
5. The entrenchment of the financial inclusion agenda in Kenya’s current development blueprint, Vision 2030, which seeks to make Kenya a middle-income country, with a stable, efficient, and inclusive financial system by the year 2030;
6. The widespread adoption of the mobile phone as a channel used to access formal financial services. The financial services sector has come a long way and appears to have been shaken up since the introduction of mobile money transfer services (M-Pesa) by the Telco Safaricom. As noted in the AFI report, “virtually all banks and other financial services providers have now signed partnership arrangements with mobile service providers and expanded their products and services beyond money transfer. ‘Banking on the move menus’ are now a common feature in all financial services, allowing customers to access information and make payments/transfers directly from their bank accounts. Using technology to link mobile money, bank accounts, ATMs, POS devices and internet banking, institutions continue to develop highly innovative products, services and solutions, which have become the key driver in opening access to financial inclusion.”[[76]](#footnote-76)
7. A strong commitment from CBK to financial inclusion. This commitment is evidenced by four key financial inclusion measures and policy interventions, namely: (a) the operationalisation of the Microfinance Act (2006) through the issuing of supporting regulation covering the licensing, regulation, and supervision of microfinance businesses in Kenya, (b) the operationalisation of the Banking (Credit Reference Bureaus) Regulations in February 2009 making credit information sharing possible in Kenya, (c) the amendment of the Banking Act and the Microfinance Act to allow licensed institutions to use agents to reach their customers and provide specific services (Agency Banking), and (d) the incorporation of a risk-based approach to AML/CFT requirements in the Proceeds of Crime and Anti-Money Laundering Act. Through the risk-based approach, financial institutions which deal with low income customers that present a lower risk are permitted to apply reduced and simplified controls in order to facilitate financial inclusion. As such, customers below a certain threshold may be exempt from certain due diligence requirements such as the need to provide verification of a physical address.
8. As Agency Banking is a vital element of the proposed payments solution for the electronic voucher programme under the Kenya Cereal Enhancement Programme (KCEP), this issue is covered in more depth in the paragraph below.

**Agency banking is key to any financial inclusion agenda**

1. Agency banking or branchless banking as it is known in other jurisdictions is an arrangement by which licensed institutions engage third parties to offer certain banking services on their behalf. In Kenya, agency banking is governed by the Guideline on Agent Banking – CBK/PG/15 issued by the Central Bank and which became operational on 1st May 2010.[[77]](#footnote-77) The purpose of the guideline is threefold. Firstly, it is to provide for agent banking as a delivery channel for offering banking services in a cost effective manner. Secondly, to outline activities which can be carried out by an agent and thirdly, to serve as a set of minimum standards of data and network security, customer protection and risk management to be adhered to in the conduct of agent banking business. In line with the overall financial inclusion policy objective adopted by the Government of Kenya, it is further stated that the policy objective of the Guideline on Agent Banking is to “increase financial services outreach and to promote financial inclusion to the un-banked and under-banked population without risking the safety and soundness of the banking system; and, to encourage institutions to use agents in the provision of banking services so as to reduce the cost of financial services and to foster financial inclusion, reach and depth.”[[78]](#footnote-78)
2. Any bank wishing to adopt an agent banking strategy must obtain approval from the Central Bank of Kenya of both its agent network and approval of specific agents.[[79]](#footnote-79) Strict agent suitability criteria apply and financial institutions are required to i) establish that the entity has an existing well established commercial activity which has been operational for at least eighteen months immediately preceding the date of the suitability assessment, ii) establish that the entity has not been classified as a deficient, doubtful or non-performing borrower by an institution in the last 18 months preceding the date of signing the contract. That status shall be maintained for the duration of the contract, iii) establish that the entity possesses appropriate physical infrastructure and human resources to be able to provide the services with the necessary degree of efficiency and security.[[80]](#footnote-80) Limited liability companies, sole proprietorships, partnerships, societies, cooperative societies, state corporations, trusts, public entities and any other entity which the Central Bank may prescribe are eligible for appointment as agents.[[81]](#footnote-81) Under the guidelines, the Head Office is responsible for and directly liable for the conduct of its agents.[[82]](#footnote-82) The permissible and prohibited activities which may be carried out by agents are set out in table 1 below.

**Table 1: Permissible and prohibited activities of bank agents**

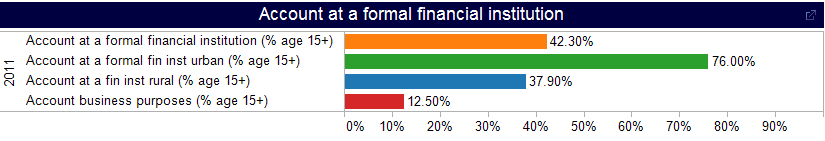
|  |  |
| --- | --- |
| **Permissible Activities** | **Prohibited Activities** |
| ✓Cash deposit and cash withdrawal | 🗶Operation or carrying out an electronic transaction when there is communication failure in the system |
| ✓Cash disbursement and cash repayment of loans | 🗶Carrying out a transaction when a transactional receipt or acknowledgement cannot be generated |
| ✓Cash payment of bills | 🗶Charging any fees directly to the customers |
| ✓Cash payment of retirement and social benefits | 🗶Carrying out agent banking business when, in the opinion of the institution the initial commercial activity has ceased or is significantly diminished. The commercial activity should be viable and able to financially support the agent banking business. |
| ✓Cash payment of salaries | 🗶Offering any type of guarantee in favour of any institution or customer |
| ✓Transfer of funds | 🗶Offering banking services on its own accord (provide on its own account banking services similar to those provided by it under an agency contract) |
| ✓Balance enquiry | 🗶Continuing with the agency business when it has a proven criminal record involving fraud, dishonesty, integrity or any other financial impropriety |
| ✓Generation and issuance of mini bank statements | 🗶Providing, rendering or holding itself out to be providing or rendering any banking service which is not specifically permitted in the contract |
| ✓Collection of documents in relation to account opening, loan application, credit and debit card application | 🗶**Opening accounts, granting loans or carrying out any appraisal function for purposes of opening an account or granting of a loan or any other facility except as may be permitted by any other written law to which the agent is subject.** |
| ✓Collection of debit and credit cards | 🗶Undertaking cheque deposit and encashment of cheques |
| ✓Agent mobile phone banking services | 🗶Transacting in foreign currency |
| ✓Cheque book request | 🗶Providing cash advances |
| ✓Cheque book collection by customers | 🗶Being run or managed by an institution’s employee or its associate |
| ✓Collection of bank mail/correspondence for customers | 🗶Subcontracting another entity to carry out agent banking on its behalf |
| ✓Any other activity as the Central Bank may prescribe |  |

1. For the purposes if the IFAD project, it is important to note that bank agents are not permitted to open accounts. Upon the strict interpretation of this section, this means that practically, employees of the bank will be responsible for the actual opening of accounts. Agents may however collect the documentation required in relation to account opening and debit card applications.
2. Section 7.1 of the Guideline on Agent Banking – CBK/PG/15 prescribe that all transactions involving deposit, withdrawal, payment or transfer of cash from or to an account shall be **real time**. Specifically, to ensure that agent banking transactions are carried out with devices which are technically fit, institutions are required to ensure that such equipment is able to: i) transmit transaction information in code, ii) carry out electronic transactions on real time basis, iii) allow handling under different user profiles for administration, maintenance and operation, iv) reverse incomplete transactions due to error, system failure, power outage or other defects, v) process or generate durable transactional documents or receipts. Electronic receipts or acknowledgements such as SMS acknowledgement are permissible, vi) automatically log off an agent once the agent exhausts his daily cash limit or tries to perform an illegal or unauthorised transaction, and vii) generate an audit trail.
3. Comprehensive anti-money laundering and combating the financing of terrorism (AML/CFT) requirements applicable to bank agents are set out in section 8 of the Guideline on Agent Banking – CBK/PG/15. Institutions are required to train their agents on AML/CFT requirements and are required to ensure that agents i) identify customers with at least two factor authentication like IDs, PINs, passwords, ATM card, secret code or secret message while performing any transaction requiring identification, ii) report to the institution within twenty four hours, all suspicious activities that come to the agent’s knowledge, iii) transact agent banking business strictly as per the transactional limits prescribed by the institution. Institutions are also required to comply with the requirements of the Proceeds of Crime and Anti-Money Laundering Act, 2009, Banking Act and Prudential Guidelines on Anti-Money Laundering issued under the Banking Act.

**Financial inclusion and transactional behaviour in Kenya**

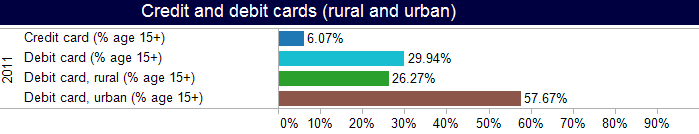
1. In 2012, the World Bank published the Global Financial Inclusion (Global Findex) database. This database provides 506 country-level indicators of financial inclusion summarised for all adults and disaggregated by key demographic characteristics—gender, age, education, income, and rural or urban residence. The indicators of financial inclusion measure how people save, borrow, make payments and manage risk.[[83]](#footnote-83) Despite the positive financial inclusion measures and policy interventions by the Government of Kenya, the 2011 data collected from Kenyan respondents’ shows that only 42.30% of all respondents aged 15+ and hold an account at a formal financial institution (see Diagram 1 below). This implies that the remaining 57.7% remain unbanked and outside the formal financial system. A marked difference between the number of account holders in urban and rural areas is evident with only 37.90% of respondents living in rural areas stating that they had an account compared to 76% in urban areas stating so. Only 12.50% of accounts are held for business purposes.

**Diagram 1: Account at a formal financial institution (% age 15+)**



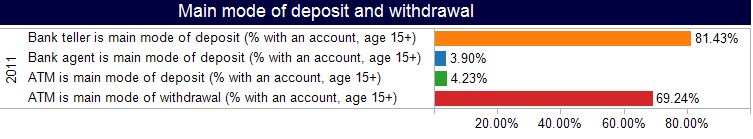
1. Only 29.94% of respondents stated that they had a debit cards and an even lower 6.07%% a credit card (see Diagram 2 below). Once again, there is a marked difference between the number of debit card holders in urban (57.67%) and rural (26.27%) areas.

**Diagram *2: Credit and debit cards (% age 15+)***



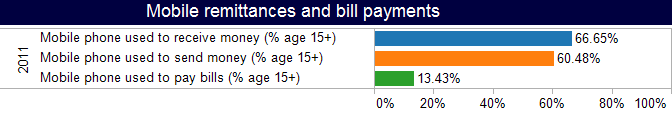
1. As shown in diagram 3 below, when examining channel usage patterns, we can see that the overwhelming majority (81.43%) of respondents still rely on the traditional method of making deposits, namely a deposit made over the counter at a brick and mortar bank branch. Only 4.23% of respondents report making use of ATMs to make deposits and even less, 3.90% make use of bank agents. ATM’s are extensively used to make withdrawals.

**Diagram 3: Main mode of deposit and withdrawal (% age 15+)**



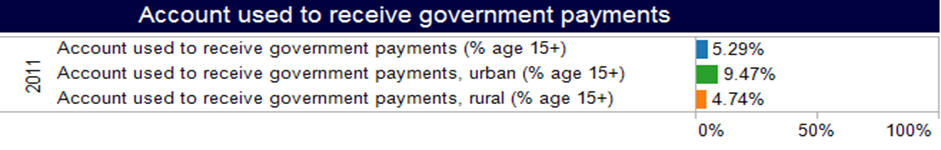
1. Given the unprecedented success of M-Pesa in Kenya, it is not surprising to see that 66.65% of all respondents have used a mobile phone to receive money and 60.48% to send money (see diagram 4 below). It must however be noted that sending money through the M-Pesa system is simply a transmission (remittance) mechanism and is not an indication of financial inclusion.

**Diagram4: Mobile remittances and bill payments**



1. The data also tells us a lot about the general approach to government payments. As shown in diagram 5 below, only 5.29% of all respondents stated that they had used their accounts in the past 12 months to receive government payments. Whilst the data is unclear as to whether these payments were salary payments to government employees or social protection payments to beneficiaries of government grants, the data reveals that a significant opportunity to provide financially inclusive payment mechanisms (closed loop or open loop debit card linked to a basic bank account) to recipients of government money is being lost in Kenya.

**Diagram 5: Account used to receive government payments (% age 15+)**

1. The survey data on the limited use of an account to receive government payments is supported by the fact that the five primary cash transfer programmes in Kenya use two Payment Service Providers the Post Office and Equity Bank. In fact, Equity Bank is the only bank with a substantial track record in the payment of social protection grants in Kenya (see table 2 below). It is important to note however that Equity Bank has used several different payment mechanisms ranging from limited purpose smart cards (not financially inclusive) to proprietary magstripe debit cards linked to basic bank accounts.

**Table 2: Payment Mechanisms used in Social Protection Programmes in Kenya[[84]](#footnote-84)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Social Cash Transfer Programme** | **PSP** | **Pay points** | **Payment Mechanism** |
| **Cash Transfer for Orphans and Vulnerable Children (CT-OVC)** | Originally the Postal Corporation of Kenya and now Equity Bank | Originally Post Office branches now Equity Agents | In 2005 the programme started making payments through the Post Office. In 2011 a contract was signed to start making payments through Equity Bank with the intention of transitioning all joint Government World Bank districts by 2013 to this new payment mechanism across 32 districts for 38% of CT-OVC recipients. (Delays in contract implementation meant that the transition only began in September 2012). Smart cards, biometrics and customised biometric PoS terminals. |
| **Hunger Safety Net Programme (HSNP)** | Equity Bank | Equity agents / HSNP agents | Payments to HSNP recipients are made through a network of 152 Equity Bank agents with point of sale devices (PoS) set up. Smart cards, biometrics and customised biometric PoS terminals. |
| **Older Persons Cash Transfer (OPCT)** | Postal Corporation of Kenya | Post Office branches | Manual |
| **Persons with Severe Disabilities Cash Transfer (PwSD)** | Postal Corporation of Kenya | Post Office branches | Manual |
| **Urban Food Subsidy (UFSP)** | Tested M-Pesa but contract awarded to the Postal Corporation of Kenya | Pilot: M-PESA agents now Post Office branches | Manual distribution through the post office although M-Pesa was tested during the pilot phase of the programme. A contract was however signed with PCK in 2010 and they are now delivering all 10,200 payments for the UFSP. |
| **World Food Programme’s Food for Assets/Cash for Assets** | Equity Bank | Equity agents, ATMs and branches | Magstripe debit card linked to a fully functional Equity Bank account. Beneficiaries can access their cash from any Equity Agent, branch or ATM. The cards are proprietary (not VISA/MasterCard branded) and as such can only be used on Equity’s infrastructure (ATMs/PoS).[[85]](#footnote-85) |

1. **ELECTRONIC VOUCHER OPTIONS AVAILABLE IN KENYA**
2. Governments and the designers of electronic voucher programmes must first decide upon a payment instrument be it cash, paper voucher, cheque, scratch card, SMS coupon, proprietary card, bank issued closed loop or open loop debit card or prepaid cards. The choice represents a compromise based upon the features and benefits of each. According to Rambure and Nacamuli the following should be considered:[[86]](#footnote-86)
3. Ease of use and convenience;
4. Terms, conditions and execution time. This is particularly important to the beneficiary who wishes to know when funds will be available and when he/she can [redeem his/her voucher];
5. Ease of automation, not only for processing the payment but also transmitting information to facilitate reconciliation;
6. Costs, in terms of fees charged to the beneficiary (or funder), as well as processing costs to service providers, including the cost of having funds in the system;
7. Security expressed in terms of authenticity, confidentiality and integrity: the assurance that the declared source is the true source and that no outside party could have seen and/or changed any of the data: amount, beneficiary name, etc;
8. Auditability and traceability: the ability to prove that a payment has been made and/or received, as well as the facilities to track and trace the payment in case of delayed receipt or queries.
9. Despite the emergence of potentially transformative electronic solutions and the positive spin offs that can be generated if the right payment service provider (PSP) and electronic payment solution is selected, Governments around the world continue to make limiting decisions and choices in terms of the payment solution selected for voucher programmes.
10. In this respect, Pickens, Porteous and Rotman note that “electronic benefit cards issued by a number of social transfer programmes are routinely designed with limited functionality for the recipient. Governments generally want to promote immediate consumption of grant funds to bolster living standards and to recover unclaimed funds. The electronic debit card featured in Argentina’s *Jefes y Jefes de Hogar* programme is reloadable only by the government. Benefit funds must be drawn within two months or they will be lost. Brazil’s *BolsaFamilia* programme began with a similar electronic benefit card from which recipients can make a free withdrawal of grant funds, but to which they cannot deposit money. Funds left on the card after three months are returned to the government. Cards like these have limited utility as a savings mechanism for recipients and cannot be considered “financially inclusive” (though with some changes they might be).”[[87]](#footnote-87) In the section below, several electronic voucher options which could be used in Kenya are profiled.

**Types of electronic payments used in voucher programmes**

1. Many payment options are available to input subsidy programmes. As solutions provided by technology vendors, private payment service providers, banks and MNOs have become more sophisticated, the evolution from paper to electronic has been rapid. The section below highlights various solutions and provides insight into the advantages and disadvantages associated with each.

|  |  |
| --- | --- |
|  | **Solution 1:Paper vouchers**  Paper vouchers such as the voucher currently being used by the NAAIAP programme usually come in two forms: 1) cash vouchers that are denominated with a cash value (e.g., Kshs 2,500), and; 2) commodity vouchers that are denominated as a quantity of commodities or services (e.g., 5 kg rice). These may be printed on normal, carbon or cheque paper and are often produced in duplicate books with perforated stubs for record keeping purposes. Paper vouchers are usually sequentially serialised. |
| **Infrastructure needed to support paper voucher use** | Usually printed by a specialist printer.  Manually issued, redeemed and reconciled. |
| **Disadvantages** | 🗶Even when printed on special paper, paper vouchers can be copied relatively easily and are open to abuse by staff and suppliers.  🗶Prohibitive administration costs and long bureaucratic paper trails.  🗶Requires repeated distribution during redemption cycle. Value cannot be reloaded.  🗶Retailers (agro-dealers and participating merchants) complain of delayed payments and donors of forgery, fraud, and a general lack of accountability.  🗶No real-time validation or authentication of beneficiary.  🗶Subject to human error.  🗶The heavy administrative burden of having to collect the vouchers once they had been redeemed and send them back to HQ for accounting and reconciliation purposes causes long delays (weeks) in the reconciliation process and payment of merchants/wholesalers.  🗶Not financially inclusive. Offers no additional opportunities for re-use/continued use.  🗶Although perceived as cheaper to implement than electronic alternatives, there are many hidden costs which are often not taken into consideration.  🗶System does not easily scale. |

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| *[http://www.mobilemarketer.com/cms/lib/3167.jpg](http://www.google.co.za/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=QGfTORvFsWs48M&tbnid=YHLqxJEHHasHGM:&ved=0CAUQjRw&url=http://www.mobilemarketer.com/cms/news/messaging/2612.html&ei=orhSUeHTNeGP0AWU14D4Cg&bvm=bv.44342787,d.d2k&psig=AFQjCNH13FpDs2yAg0BoJXdBBkkFRwlI5Q&ust=1364462074334974)* | **Solution 2: SMS Voucher**  SMS vouchers are generated by a back-end Voucher Engine or Voucher Management System. Vouchers are usually a 10 or 16 digit serial number that is used during redemption and can also include a message from the issuer. The SMS Voucher is also a unique serialised voucher that is created and held in a database and redeemed electronically via mobile phone. This voucher is also technically not a payment instrument but a negotiable instrument. Typically a beneficiary will present herself at a participating agro-dealer. The agro-dealer will access the Voucher Management System either through his/her mobile phone or PC, enter the beneficiary identity and unique serial number sent to the beneficiary phone to authenticate the beneficiary. After successful authentication by the agro-dealer, a PIN is sent to the beneficiary’s mobile phone via SMS. The beneficiary gives the agro-dealer his/her PIN from the SMS to him/her to complete the redemption. |
| **Infrastructure needed to support SMS vouchers use** | Voucher Engine / Voucher Management System  Electronic interface for presentation and authentication of unique voucher number.  Beneficiary requires access to a mobile phone. |
| **Parties involved** | Technology vendor voucher system and third parties such as merchants which would redeem the voucher for goods or cash. Examples: Zoona (Zambia). If payment to agro-dealers is not real-time, instructions must be sent manually or electronically to the bank holding the programme funds to pay the participating agro-dealers. (I-Card SMS coupon system being tested by NAAIAP). |
| **Open-loop or closed loop** | Proprietary and closed-loop. |
| **Financially inclusive** | No. Once off use. |
| **Advantages** | ✓Inexpensive database and system that is relatively easily managed;  ✓Accessible through mobile.  ✓Mobile technology is easily understood by beneficiaries that have had experience in using mobile money transfer services such as M-Pesa.  Individual vouchers are linked to unique beneficiaries on the database system;  ✓Quick and easy to deploy in emergency situations or for low value payments.  ✓Individual vouchers can be linked to certain products, locations, and values. |
| **Disadvantages** | 🗶Multiple SMS’s required to be sent to and from the beneficiary and the agro-dealer to the Voucher Management System. This can slow down the redemption process substantially.  Normally vouchers are for single use and pre-denominated. They are thus inflexible and not suitable for repeat payments or variable payments;  🗶No partial redemption of the voucher. It must be redeemed in full at the same agro-dealer.  🗶No or marginal integration into the formal financial system. 🗶Depending on the system design, actual payment to retailers (merchants and agro-dealers) may be delayed as this requires manual intervention and the movement of funds from the solution provider’s account to individual merchants and agro-dealers post reconciliation. Zoona however claim that their system allows “retail agents [to] receive instant electronic payment for vouchers redeemed”.[[88]](#footnote-88) |
| **Review of the I-Card “e-coupon” system being piloted by NAAIAP**  Given the e-voucher requirements listed in the section below, it is submitted that the I-Card system currently being piloted by NAAIAP is, in its current form unsuitable for the IFAD e-voucher programme. This is based on a number of reasons. This system is not a payment system in the true sense and the use of this system is not financially inclusive as the SMS vouchers generated are intended for once-off use and the system as a whole offers no additional benefits to beneficiaries. SMS vouchers are generated by the back-end Voucher Management System which is a web-based system. The SMS Voucher is also a unique serialised voucher that is created and held in a database and redeemed electronically via mobile phone. The voucher is technically not a payment instrument but a negotiable instrument. Beneficiaries are able to access inputs through Agro-dealers by presenting their “e-coupon” which is verified through a string of SMSs. Diagram xx below maps out the beneficiary targeting and registration process, beneficiary authentication and voucher redemption and NAAIAP authorization and payment processes. A number of observations are pertinent. Firstly, this Voucher Management System requires a lot of manual inputs from entering beneficiary data to uploading files to entering the subsidy entitlement. Secondly, additional pressure is placed on the Agro-dealer as she/he is required to send several SMS’s during the course of one transaction. Thirdly, the authorization and payment process (reimbursement of the Agro-dealer is a separate process for the actual voucher redemption process.  **Diagram 6: I-Card voucher redemption process flow**  The primary drawback of the current system is that it does not contain a payments module and does not automatically pay/settle the Agro-dealer once an “e-coupon” has been redeemed. This means practically that when an “e-coupon” is redeemed, no actual payment takes place. The system generates payment schedules detailing the name of the Agro-dealer, transaction date, vouchers redeemed, totals etc. These payment schedules are then manually printed out by NAAIAP, require signature by two people (internal authorisation process) and are then manually taken to or emailed to a bank which pays the Agro-dealers via EFT into their transactional accounts held at the bank. Preliminary conversations with banks in Kenya indicate that they envisage several problems integrating with this system directly due to concerns around the stability of the Voucher Management System and various security concerns. | |
| *[http://2.bp.blogspot.com/-5XI_ofVDClY/TfYswV2s1vI/AAAAAAAAAUM/aj8fAscmJA0/s400/New%2BPicture%2B%25284%2529.png](http://www.google.co.za/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=-urbStPUdLqHzM&tbnid=hm6ChB8pWZ1DXM:&ved=0CAUQjRw&url=http://zoonaafrica.blogspot.com/2011/06/e-vouchers-transforming-local-economies.html&ei=IJlSUZrOLvKa1AXC7IHAAw&bvm=bv.44342787,d.d2k&psig=AFQjCNF3uWSGUkdpLgtQCEHO-odjxB3-pg&ust=1364454039299959)* | **Solution 3:Scratch card vouchers**  An electronic scratch card voucher is a unique serialised voucher that is created and held in a database. It is redeemed electronically via an on-line interface (normally a mobile phone). The scratch card voucher contains a unique serial number and hidden PIN. This voucher is technically not a payment instrument but a negotiable instrument. It is typically redeemed for cash or inputs and is used simply for access to a benefit. The voucher is usually used in areas where there is little existing payment infrastructure. The voucher is often printed on paper card with a unique identifier/number. The electronic voucher is normally used where values redeemed are low and once off. |
| **Infrastructure needed to support electronic scratch card vouchers use** | Backend database of electronic vouchers  Electronic interface for presentation and authentication of unique voucher number e.g. mobile phone network or proprietary network such a Western Union |
| **Parties involved** | Technology vendor of the electronic voucher system and third parties such as merchants which would redeem the voucher for goods or cash. Examples: Zoona (Zambia). |
| **Open-loop or closed loop** | Proprietary and closed loop. |
| **Financially inclusive** | No. Once off use. |
| **Advantages** | ✓Inexpensive database and system that is relatively easily managed;  ✓Accessible from many electronic devices that are normally already in use - multiple user interfaces (i.e. PC, WAP, JAVA) allow for end-user flexibility and reliability;  ✓Individual vouchers are linked to unique beneficiaries on the database system;  ✓Quick and easy to deploy in emergency situations or for low value payments.  ✓Individual vouchers can be linked to certain products, locations, and values |
| **Disadvantages** | 🗶Normally vouchers are for single use and pre-denominated. They are thus inflexible and not suitable for repeat payments or variable payments;  🗶No partial redemption of the voucher. It must be redeemed in full at the same agro-dealer.  🗶No or marginal integration into the formal financial system;  🗶Depending on the system design, actual payment to retailers (merchants and agro-dealers) may be delayed as this requires manual intervention and the movement of funds from the solution providers account to individual merchants and agro-dealers post reconciliation. Zoona however claim that their system allows “retail agents [to] receive instant electronic payment for vouchers redeemed”.[[89]](#footnote-89) |
|  | **Solution 4: Proprietary smart cards**  Smart card is a generic term to describe a card with either a microprocessor or memory embedded in it. When coupled with a reader, the Smart Card can perform calculations, record history and sometimes serve many different applications. Multi-application Smart Cards can often be personalised for the user by including biometric information such as a fingerprint or photo. Smart cards are available for both contact and proximity (non-contact reading). Contact Smart Cards are inserted into a Smart Card reader making contact with the reader. |
| **Infrastructure needed to support electronic scratch card vouchers use** | Smart Card reader;  Smart Card Writer / Printer with Contact station. |
| **Parties involved** | Usually a private technology vendor such as Net 1 UEPS Technologies Inc. Closed-loop proprietary smart cards were also used by Equity Bank for Phase I of the HSNP programme in Kenya. |
| **Open-loop or closed loop** | Closed-loop based on proprietary technology. |
| **Financially inclusive** | Seldom. |
| **Advantages** | ✓Allows multiple authentication methods including PIN and Biometrics;  ✓Data can be stored on the card itself;  ✓Can be used for storing biometric information;  ✓Can normally be used off-line. |
| **Disadvantages** | 🗶Need card reader / writer and power supply;  🗶Substantially higher (5 to 10 times greater) cost of implementation than magstripe cards;  🗶When used as a proprietary technology acceptance is restricted to the issuer’s proprietary readers. |

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|  | **Solution 5: Prepaid Card**  Prepaid cards function like traditional debit or credit cards but do not require the holder to have a personal bank account. Most prepaid cards have an account number (embossed or non-embossed), expiry date, magnetic stripe, signature panel, and some have a three or four digit card security code (CVV) printed on the back of the card. There are often usage restrictions and protections associated with the various forms of prepaid cards. Cards are generally grouped based on two criteria: they can be (i) either closed-loop or open-loop and (ii) either single value or reloadable.  **Closed-loop:** these prepaid cards (e.g., gift cards) can only be used at participating merchants and can be restricted for the payment of specific goods/services. More often than not, these cards are single value cards.  **Open-loop:** these cards are issued by a bank and the funds may be accessed in any location and by any merchant that accepts the card payment network (e.g. Visa and MasterCard) for any type of purchase. These cards can be subject to selective authorization if required for a particular purpose.  **Single value:** these cards can be loaded only once. Once the value loaded to the card is spent, the cards are of no further use.  **Reloadable**: Once the value loaded to the card is spent, these cards can be reloaded with value repeatedly. |
| **Infrastructure needed to support prepaid card use** | Highly dependent on the technology selected and whether the card is closed-loop or open-loop. |
| **Parties involved (open-loop)** | Card issuer/sponsoring bank, acquiring bank, payment scheme brand, third party processor (may also be the issuing bank). |
| **Open-loop or closed loop** | Can be either. |
| **Financially inclusive** | Yes if open loop and reloadable. |
| **Advantages** | ✓Entry point into the formal financial system;  ✓Open-loop reloadable prepaid cards that can be used by beneficiaries at PoS and ATM’s and can be reloaded in the retail environment (merchants) provide beneficiaries with a safe store of value and as such, can be used as a savings mechanism.  ✓Prepaid cards do not require beneficiaries to open traditional bank accounts and as such, in many some jurisdictions have lower Know Your Customer (KYC) requirements.  ✓Selective acceptance: every merchant who participates in the programme will be able to accept the reloadable prepaid card for payment for goods and services. It is possible to specify at which merchants that card will be used.  ✓Cards can only be used at predefined participating merchants for the duration of voucher programme, thereafter, such restrictions can be removed allowing the beneficiary to continue to use the card at Point of Sale (PoS) and automated teller machines (ATMs);  ✓The reloadable prepaid card effectively streamlines business processes associated with benefits disbursements while increasing government/donor control.  ✓Beneficiaries are able to access multiple benefit sources with the same reloadable card, a feature which would allow the same card to be used, for example, in the disbursement of other government cash transfers, thus leveraging efficiencies of scale and reducing overall administrative costs.  ✓The cards can be co-branded by governments/donors to integrate their use within existing initiatives. |
| **Disadvantages** | 🗶Prepaid cards may be subject to various regulatory requirements including, validity periods, maximum load amounts and maximum balance that can be held.  🗶Prepaid cards are not linked to a beneficiary bank account.  🗶Prepaid cards tend to have a lot of fees. These can include, but are not limited to, activation fees, monthly maintenance fees, balance inquiry fees and inactive account fees (for not using the card in a 12 month period). These fees need to be covered by the programme or negotiated with the sponsor/issuing bank and should not be passed on to the beneficiary.  🗶Prepaid cards do not attract interest. |

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|  | **Solution 6: Debit card (magstripe or EMV chip**)  An electronic card issued by a bank which allows bank clients **access to their account** to withdraw cash or pay for goods and services. This removes the need for bank clients to go to the bank to remove cash from their account as they can now just go to an ATM, pay electronically at merchant locations and get cash-back at PoS through participating merchants. Prior to the introduction of EMV chip technology, all bank issued debit cards were magstripe cards. EMV chip technology is however now becoming the global standard for debit and credit card payments. Named after its original developers (Europay, MasterCard and Visa), this smart chip technology features payment instruments (cards, mobile phones, etc.) with embedded microprocessor chips that store and protect cardholder data. This standard has many names worldwide and may also be referred to as: "chip and PIN" or "chip and signature." Several debit card issuers in Kenya have adopted the EMV standard.  It is important to note that Visa and MasterCard do not issue cards, extend credit or set rates and fees for consumers; rather, Visa and MasterCard partner with issuing banks who issue Visa or MasterCard branded payment products that they then use to offer credit, debit, prepaid and cash-access programmes to their customers.[[90]](#footnote-90) |
| **Infrastructure needed to support EMV debit cards** | ATM network  Point of Sale (PoS) devices. |
| **Parties involved** | Card issuer/sponsoring bank, acquiring bank, payment scheme/ brand, third party processor (may also be the issuing bank). |
| **Open-loop or closed loop** | Proprietary debit cards that only work on a particular banks infrastructure (ATMs and PoS) can be issued by issuing banks.  Open-loop cards |
| **Financially inclusive** | Yes as linked to a bank account. |
| **Advantages** | ✓Linked to a bank account, therefore financially inclusive.  ✓EMV debit cards issued in association with VISA or MasterCard provide interoperability with the global payments infrastructure–consumers with EMV chip payment cards can use their card on any EMV-compatible payment terminal. EMV technology supports enhanced cardholder verification methods and, unlike magnetic stripe cards, EMV payment cards can also be used to secure online payment transactions.  ✓The underlying bank account can be accessed through other channels including the mobile phone.  ✓PIN based authentication.  ✓Product offerings from banks can be customised to the requirements of specific programmes. Preliminary conversations with two Kenyan banks and an international payment scheme indicate that the issuing banks in association with the payments scheme would be prepared to modify their current basic bank account / debit card product to include a separate “closed-loop” wallet to which the agricultural input subsidy would be loaded. |
| **Disadvantages** | 🗶Access points (ATM/PoS) may be limited in several rural areas. Branchless banking or agency banking strategies that have been adopted in several countries have assisted in extending the reach of banks into areas where they were unable to operate in the past.  🗶Open-loop debit cards linked to savings accounts are the ideal payments mechanism for social cash transfer programmes where beneficiaries should be able to access their cash grant at the closest point, be it an ATM, PoS or bank branch. Programmes such as agricultural input subsidy programmes that require beneficiaries to redeem vouchers / exchange value for particular goods at specific merchants require the addition of a “closed loop wallet” to the standard debit card offering. This involves development costs and PoS devices at participating agro-dealers will need to be modified.  🗶The costs associated with account opening, activation fees, monthly maintenance fees, balance inquiry fees, inactive account fees etc., will need to be covered by the programme or negotiated with the issuing bank. |

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| *http://www.techcentral.co.za/wp-content/uploads/2012/12/mobile-money-640.jpg* | **Solution 7: Mobile**  A wallet / virtual account or full bank account is linked to the mobile number which would act as the primary means of access to funds stored in the account. Transactions are provided for via various mobile phone interfaces included SMS/Text, USSD1 and USSD2, STK Applications embedded into the SIM card, WAP and Smart Phone applications. |
| **Infrastructure needed to support the mobile phone as a payment instrument** | Wallet and Virtual Accounts require a proprietary server platform where account balances are stored together with transactional activity.  Bank account linked account data would typically reside with the bank where the mobile phone acts merely as an interface to such.  In most cases a mobile phone is required by the user but in poorer markets some users simply own a SIM card and borrow the phone of others or use GSM payphones.  Cash-in and cash-out infrastructure for mobile payments is normally provided by contracted airtime distributors who act as agents. |
| **Parties involved** | In some countries, MNOs and third party platforms are allowed to store mobile money on behalf of their customers. In other countries bank regulators do not allow MNOs to hold funds. Instead the MNO must partner with a commercial bank to offer these services. |
| **Financially inclusive** | Mobile money transfer products are in themselves not financially inclusive.[[91]](#footnote-91) However, in Kenya, Safaricom’s M-Pesa product does allow recipients to store value, access funds through agents and certain ATMs but does not allow for cash-in / cash-out services at PoS.[[92]](#footnote-92) Add-on products such as the M-Shwari product launched by CBA and Safaricom provides users with the ability to move money in and out of their M-Shwari savings account to their M-PESA accounts using the handset via the M-PESA Menu and also enables M-Pesa account holders to access a micro credit product (loan) of a minimum of Ksh.100 anytime and receive the loan instantly to their M-PESA account.[[93]](#footnote-93)  Mobile banking (m-banking) on the other hand is a subset of electronic banking in which customers access a range of banking products via electronic banking channels. M-banking requires the customer to hold a deposit account to and from which payments or transfers are made. Mobile banking includes a wider range of financial services, the most important of which is savings. Mobile banking tends to be bank or MFI-led, and is normally highly regulated. Mobile banking channels allow holders of traditional banking accounts to transact using their mobile phones. |
| **Advantages** | ✓Mobile networks normally have many customers thus easily achieving critical mass and lower costs per transactions.  ✓Mobile operators have extensive national distribution networks that sell prepaid airtime.  ✓Normal mobile money transfer services such as M-Pesa are generally much cheaper than other remittance services offered by banks, the Post Office, Western Union and MoneyGram. |
| **Disadvantages** | 🗶Mobile money accounts (mobile money transfer services) are normally proprietary to mobile networks but do offer cash-out to non-subscribers at a premium.  🗶Transactional procedures are not simple and often require multiple interactions with the system via the account holders and merchant distributor’s devices to achieve a cash-out transaction.  🗶. Mobile money customers can usually request a mini-statement (last five transactions) but these statements are insufficient proof of the user’s transactional behaviour and are not readily accepted by mainstream financial institutions for the purposes of granting credit.  🗶Safaricom in Kenya would need to be willing to customise the current offering to allow for the development of a separate wallet for the agricultural input subsidy to be loaded to. It would be difficult to control spend on specified goods at specific Agro-dealers. |
| Mobile payments in Kenya are dominated by Safaricom using the M-Pesa product. March 2011, statistics released by Safaricom show 14,008,319 M-Pesa customers and 718,000 M-Kesho Customers. Registered M-Pesa customers are now able to withdraw cash from Pesapoint, Diamond Trust Bank, KCB, Family Bank and NIC Bank and Equity ATMs by using an agent code. Safaricom have recently introduced M-Pesa-to-Bank and Bank-to-M-Pesa transactions. This is a branchless mobile banking service, designed to enable M-Pesa customers to complete basic banking transactions (deposit and withdrawal) without the need to visit their bank branch. Customers must however have a bank account and the service is only available to M-PESA registered customers through the Pay Bill functionality on the M-Pesa menu. Ten (10 banks) in Kenya are currently offering this service: Cooperative Bank, KCB Bank, Barclays Bank, Equity Bank, Family Bank, NIC Bank, Post Bank, Consolidated Bank, Standard Chartered Bank and CfCStanbic Bank.  There is no doubt that Safaricom has been fundamentally successful in building its agent network. As of February 2013, the Central Bank of Kenya reported that the number of mobile payment agents in the country stood at 88,393. Whilst other operators are now active in the mobile money transfer space, it is safe to say that the majority of these agents are Safaricom M-Pesa agents.  **Diagram 7: Number of mobile payment agents**    *Source: Central Bank of Kenya. Online. Available at:* [*http://www.centralbank.go.ke/index.php/retail-payments/mobile-payments*](http://www.centralbank.go.ke/index.php/retail-payments/mobile-payments)  Mobile money transfer products are in themselves not financially inclusive.[[94]](#footnote-94) However, in Kenya, Safaricom’s M-Pesa product does allow recipients to store value, access funds through agents and certain ATMs but does not allow for cash-in / cash-out services at PoS.[[95]](#footnote-95) Add-on products such as the M-Shwari product launched by CBA and Safaricom provides users with the ability to move money in and out of their M-Shwari savings account to their M-PESA accounts using the handset via the M-PESA Menu and also enables M-Pesa account holders to access a micro credit product (loan) of a minimum of Ksh.100 anytime and receive the loan instantly to their M-PESA account. Another innovative product is M-Kesho. This service offered by Equity Bank and Safaricom allows account holders to transfer cash from their Equity Account to their M-Pesa account and to make deposits through their M-Pesa account to their M-Kesho account. Other features of the account include Micro-credit facilities (emergency credit availed through M-Pesa), Micro-insurance facilities as well as personal accident cover. To open this account, customers must be an M-Pesa subscriber.  The most innovative use of M-Pesa appears to be connected with linking the mobile money transfer product to a customer bank account held by one of Kenya’s commercial banks. This is the case for both the M-Shwari savings account and the M-Kesho product.  Introducing the IFAD e-voucher to the M-Pesa range of products and services would require development of a separate mobile wallet by Safaricom. This would do little to advance the long term financial inclusion agenda. Such would only be achieved if the product was linked to a beneficiary bank account at a commercial bank. It would also be difficult to ensure that beneficiaries spent the funds held in the mobile wallet at pre-selected Agro-dealers and purchased specific goods as the funds would be held in a wallet to which the beneficiary would have unlimited access and control. | |

1. **PROPOSED ELECTRONIC VOUCHER OPTION FOR KENYA**

**E-voucher requirements**

1. The following requirements for the e-voucher were decided upon by the technical team that undertook the pre-design in-country mission in March 2013.

**Table 3: E-voucher requirements**

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| Requirement | Detail |
| **Beneficiary targeting and selection** | Community based. The Payment Service Provider will have nothing to do with this. |
| **Once-off or multiple use** | The “physical” e-voucher and should not be disposable or intended for single use.  Therefore, paper vouchers, scratch card vouchers, SMS vouchers generated by a Voucher Management System), single value closed loop prepaid cards are excluded. |
| **Beneficiary registration** | Beneficiaries must be registered in the field and details entered into a beneficiary database. The NAAIAP database should be explored as the potential vehicle for this. The use of mobile phones and a free App such as the *SurveyPocket Mobile App*<http://blog.surveypocket.com/about> to register beneficiaries electronically and link directly to the database should be explored further. |
| **Payment schedule** | The Payment Service Provider (PSP) must be provided with a payment schedule in the required format. This schedule must include beneficiary name, ID, mobile number, location and any other information required by the PSP to create a beneficiary profile and initiate the account opening process. |
| **Financially inclusive** | The e-voucher has several requirements.  1) The e-voucher must be redeemable at specific pre-selected Agro-dealers for specific pre-defined goods. (The subsidy must therefore be “ring-fenced” separated from the beneficiaries transactional/savings account.) This e-voucher wallet will be closed loop / proprietary.  2) The e-voucher is only activated upon a beneficiary co-contribution having been made.  3) The same e-voucher (token/mechanism/process/system) should allow the beneficiary to save in the long run, make deposits at participating agents / Agro-dealers, access saved funds and conduct other transactions through a number of channels (ATMs, branches, mobile banking and potentially cash-out at PoS).  4) The voucher should be VISA or MasterCard branded allowing for greater acceptance and wider use. Proprietary PSP specific closed loop solutions should be discouraged as limit access points in the long run.  5) Beneficiaries should be able to use the proposed solution to save and build a credit history which could later be used to access credit.  6). All transactions must be processed online in real-time and Agro-dealers reimbursed instantaneously when the e-voucher is redeemed.  7) The ability to link payment for insurance premiums (weather based insurance) to the redemption of the voucher is a distinct advantage.  **A financially inclusive solution is therefore required. The solution is unique in that it requires the development of a product which includes both a mainstream transactional/savings account linked to a debit card and a separate “ring-fenced” wallet that can only be used for a specific purpose. Both Equity Bank and VISA have expressed their willingness to develop this product.** |
| **Account opening & card issuing** | Guideline on Agent Banking – CBK/PG/15 issued by the Central Bank of Kenya requires the bank to open accounts. Whilst the banks agents can be tasked with collecting KYC documentation and distributing cards, the actual account opening process must be undertaken by the bank. As an instant issuing (the issuance of the card in field) is preferred, the bank will need to send representatives into the field to open accounts and issue cards to beneficiaries. This means that the cards are likely to be un-personalised (no embossed name or photograph). Requiring personalisation of cards can lead to substantial delays in distributing cards to beneficiaries. |
| **Beneficiary co-contribution** | The voucher will only be activated upon the co-contribution having been deposited by the beneficiary. This deposit should ideally be made at participating Agro-dealers. |
| **PoS devices at Agro-dealers** | Vouchers will be redeemed at participating Agro-dealers. So as to encourage competition amongst Agro-dealers, several should be selected in each area. Agro-dealers should be issued with a device (preferable a PoS) that can be used to redeem the voucher and for mainstream transactions so as to make full use of the same device. The PoS should ideally be customised to allow the Agro-dealer to select the inputs that the beneficiary has chosen and for such to be recorded on the receipt for reporting and data analysis purposes. |
| **Voucher redemption** | PIN based authentication, online, real-time at PoS. The system must allow for partial redemption. Agro-dealers must be paid instantaneously. This will require the Agro-dealers to hold an account. |
| **Add on functionality (additional financial services)** | The payment modality should allow for the payment of insurance premiums for weather based insurance. This premium should ideally be included in the value of the e-voucher and the insurer automatically paid the premium upon redemption of the voucher. |
| **Reporting** | The system should provide the following reports: card generation/dispatch; card status/activity; inventory balance; card usage (spend patterns); available balance; matched and settled records; unmatched records; balance sheet (daily); settlement reports (daily). |
| **Complaints resolution mechanism** | The PSP must have a complaints resolution mechanism in place and be able to promptly assist agro-dealers and beneficiaries should they experience any problems  The PSP must have a mechanism in place to replace lost or stolen cards. Beneficiaries must be informed and understand that they need to keep the card safely as it is linked to a fully functional transactional account and the ring-fenced voucher wallet will be reloaded with subsequent voucher payments. |

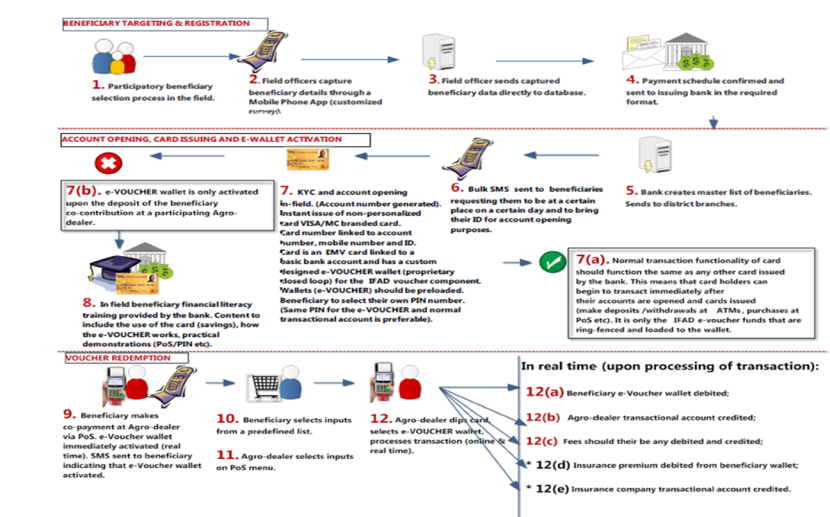
**Generic process flow**

1. The solution described in section 4.1 above is depicted graphically in diagram xx below. This diagram represents the beneficiary experience. It is important to note that the solution design is seamless, meaning that the beneficiary experience should be as easy and haste free as possible. As the payment system is fully automated, little or no manual intervention should be required. Unlike the current NAAIAP I-Card SMS voucher solution where the Agro-dealer is required to send several SMSs (manually through short code), the Agro-dealer in this case will simply need to insert the card into the PoS and process the transaction. The Banks back-end system will automatically authorise or decline the transaction, process payment to the Agro-dealer and the Insurer (should this option be selected) in real-time and on-line.

**Table 4: Generic process flow**

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| Process | Description | Responsibility |
| 1 | Participatory beneficiary targeting & selection process in field. Information to be collected includes full name, ID and mobile phone number. | GoK |
| 2 | Beneficiary details captured in field through mobile phone. Development of an App and integration to the NAAIAP or other database is required. | GoK& Profit (to cover development) |
| 3 | Beneficiary details automatically captured in the database through the use of the mobile App. | Automated |
| 4 | Payment schedule and authorising instructions sent to the Issuing Bank in the required format. | GoK |
| 5 | Bank creates master list of beneficiaries and sends to district branches.  District branches to receive stock cards. These should be preloaded with the IFAD e-VOUCHER wallet funds but are inactive and have not been allocated / linked to a particular beneficiary. | Bank |
| 6 | Bank to schedule day for account opening and card issuing and send bulk SMS notification to beneficiaries requesting them to be at a certain place on a certain day and to bring ID. This could either be at a bank branch or bank agent, provided that the correct staff are present to open the accounts as per the Agent Banking Prudential Guidelines. | Bank |
| 7 | Account opening: KYC and account opening in-field. (Account number generated). Instant issue of non-personalised VISA debit card. Card number linked to account number, ID number and mobile number. Beneficiary must be able to select their own PIN in-field through entering their PIN twice on the PoS. | Bank & beneficiary |
| *7(a)* | *Normal transaction functionality of the card should function the same as any other debit card. This means that card holders can begin to transact immediately after their accounts have been opened and cards issued (make deposits, withdrawals at ATMs purchases at PoS) once they have deposited their own funds into the account. It is only the IFAD e-Voucher wallet funds that are ring-fenced and loaded to the wallet.* | *Bank & beneficiary* |
| *7(b)* | *E-Voucher wallet is only activated upon the deposit of beneficiary co-contribution at a participating Agro-dealer.* | *Bank* |
| 8 | **Financial Literacy Training:** this vital component must happen before beneficiaries’ accounts are opened and they are issued with their cards. They must be provided with full training and demonstration on the functionality of the card together with comprehensive training on and information pertaining to their bank account. Information on what to do in the event of a problem or lost card must also be given. | Bank, GoK& beneficiary |
| 9 | Co-payment: beneficiary makes co-payment at Agro-dealer. Gives Agro-dealer cash, she loads electronic value to card via PoS. e-Voucher activated. Automatically generated SMS to beneficiary. | Beneficiary, Agro-dealer, bank |
| 10 | Beneficiary selects inputs from pre-determined list. | Beneficiary, Agro-dealer |
| 11 | Agro-dealer selects inputs from list on PoS. (Requires bank to develop module of farm inputs, customisation and configuration of PoS). | Agro-dealer, Bank |
| 12 | Agro-dealer dips card, selects e-Voucher, enters amount, beneficiary enters PIN, transaction processed online in real-time. | Agro-dealer, Bank, beneficiary |
| 12(a) | In real-time: beneficiary e-Voucher wallet debited | Bank /VISA |
| 12(b) | In real-time: Agro-dealer transactional account credited | Bank/VISA |
| 12(c) | In real-time: fees should there be any debited and credited | Bank /VISA |
| 12(d) | In real-time: insurance premium debited from beneficiary e-wallet | Bank / VISA |
| 12(e) | In real-time: Insurance company transactional account credited | Bank / VISA |

**Diagram 8: Proposed solution process flow**



**Proposed solution – justification and rationale**

1. As noted in the section above, there are several options available to electronic voucher programmes. Most of these offer limited or no long term financial inclusion prospects as the vouchers are either intended to be disposable and used for a single purpose - paper vouchers, scratch card vouchers, single purpose proprietary options - SMS voucher, mobile money transfer (M-Pesa), proprietary programme specific smart cards, closed loop prepaid cards / gift cards.
2. The only fully financially inclusive option is a bank issued debit cards, linked to a basic transactional account. Given the specific requirements of the IFAD e-voucher as set out above, it is submitted that the best solution for the programme would be partnering with a Kenyan commercial bank and VISA or Mastercard to issue a financially inclusive debit card linked to a basic bank account. The solution would however be unique and a world first in that it requires the development of a product which includes both a mainstream transactional/savings account linked to a VISA or Mastercard debit card and a separate “ring-fenced” wallet that can only be used for a specific purpose. Both the e-voucher wallet and the beneficiaries transactional / savings account would be accessed through the same card.
3. In many countries, given poor infrastructural development and the limited reach of banks, programme designers are often forced to make a compromise and to issue beneficiaries with single purpose vouchers that once redeemed, have served their purpose and cannot be used for anything else. In Kenya however, given the sophistication of the banking sector, an appetite for innovation, extensive coverage and reach of the banks in terms of the deployment of ATMs, PoS devices and an ever increasing branchless banking agent network, it is recommended that IFAD use this opportunity to roll out an electronic voucher that advances the financial inclusion agenda, whist at the same time meeting the needs of the programme. In the section that follows, the reach of the Kenyan commercial banks is discussed, together with current transactional products that would be suitable for customisation. The selection of Equity as the preferred bank partner is also covered.

**Bank reach**

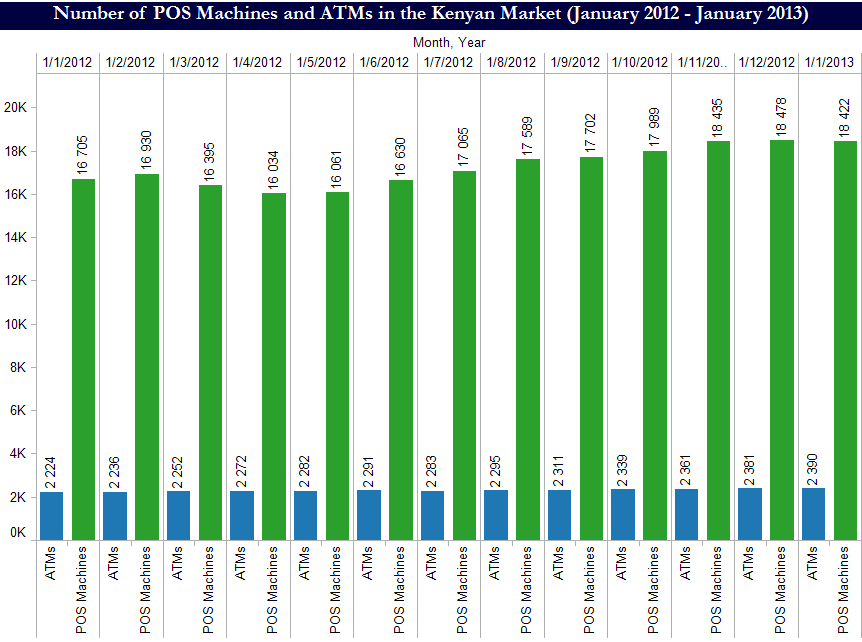
1. Kenya has a large and fairly developed formal financial sector which is supervised by the Central Bank of Kenya (CBK). It includes 43 commercial banks, 1 mortgage finance company, 6 deposit-taking (MFIs) 122 foreign exchange bureaus, two Credit Reference Bureaus and two representative offices of foreign banks. Outside CBK’s regulatory sphere, there are a number of other formal financial institutions, including Post Bank and over 12,000 cooperative societies, approximately 5,900 of which are Savings and Credit Societies (SACCOs). Of the 5,900 SACCOs, 218 are now registered to take deposits under a recently introduced SACCO Society Regulatory Authority.
2. Of the 43 licensed commercial banks, only 6 of these are classified as falling into the “large” peer group. 15 are classified as “medium” and by far the overwhelming majority as “small.” As represented in table 4 below, Kenya Commercial Bank (KCB) has the most branches (165) followed by Equity Bank Ltd. (123) and Barclays Bank of Kenya Ltd. (103).

**Table 5: Large banks in Kenya (2011)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Licensed** | **Branches** | **Peer group** | **Website** |
| **Barclays Bank of Kenya Ltd.** | 6/5/1953 | 103[[96]](#footnote-96) | Large | [www.barclayskenya.co.ke](http://www.barclayskenya.co.ke) |
| **CFC Stanbic Bank Ltd.** | 5/14/1955 | 20 | Large | <http://www.cfcstanbicbank.co.ke> |
| **Co-operative Bank of Kenya Ltd.** | 1/1/1965 | 87 | Large | [www.co-opbank.co.ke](http://www.co-opbank.co.ke) |
| **Equity Bank Ltd.** | 28/12/2004 | 123[[97]](#footnote-97) | Large | <http://www.equitybank.co.ke> |
| **Kenya Commercial Bank Ltd** | 1/1/1896 | 165 | Large | [www.kcbbankgroup.com](http://www.kcbbankgroup.com) |
| **Standard Chartered Bank Kenya Ltd** | 10/1/1910 | 33 | Large | [www.standardchartered.com](http://www.standardchartered.com) |

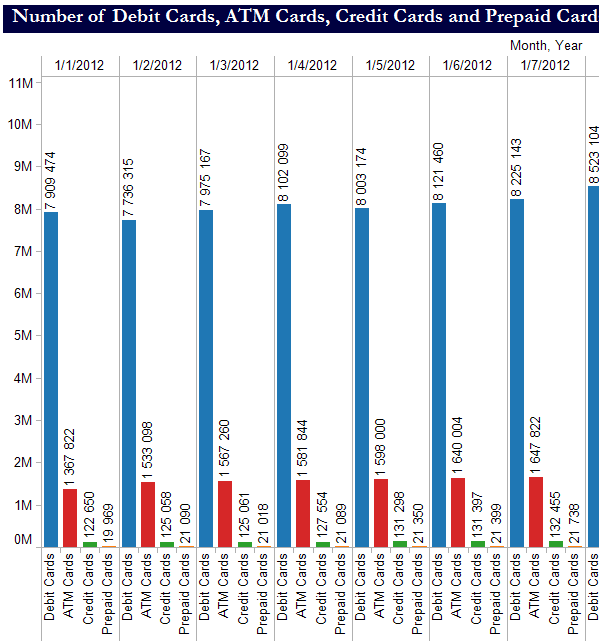
*Online. Available at:* [*http://www.centralbank.go.ke/images/docs/Bank%20Supervision%20Reports/Commercial%20Banks%20Directrory%20-%2013%20December%202011.pdf*](http://www.centralbank.go.ke/images/docs/Bank%20Supervision%20Reports/Commercial%20Banks%20Directrory%20-%2013%20December%202011.pdf)

1. In addition to the branch network, as noted by the Central Bank of Kenya, “as at 30th September 2012, there were 10 commercial banks that had contracted 14,168 active agents facilitating over 24.7 million transactions valued at Ksh 144.2 billion. This was an increase from 9 banks that had contracted 12,054 active agents facilitating over 18.7 million transactions valued at Ksh. 93.1 billion in June 2012 Most bank agents in Kenya are equipped with a Point of Sale (PoS) device, allowing for card transactions in areas where ATMs have not been deployed. As represented by diagram xx below, there has been an incremental increase in PoS devices in the Kenyan market. As of January 2013, 18422 PoS devices were in the market. This number far outweighs the number of ATMs which stood at 2380 in January 2013.

**Diagram 9: Number of POS machines and ATMs in the Kenyan market**

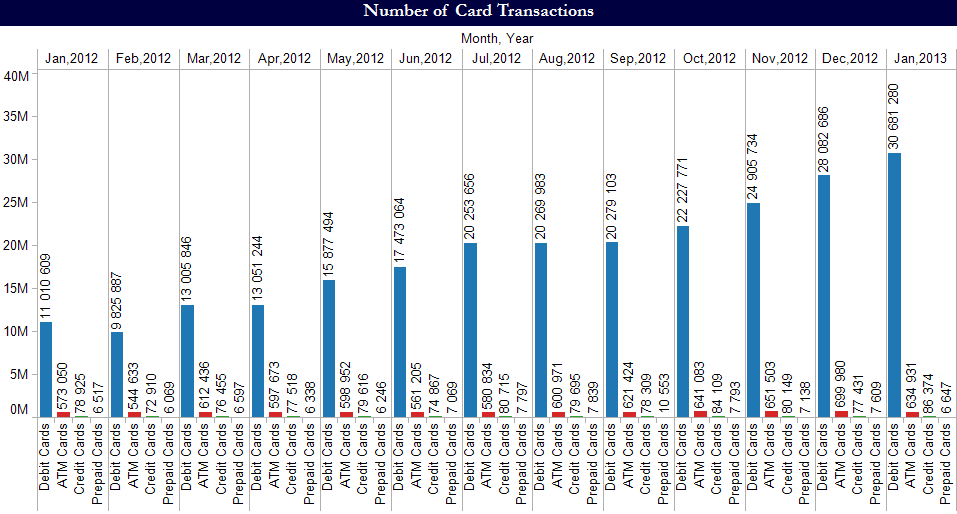
*Source: Central Bank of Kenya. Online. Available at:* [*http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines*](http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines)

1. As of January 2013, a total of 10,864,937 cards had been issued in Kenya. This is made up of debit cards, ATM cards, prepaid cards, charge cards and credit cards. Debit cards are by far the most popular form of payment card with 9,162,100 debit cards in the market as of January 2013. A total number of 30,681,280 debit card transactions were made during January 2013 with a total value of 115,827 (Ksh Million) (see diagrams 10, 11 and 12 below). Prepaid cards are still in their infancy with only 28,331 cards in the market in January 2013.

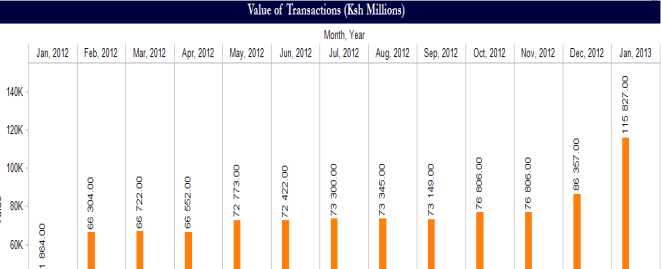
**Diagram 10: Number of debit cards, ATM cards, credit cards and prepaid cards in the Kenyan market**

*Source: Central Bank of Kenya. Online. Available at:* [*http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines*](http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines)

**Diagram 11: Number of card transactions in the Kenyan market**

**

*Source: Central Bank of Kenya. Online. Available at:* [*http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines*](http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines)

****Diagram 12: Value of transactions (Ksh millions)**

*Source: Central Bank of Kenya. Online. Available at:* [*http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines*](http://www.centralbank.go.ke/index.php/retail-payments/payment-cards/number-of-atms-atm-cards-pos-machines)

**Selection of a Banking Partner**

1. Based upon the analysis presented in this report, it is proposed that a commercial bank is selected to partner with IFAD in the roll out of a financially inclusive electronic voucher. Equity Bank and VISA have expressed their willingness to develop this product and may, subject to commercial negotiation, be willing to fund the development, roll-out and maintenance costs associated with this solution. Equity Bank also stands out as the preferred partner bank in that it is the only bank with any experiencing in rolling out payment solutions for social protection programmes in Kenya.
2. The selection of Equity as the preferred Banking Partner is also based on the following criteria:

**Table 6: Criteria for the selection of a banking partner**

|  | **Equity Bank** | **KCB** | **Family Bank** |
| --- | --- | --- | --- |
| Capacity to roll-out the proposed platform in time for the March 2014 rainy season | + ✓  IFAD has already had several discussions with Equity Bank and the team has been to Rome. As discussions are considerably far along, it will take a far shorter time to acquire senior management / board approval to partner with IFAD. Equity has full understanding of the IFAD requirements and already has a product that can be modified / customised therefore speeding up role out. Equity also has good relationships with both VISA and MasterCard and the card schemes are likely to approve the product quicker than they would for an untested bank.  Equity already have considerable experience in providing social protection payments and as such know what is required to build the agent network, train agents and pay beneficiaries. Partnering rather than selecting a PSP through a competitive tender basis provides incentive to the Issuing Bank to get the product to market as quickly as possible. Cutting out the 12 – 18 month procurement process also allows for sufficient development time to allow the partner bank to customise the product as required. | +🗶  Only one preliminary discussion has been held with the Head of Strategy at KCB. This means that product and partnership approval would take longer than it will with Equity as no internal approvals (in principle) have been given. KCB has no experience with paying recipients of social cash transfers. The learning curve would therefore be steeper than it will be for Equity which may delay the role out of the product to beneficiaries and the recruitment and training of Agro-dealers. KCB do not currently offer a VISA or MasterCard product to the low-income segment, although this will change through the migration of the proprietary QuickServe card to VISA. If there was more time available, it would be suggested that IFAD partner with both Equity and KCB. This however adds complexity and may delay the role out by March 2014. | 🗶  Family bank are much smaller than Equity and KCB and are untested in the open loop environment. Internal approvals and negotiations with VISA and or MasterCard may slow down implementation. Family Bank has no experience with paying recipients of social cash transfers. The learning curve would therefore be steeper than it will be for Equity or KCB which may delay the role out of the product to beneficiaries and the recruitment and training of Agro-dealers. |
| A commercial banks willingness to customise their current product offering (basic bank account linked to a debit card) by including a closed loop wallet for the e-voucher within the same product | + ✓  Holders of an Equity Basic Account are already issued with a VISA electron card.  Preliminary discussions with Equity indicate that they would be willing to partner with IFAD and VISA to develop the e-wallet component. | +🗶  Preliminary discussions with KCB indicate that they would be willing to develop the required solution however, KCB do not currently offer a VISA debit card with their basic transactional account. Holders receive a proprietary QuickServe card (although this will soon be VISA enabled). | +🗶  Preliminary discussions with Family Bank indicate that they would be willing to develop the required solution however, but Family Bank is far behind the other two banks in terms of product development. They currently do not offer a VISA Debit Card. |
| 2) A commercial banks willingness to customise standard PoSdevices and deploy these to participating Agro-dealers. These Agro-dealers will become agents of the bank and as such, the commercial bank must be willing to undertake training and sign these agents as they would other retailers selected as agents of the bank. | + ✓  Equity is the only bank in Kenya with any experience in developing customised solutions for social cash transfer programmes. They have piloted both a proprietary off-line smart card solution and an online debit card solution for HSNP.  Equity is very aggressive in its agent acquisition strategy and has one of the largest agent networks in the country. | +🗶  KCB has no experience in dealing with social protection recipients. Despite their willingness to potentially roll out the solution, there would be a steeper learning curve required for KCB. | +🗶  Family bank is a much smaller bank than both Equity and KCB and has no experience in dealing with social protection recipients. Despite their willingness to potentially roll out the solution, there would be a steeper learning curve required for Family Bank. |
| 3) A commercial banks willingness to open accounts for the IFAD e-voucher recipients and to issue them with cards | + ✓  Equity has focused for many years on the “bottom of the pyramid”. They have substantial experience in taking banking to rural and un-served areas. In-field issue of cards is nothing new for Equity. | +🗶  KCB are also committed to financial inclusion, however, they do not have the practical experience that Equity has in rural and remote areas. | +🗶  Family Bankare also committed to financial inclusion, however, they do not have the practical experience that Equity has in rural and remote areas. |
| 4) The willingness of a commercial bank to see the e-voucher programme as a means to extending their commercial footprint and meeting their financial inclusion agenda. | + ✓  Equity is recognised as the bank that has done the most in terms of access to finance and financial inclusion.  Equity also have a well-established relationship with VISA who would potentially co-fund the development. | +  Willing but commercials have not been discussed. | +  Willing but commercials have not been discussed. |
| The willingness of a commercial bank to partner with IFAD instead of being seen as a “service provider”. This would require the commercial bank to subsidise the cost of account opening, card issuing and to “subsidise” the fees usually associated with basic bank accounts. | + ✓  Equity has indicated their willingness to do so already. | +🗶  But nothing has been formally discussed with KCB. Opening discussions will slow down the process as management level buy in and approval will be required. | +🗶  Probably, but nothing has been discussed with Family Bank in this regard. |
| Experience with similar programmes | + ✓  Equity is the only bank with experience in paying Social Cash Transfer payments and customising their product offering accordingly. | 🗶 | 🗶 |

1. The overall success of a financially inclusive card strategy overtime is highly dependent upon the card holder’s ability to access his/her funds and make payments through numerous channels. A banks physical infrastructure (ATM,s PoS devices, agents, mobile banking solution, in the case of Kenya, being integrated with the M-Pesa network etc. is a vital consideration. Issuing an interoperable VISA or MasterCard card will also allow beneficiaries to use their cards at all VISA/MasterCard branded infrastructure. As shown in the table below, Equity is the only bank out of the three covered that currently offers a VISA debit card

**Mainstream transactional products and electronic access channels**

1. Several banks in Kenya have developed transactional accounts suitable for low income individuals. Table 7 below profiles the product offering from three banks.

**Table 7: Transaction Accounts and electronic access channels offered by three Kenyan Banks**

|  | **Equity Bank** | **Kenya Commercial Bank** | **Family Bank** |
| --- | --- | --- | --- |
| **Basic Account** | This account provides a convenient medium for accumulating personal deposits, facilitate business transactions and remittances processing e.g. pension, salary, farm proceeds like tea or milk etc. It can be opened in the name of an individual, joint name, registered groups or registered business names.  *Additional benefits:* No ledger fees, maintenance fees, monthly charges or minimum operating balance; no cash deposit or cheque handling charges | Mapato Account  *Features*  No opening balance.  Low operating balance of Ksh.500.  Attractive interest rates.  Salary advance facilities of up to Ksh 100,000.  Free quick serve ATM card.  Cash deposit facilities available at every branch.  *Requirements*  Two high quality, colour, passport-size Photos.  Original and copy of national ID/passport  Adequate references. | Mwananchi Account  *Benefits:* No Ledger Fees, low minimum account balance, banking, money through Pesa Pap (mobile banking), notifications on account transactions through Pesa Pap, easy Account Opening requirements and procedures, accessible through Network of branches, Family Bank &Kenswitch and Pesa Point ATMs.  *Requirements*: Original National ID or a Valid Passport and photocopy, any amount of cash to open the account, free passport size photo taken at the branch, for Joint Accounts, the ID or passport copy is required for each person to be included. |
| **Current Account** | This account provides a convenient and flexible medium for making and receiving payments thus enhancing personal and business transactions. It can be opened in the name of an individual, joint names, registered groups or registered business names.  *Additional benefits:* No ledger fees, maintenance fees, monthly charges or minimum operating balance, no cash deposit or cheque handling charges, cheque book facility available, free monthly statements. | KCB Current Account  The account offers customers:  Free Quick serve ATM card, Cheque book,  Personalized service, no minimum operating balance, and regular transfer from other current or savings accounts, statement of accounts at regular intervals or on request to cheque book, cash deposit at any branch, access to KCB connect, KCB’s exciting SMS Banking Service.  *Requirement:* two high qualities, colour, passport-size Photos, original and copy of national ID/passport, adequate reference. | The Personal Current account enables customers to do banking transactions using a cheque book, with ATM Card services available as well:  *Benefits:* No notice is required to withdraw large amounts or when making frequent withdrawals, no minimum balance is required, cash deposits and cheque clearing, Personal Accident Insurance Benefit, the account can be used to secure various bank loans and facilities, wide network of Family Bank, Kenswitch and Pesa Point ATMs countrywide  *Requirements*  Original and photocopy of ID or Valid Passport, a coloured Passport size photo will be taken at the branch free of charge., minimum opening balance of Kshs 2,000/=, adequate account introduction e.g. either, bank statements, utility bills, introduction by another customer or employer |
| **Student Account** | A transactional account for college students.  *Features:* No ledger fees, maintenance fees, monthly charges or minimum operating balance, no cash deposit or cheque handling charges, cheque book facility available, free monthly statements.  *Benefits:* No limitation on the withdrawal amount*;* account transferred into Equity Ordinary Account when the holder turns 25 years.  *Requirements:* Original student ID/Letter of admission*,* National ID and photocopy*,* Passport for Non-Kenyan students. | The KCB student account gives students a Visa KCB QuickServe card which can be used at ATMs. Interest is payable once a year and students also have access to Mobile banking.  Requirements: two colour passport size photos  Original and copy of National ID/Passport  Acceptance letter from a university or college or Student ID. | Scholar Visionary Account  This is a bank account designed for students in Universities, Colleges, Polytechnics and other institutions of higher learning. Loans for students from Higher Education Loans Board (HELB) can be disbursed to this account  *Features and Benefits:* low opening balance, no account maintenance fees, free photo is captured on account opening, free bankers cheque for fees payments, free cash deposits, availability of a wide ATM network including Kenswitch and Pesa Point branded ATMs, personal Accident Benefit is available.  *Requirements*  Original National ID or Valid Passport and a copy, Admission letter / College ID / Introduction letter, Opening & Minimum balance of 200/=. |
| **Cards** | |  |  |
| Visa Debit Card | Visa Electron is a debit card linked to an Equity Bank account which allows customers to access their funds both locally and internationally. | Currently do not offer a VISA Debit Card | Currently do not offer a VISA Debit Card |
| AutoBranch Debit Card | AutoBranch is a proprietary card linked to an Equity Bank account. It allows customers to access their funds within the regional Equity Bank network. | The QuickServe card enables customers to access cash from KCB QuickServe ATMs countrywide.  The card will soon be Visa enabled to enable you use them at any Visa branded ATMs, thousands of merchant around the worldwide in addition to being used in Kenya. The Quickserve card can be used at any KCB merchant outlets to make purchases. This includes supermarkets, hotels and restaurants, fuel stations, clothing and footwear stores among other. | ATM Card |
| Visa Credit Cards | Classic and Gold Cards. (Visa branded). | KCB Visa Gold & KCB Visa International Classic credit cards. KCB credit cards are accepted in over 24 million outlets worldwide wherever you see the Visa logo, including all Visa branded ATMs. | No Credit Cards |
| **Mobile Banking** | |  |  |
| Eazzy 247 | Eazzy 247 is a mobile banking service that allows customers access to bank services using their mobile phones. Eazzy 247 access is available through Safaricom, Orange, YU, Airtel& MTN USSD, SMS and internet services.  Features: send money, bill payments, balance enquiry, airtime top-up, Eazzy Cash (a service within the Eazzy 247 product that enables customers to send money from their Equity account to Telcos i.e. Safaricom customer and Orange Money customers), Eazzy Loan, ATM cash withdrawal (enables Mpesa, Airtel, Yucash& Orange Money cardless ATM cash withdrawals from the Equity Bank ATM network). | Offer a mobile banking service. |  |
| **Money Transfer** | |  |  |
| Western Union | The Western Union Financial Services are available at Equity branches. | KCB is in partnership with Western Union, offer money transfer services. | Western Union services are available at Family Bank |
| **Internet Banking** | |  |  |
|  | Customers can access their Equity Bank account online transact. Services include balance enquiry, funds transfer, view and printing of bank account statements, requests for cheque books etc. | Not offered. |  |

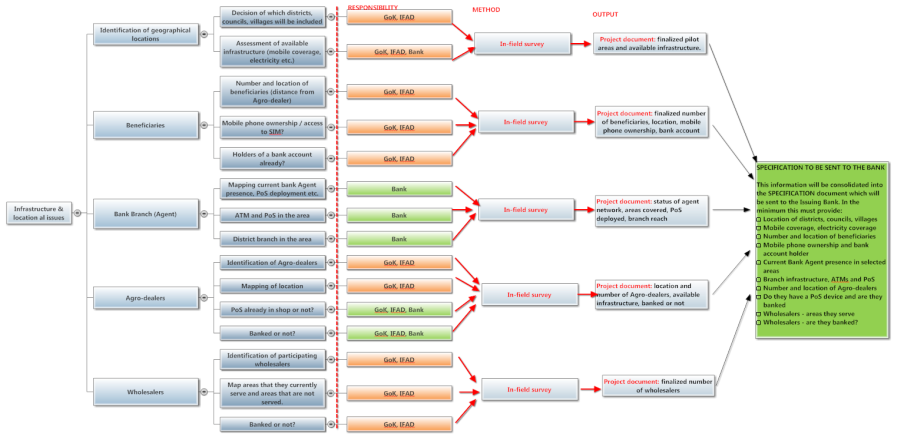
**Summary of product requirements**



**Implementation plan: components and Activities**

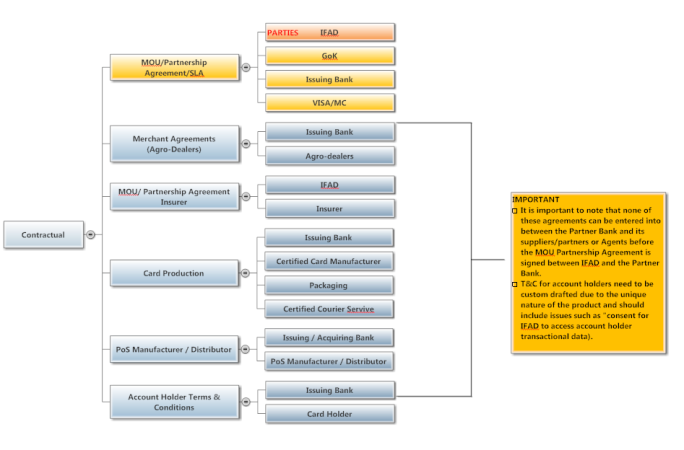
**Diagram: 13: Component 1: Mapping Infrastructure and Location of Beneficiaries, Agro-dealers and Banks**

The first activity needed to roll out the e-VOUCHER pilot is a comprehensive mapping exercise which needs to be undertaken by IFAD, GoK, implementing partners and the selected bank. This exercise will result in a SPECIFICATIONS document which will be shared with the Bank Partner. The details of the required information are set out in the green box in diagram xx below. As IFAD, GoK and its other implementing partners will be primarily responsible for undertaking the required survey work, this exercise can begin before the Partnership Agreement is signed with the Banking Partner.



**Diagram 14: Component 2: Contractual**

The diagram below maps several of the agreements that the Partnering Bank will need to enter into in order to develop and role of the proposed solution. It is important to note that none of the product related agreements can be negotiated and finalised without the MOU/Partnership Agreement being in place between IFAD, GoK, the Bank and VISA/MC. Dealing the negotiating and signing of the primary partnership agreement until September 2013 will place considerable strain on the selected banking partner to sign all of the other required agreements and get the voucher to the beneficiaries by March 2013. It must also be remembered that it is not a given that VISA and or MasterCard will sponsor the development of a new product. This will need to be negotiated and may take some time.



**Diagram 15: Component Product development**

The diagram below sets out the activities needed for product development (take to market) and the parties responsible for each activity.



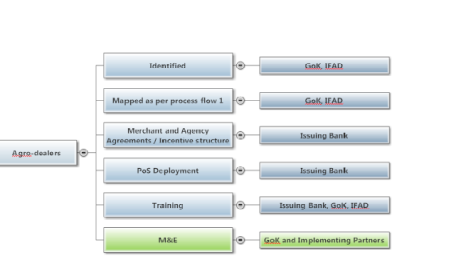
The partner bank will require a full business requirement and technical specification from IFAD/GoK before beginning work on product development.

The requirements set out in section 4.1, 4.3.4 and the information mapped out in diagram 13 above are the starting point for the development of these documents.

VISA and MasterCard also have specific requirements which the partner bank will need to meet.

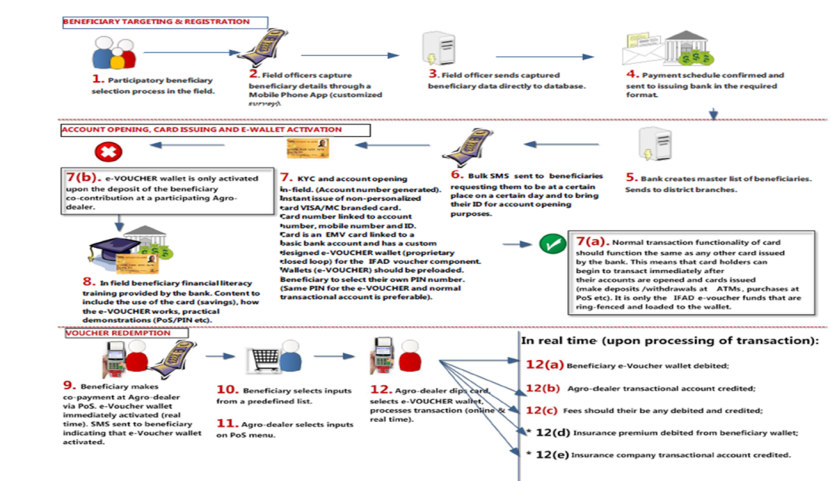
**Diagram 16: Component 4 - Agro-dealers**

As the Agro-dealers will become Agents of the partner bank, they will need to go through the same recruitment and verification requirements as normal agents. Whilst the bank will manage the agent network as is required by law and regulation, GoK, IFAD and other Implementing partners also have a role to play. This is represented in the diagram below. A list of what Agents can and cannot do is listed below.



|  |  |
| --- | --- |
| **Permissible Activities** | **Prohibited Activities** |
| ✓Cash deposit and cash withdrawal | 🗶Operation or carrying out an electronic transaction when there is communication failure in the system |
| ✓Cash disbursement and cash repayment of loans | 🗶Carrying out a transaction when a transactional receipt or acknowledgement cannot be generated |
| ✓Cash payment of bills | 🗶Charging any fees directly to the customers |
| ✓Cash payment of retirement and social benefits | 🗶Carrying out agent banking business when, in the opinion of the institution the initial commercial activity has ceased or is significantly diminished. The commercial activity should be viable and able to financially support the agent banking business. |
| ✓Cash payment of salaries | 🗶Offering any type of guarantee in favour of any institution or customer |
| ✓Transfer of funds | 🗶Offering banking services on its own accord (provide on its own account banking services similar to those provided by it under an agency contract) |
| ✓Balance enquiry | 🗶Continuing with the agency business when it has a proven criminal record involving fraud, dishonesty, integrity or any other financial impropriety |
| ✓Generation and issuance of mini bank statements | 🗶Providing, rendering or holding itself out to be providing or rendering any banking service which is not specifically permitted in the contract |
| ✓Collection of documents in relation to account opening, loan application, credit and debit card application | 🗶**Opening accounts, granting loans or carrying out any appraisal function for purposes of opening an account or granting of a loan or any other facility except as may be permitted by any other written law to which the agent is subject.** |
| ✓Collection of debit and credit cards | 🗶Undertaking cheque deposit and encashment of cheques |
| ✓Agent mobile phone banking services | 🗶Transacting in foreign currency |
| ✓Cheque book request | 🗶Providing cash advances |
| ✓Cheque book collection by customers | 🗶Being run or managed by an institution’s employee or its associate |
| ✓Collection of bank mail/correspondence for customers | 🗶Subcontracting another entity to carry out agent banking on its behalf |
| ✓Any other activity as the Central Bank may prescribe |  |

**Diagram 17: Component 5 - Beneficiary identification, enrolment, card issuing and voucher redemption**



**Costs, financing and implementing partner**

1. As a partnership model is proposed, the cost of development, account opening, card production and issuing, infrastructure (PoS) and account maintenance fees should be negotiated with the issuing bank (Equity Bank) and its preferred partner (VISA or MasterCard). The cost associated with e-voucher programmes are usually subsidised by the programme funders and or the Government. In this case, as it has been suggested that Equity Bank partner with IFAD and not be selected as a “service provider” through a tender process, Equity could reasonable be asked to cover these costs. This will however be subject to commercial negotiation.
2. It is vital that the beneficiaries of the IFAD e-voucher programme are issued with cards, account opened, PoS devices deployed and Agro-dealers trained by the long rains in March 2014. As the development / customisation required is likely to take at least 6 months and procurement procedures in Kenya have been reported to take anything up to 18 months, it is proposed that the best solution under these circumstances would be to partner with a large commercial bank willing to customise their current product offering and cover the associated costs. Due to Equity Banks experience and commitment to extending financial services to the poor, their vast agent network, sound core banks systems, established relationship with VISA and MasterCard and their experience in making social cash transfer payments, it is proposed that Equity be selected as the banking partner. In return, IFAD would more than likely be required to deposit programme funds with Equity Bank in an interest bearing account and all beneficiaries and participating Agro-dealers would be required to open and transact through Equity Bank accounts.

*Equity to provide costs as per email request to be sent to them.*

**Monitoring and MIS**

1. As transactions and reporting will be in real-time, the bank selected must be required to provide the following reports: card generation/dispatch; card status/activity; inventory balance; card usage (spend patterns); available balance; matched and settled records; unmatched records; balance sheet (daily); settlement reports (daily).
2. It must be noted that the programme will continue to be responsible for the targeting and enrolment of beneficiaries into either the NAAIAP database or another database selected for the programme. The bank will never be held responsible for the accuracy of beneficiary targeting and enrolment. The bank will however be responsible for opening accounts, issuing cards and processing beneficiary payments.
3. Whilst technology can solve many of the risks associated with the redemption of vouchers, it will never be able to solve the “human element”. Although the PSP will endeavour to make committing fraud technically difficult through measures such as KYC compliance, two factor authentication (card and PIN), menus of the PoS for the selection of specific goods, real-time online payments, the programme will have to use Extension Officers and or M&E staff to monitor the behaviour of the Agro-dealers when vouchers are redeemed to ensure that beneficiaries receive the inputs which are captured through the voucher redemption process.
4. Beneficiary transactional records provided by the bank will be highly beneficial in monitoring whether the solution provided has in fact led to long term financial inclusion. It must be noted that as the product provided (bar the e-VOUCHER wallet) is a mainstream transactional account linked to a debit card, consent for the beneficiaries transactional record to be shared with IFAD and or the Government will have to be acquired from the beneficiary. Beneficiaries will also have to be fully informed about this requirement and such should be included in the Terms & Conditions signed by the beneficiary at the point of account opening.

**Innovation and replication**

1. The proposed solution is innovative and a world first in that it firstly enables beneficiaries to redeem their electronic vouchers at specific agro-dealers by “purchasing” goods from a specified list, and, secondly, the same electronic voucher can be used over the long run in the same manner as a conventional open-loop debit card allowing beneficiaries to make deposits through various channels, including bank branches and agents into a fully functional bank account, earn interest on positive balances, use the card to make purchases in the retail environment at Point of Sale (PoS) and to withdraw cash at an ATM. This innovative approach allows IFAD and its partner bank to pilot a unique payment mechanism that meets to programmes primary objective (getting inputs to beneficiaries in an efficient and transparent manner through an electronic voucher) and at the same time, advances Kenya’s financial inclusion agenda by banking all of the programmes beneficiaries and building the branchless banking agent network by recruiting and registering all of the Agro-dealers chosen to participate in the programme as agents of the bank.
2. The solution also enables programme designers to add innovative add on services over time (such as weather based insurance) and to use the same payment mechanism. Premium payments would be loaded by the programmes funder through the Issuing Bank to the beneficiaries e-VOUCHER wallet, be automatically debited from the beneficiaries e-VOUCHER wallet and credited to the Insurer.
3. The same card linked to a basic bank account could also be used for other programmes in Kenya as the unique feature of the inclusion of “e-wallets” allows government and donors to ring fence funds required for particular uses whilst at the same time, enabling beneficiaries to continue using their cards as any other person would use a debit card linked to their transactional / current account. This enables beneficiaries to build a transactional record, something that is vital for access to additional funds provided by registered credit providers.
4. As the solution relies on the participation of pre-selected Agro-dealers to act as agents for the bank, this solution will, over time, contribute greatly to extending the reach of banks into rural and previously un or underserved rural areas. Once the Agro-dealer has been issued with his/her PoS this Agro-dealer would become the “local bank branch” and would be able to serve the community at large. Ensuring that Agro-dealers are issued with PoS devices that acquire multiple cards and not just one banks proprietary cards is vital.
5. In conclusion, IFAD, in partnership with its implementing partners and the selected PSP (bank) have a wonderful opportunity to bring banking services to the rural poor whilst at the same time meeting the specific e-voucher needs of the Kenya CeralEnhacement Programme (KCEP). A partnership model with Equity Bank should be encouraged as this model will ensure that the bank has a vested interest in ensuring the successful roll out of the solution and acquiring both the beneficiaries and Agro-dealers as customers. The fact that beneficiaries will be issued with an interoperable payment card linked to a basic bank account means that beneficiaries will also have access (over time) to all of the mainstream banking channels that so many of us take for granted. These include mobile and internet banking. The opportunity to provide this type of solution to the programmes beneficiaries should not be forsaken simply because it is easier in the short term to issue a proprietary, single purpose, once off voucher solution.

**WORKING PAPER 6: Stock taking note on e-voucher schemes in Kenya, Zambia and Zimbabwe**

1. **Introduction**
2. This working paper summarises the findings of three stock taking initiatives carried out as part of the pre-feasibility work for the design of the Kenya CeralEnhacementProgrammes (KCEP). These initiatives that were looked at include: (i) the paper voucher programme implemented by GoK, the *National Accelerated Agricultural Inputs Access Programme (NAAIAP)* as well as two e-voucher programmes implemented in Zambia and Zimbabwe by FAO (with mainly EU funding), (ii) the *Farmer input support response initiative Project (FISRI)* in Zambia and (iii) the *Small holder farmers agriculture inputs, extension and market support Programme (no acronym available) in Zimbabwe* respectively. The main activities, constraints and lessons learned from the three initiatives are summarized below.
3. Appendix 1 of this *working* paper presents a comparison of interventions using voucher in African countries.
4. **Activities and objective**
5. The table below presents the main activities and objective of the three initiatives.

|  |  |  |
| --- | --- | --- |
| **NAAIAP (Kenya)** | **FISRI (Zambia)** | **Small holder farmers agriculture inputs, extension and market support Programme (Zimbabwe)** |
| **Kilimo Plus:** This component is designed as a voucher scheme to  enable smallholder farmer to access inputs and to supports training  and accreditation of agro dealers. It is made up of two components.  Inputs grant package consisting of basal fertilizer, top dressing fertilizer, certified seeds and extension services for one and Agro dealer network development consisting of capacity building of farm input agro dealers across the entire country. | FISRI is essentially an input distribution programme using an electronic voucher system. Its main objective is to promote conservation agriculture. It was implemented by FAO with EU funding. Its main activities include:   1. Identification of a mobile transaction operator and signing of a MoU 2. Sensitization of stakeholders 3. Registration of Farmers and Agro dealers 4. Verification of farmer details 5. Linking Beneficiaries to the system and distribution of voucher cards 6. Voucher Redemption 7. Establishment of farmers groups lead by model farmer 8. Training on conservation agriculture 9. Promotion of mechanisation through a voucher system | The small holder farmers agriculture inputs, extension and market support Programme is essentially an input distribution programme using both paper and electronic voucher systems. Its main objective is to (i) improve food and nutrition security of vulnerable households through an improved rural agriculture input supply chain; and (ii) reduce dependency on donor funded assistance. It was implemented by FAO with EU funding. Its main activities include:   1. Beneficiary selection 2. Identification of agro dealers and establishment of point of sales (POS) devices 3. Production of paper and electronic voucher and ditribution 4. Management and maintenance of paper and electronic voucher system 5. Training of farmers for voucher redemption 6. Train farmers in good agricultural practices |
| **KilimoBiashara** Agricultural Credit Guarantee Scheme: This was initiated to enhance targeted access to affordable financial services and capacity to agricultural sector value chain players. Through the KilimoBiashara resources, poor farmer are able to access to credit and other financial services for investments |
| **Orphan Crops:** This component aims at boosting and widening the  food crops base by promoting the utilization of traditional crops. The  component supports the scaling up of orphan crops while addressing  the constraints that inhabit productivity and access to input market in  the Arid and Semi-Arid Lands (ASAL’s) areas. |

1. **Main constraints**
2. The table below presents the main constraints of the three initiatives.

| **NAAIAP (Kenya)** | **FISRI (Zambia)** | **Small holder farmers agriculture inputs, extension and market support Programme (Zimbabwe)** |
| --- | --- | --- |
| 1. Short term, farmer receive the input package for one season after which they are expected to graduate, which is very ambitious. 2. Free inputs can lead to dependency 3. Uniform ‘1 fits all’ input pack, which is not utilising inputs to their full potential 4. Pricing, all prices are the same, throughout the country, leading to overpricing and ‘arrangements’ between dealers. 5. Targeting, with the program mainly targeting resource poor farmers, envisaged increases in yields and sustainability are very difficult to achieve. 6. Pricing, the fixed prices lead to higher prices and reduce sustainability 7. Timing, in many cases inputs were late, reducing outputs 8. Delayed payment of Agro-dealers, the agro-dealers had to wait at least two months for their payment to be processed. 9. Participation of agro-dealers the delays in payment during the first two years discouraged many agro-dealers from participating and agro-dealers could not get short-term credit for inputs. As a result the agro-dealers carry a large part of the program risks. 10. Paper voucher processing, the processing did further delay procedures as the it is extremely time consuming 11. Logistics, as the program did do tendering and transportation for inputs this resulted in delays and increased distribution costs to the agro-dealers and late distribution. 12. One type of pack with uniform fertilizer and seeds with very different soils, climate and farmers preferences, PH being low in some parts, hence in many cases the distributed inputs may not the best option. 13. Yields, yield response and yield recording, the yield assumption and recording are very ambitious and can often not be verified. Yield increases of up to 500% through 1 bag of N:P:K and 1 bag of urea would be considerable. | 1. FISRI has stopped-short at the lead-farmer level, with limited engagement with participating farmers, hampering meaningful understanding of the issues on-the-ground; 2. M&E is a concern in terms of adoption by Ministry of Agriculture and Livestock (MAL) and support by FAO in terms of follow-up (for tracking, aggregation/ disaggregation, progress reporting etc.). M&E is not perceived as an evolving and learning process for MAL. Data collection and analysis, in terms of yields, costs of production, cost- benefit etc. is limited and ineffective; 3. Capacity-building does not appear to be ‘programmed’ and is not as responsive to ‘felt’ needs. Lead- farmers were to be trained through the farmer field schools, but they were often under-resourced and limited in terms of impact, whereas capacity-building is unlikely to be sustainable as a train-the-trainer approach is not sufficiently addressed and developed; 4. Promotion of CA is not effective in terms of clarity of concept, long-term benefits and the main ethos behind CA (i.e. a way of ‘thinking before doing’) – it is not clear whether CA adoption is based on incentives (e-voucher) or is a ‘passion’ among participating-farmers; 5. FISRI project design issues undermine its effectiveness in terms of: targeting end-users, gender, food security, progressive/performance-based approaches, M&E etc., with no meaningful review/reflection points between phases I-III; 6. E-Vouchers were not evolving in terms of indexation, linkage to specific/required farmer activity, stage of farmer development and/or progression/performance management; 7. FISRI may be contributing inadvertently to the creation of a   ‘dependency syndrome’ through its current e-voucher scheme and a focus on provision of inputs;   1. MAL DACO/CEOs perceive FISRI/CA as an added ‘chore’ rather than ‘core’ to their existing duties – whereas FISRI is not linked to FISP; 2. CA may be perceived as the ‘poor man’s agriculture’ by more progressive farmers (without introduction of new technologies and mechanisation); 3. CA principles are not being correctly applied and adhered to (in terms of soil disturbance, mulching and crop rotation/interactions), issues of difference in effectiveness between available CA options (basins and ripping) are not clear and livestock is not integrated with crop production in application of CA; 4. Gender issues have not been adequately integrated into all FISRI processes (as a result of design) and social factors have not been sufficiently addressed (in terms of HIV-AIDS, traditional/social mores) in adoption of CA practices; 5. CA has not been adequately ‘institutionalised’ into MAL, research/training institutes and policy, where exposure to the principles of CA should happen earlier and more comprehensively; | 1. Input suppliers were hesitant to take the risk of supplying agro-dealers on credit or on consignment as they were not sure about payment arrangements under the voucher programme. Furthermore in most cases the suppliers had no credit history with the agro-dealers. This resulted in late and patchy supply of agricultural inputs. 2. The supply bottlenecks resulted in farmers making several trips to agro-dealers in anticipation of input deliveries. In some cases farmers bought less preferred inputs because agro-dealers stocked inappropriate inputs. For example in the marginal rainfall areas farmers ended up buying maize seed because the seeds they wanted such as groundnut seed and sorghum seed were was not available. 3. In marginal districts poor input supply levels resulted in monopoly behaviour and artificial price hikes by some agro-dealers 4. Redemption of e-vouchers was affected by poor network connectivity and system challenges such as faulty cards and faulty POS devices. 5. Some agro-dealers not honour payments due to suppliers, which is undermining roll-out. 6. Credits are not available or very expensive reducing ability and willingness to continue and expand activities. 7. Continuation is not clear as government and donors have no medium and long term strategy on input and agricultural support. |

1. **Lessons learned**
2. The table below presents the main lessons learned of the three initiatives

| **NAAIAP (Kenya)** | **FISRI (Zambia)** | **Small holder farmers agriculture inputs, extension and market support Programme (Zimbabwe)** |
| --- | --- | --- |
| 1. Delays in payment of agro dealers caused some of them to drop out of the programme. A faster payment system should be established as financial capacity of agro dealers cannot cope with long payment time 2. Targeting of beneficiaries suffered from time constraints: sufficient time should be allowed for this exercise together with a sound and accepted methodology 3. The size of plot is a critical parameter for eligibility: it should be sufficiently large to support smallholder livelihood and increase the chances of graduation 4. The Timing of the programs and input availability is critical and has to be determined by the agricultural season. 5. Longer term approaches (multi season) is essential 6. Framers need to be more involved and should contribute towards inputs (presently distributed for free). 7. There is need to invest time and resources in raising awareness about the scope of the programme to all stakeholders especially farmers. 8. Agro-dealer training is critical. It is important that the shopkeepers as well as shop owners receive the training since shopkeepers interface with farmers and carryout the voucher redemption. 9. Stakeholder engagement, coordination and sharing of information throughout the project ensures roles and responsibilities are clearly defined. 10. The relationship between agro-dealers and suppliers needs to be strengthened to ensure a healthy mutually benefitting business relationship. 11. Comprehensive M&E is essential to assess impacts and lessons learnt. 12. Financial management manual should be available; funds should not be merged with those of Ministry of Agriculture and should be kept separate and programme coordinator should be in control and accountable for funds management 13. The e-voucher system that was piloted by NAAIAP (I-Card system) is, in its current form unsuitable for the KCEP e-voucher programme because the system : (i) is not a payment system in the true sense; (ii) it is not financially inclusive as the SMS vouchers generated are intended for once-off use; (iii) offers no additional benefits to beneficiaries; (iv) requires significant manual inputs (entering beneficiary data to uploading files as well as the subsidy entitlement); (v) puts additional pressure on the Agro-dealer as she/he is required to send several SMS’s during the course of one transaction; and (vi) requires a separate process for the authorization and payment of Agro-dealer | 1. The thrust of FISRI was the CA application, thus support must have been for those critical components that reinforced adoption of CA principles of minimum soil disturbance, crop rotation and crop residue management:  * Focus on inputs (in particular, maize and fertiliser); * Focus on ‘commodities’ of maize/cotton (a traditional commercial farmer produce) rather than other options e.g. legumes, soya etc.;  1. The promotion of the Conservation Agriculture (CA) by FISRI was compromised by the inclusion of maize seed and fertiliser in the FISRI e-voucher scheme as this made the project appear like FISP, an input support project. The thrust of FISRI was the CA application, thus support must have been for those critical components that reinforced adoption of CA principles of minimum soil disturbance, crop rotation and crop residue management. 2. The FISRI project selected a set of farmers that it worked with exclusively over a 3-5 year period. This was cardinal to ensure following-up of changes in the farmers ‘mind-set’ and in the farming practices being applied. Unfortunately the model did not provide for ‘early-adopters’ to advance beyond the level participating farmers. 3. Another dimension of the absence of progression in the FISRI was with the e-voucher scheme, whose value remained the same over the period and the components did not reflect farmers’ developmental stage or the inflation index. 4. Concentration of key interventions and activities into ‘specialised nodes’ that would provide services such as ripping, herbicide application (e.g. agri-contractors being trained on use of herbicides, creating synergies in bringing together spraying equipment, procurement of herbicides and application of herbicides more effectively), tractor maintenance would have been concentrated into few hands of ‘specialist practitioners’. 5. A major opportunity was missed to establish meaningful CA best-practice demonstration effect and a foundation for on-going research as a result of delayed and/or ineffective M&E and data collection/analysis. Because it is costly and practically impossible to attain 100% enumeration of all households in the district, sampling should be an important component of the FISRI monitoring system. The sampling process should recognise and take into account inherent variations in farming systems and agro-ecological conditions and allow to collect rich data at the farm level which can contribute to CA research and progression. 6. Focus on CA technical issues without attention to gender relations, equality and social issues can reduce the impact of CA in terms of its adoption, impact and sustainability. | 1. Longer term voucher schemes do have the potential to have a lasting effect on farmers, agro-dealers, and markets through improved input availability/competition, production, and productivity 2. Better involvement of output markets is needed to enhance sustainability and reduction of subsidy levels. 3. 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. Currently the cards are locked to the project, not utilising 1 of the main advantages of the cards. 4. Government would need to create a conducive environment for private sector investment in agribusiness. The Zimbabwe’s Medium-Term Plan (2011-2015) policy on agriculture is to ensure food and nutrition security at household and national level, improve agricultural productivity, increase production for export, strengthen agricultural financing infrastructure and farmer support institutions, promote improved natural resources conservation in the production systems and strengthen research and extension service delivery, but clear implementation methods and focus areas are not defined. 5. The end of voucher programme does not necessarily coincide with the end of the needs of the targeted population; therefore, exit strategies for voucher schemes must be integrated with other complementary interventions. 6. The Zimbabwe case demonstrates that farmers can and are prepared to contribute towards inputs. 7. There is need to invest time and resources in raising awareness about the scope of the programme to all stakeholders especially farmers. 8. Agro-dealer training is critical. It is important that the shopkeepers as well as shop owners receive the training since shopkeepers interface with farmers and carryout the voucher redemption. |

**Appendix 1: Comparison of E-voucher Experiences in various Countries in Africa**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Main features** | **KENYA** | **TANZANIA** | **MALAWI** | **Rwanda** | **GHANA** |
| **Numberof**  **beneficiaries** | 615,000cumulativenumber | 1.5millionin2009/10 and  2.5Millionin2010/11 | 1.6Million | 350,000 | 1,000,000 |
| **Package size** | 1X50KgBasal  1x50Kgtopdressing  1x10KgseedMaize | 1x50KgBasal  1x50Kgtopdressing  1x5KgseedMaizeoffarmer choiceorMilletseed | 1x50KgBasal  1x50Kgtopdressing  1x5KgseedMaizeof farmer’schoice  1x2KgLegumes | 1x50KgBasal  1x25KgtopDressing  13kgmaizeseed | 1x50Kgbasal  1x50Kgtopdressing |
| **Farmer Contribution** | Free | 50%oftheInputcost | Paysabout14%ofthecost  ofthebagonaverage | 50%onMaizeorWheat  75%onRice,Coffeeor  Tea | 50%oftheInputcost |
| **Period** | Onetimesupport(1year) | Three yearssupport | Hascontinued for6years  now repeatingalmostsame farmers | 3Years | Ongoing |
| **Targeting** | Participatorybasedoncriteria  set bytheMinistry(1 acreof land) | Participatorybasedon  criteriasetbytheMinistry(1acreofland) | Participatorybasedon  criteriasetbytheMinistry(1acreofland) | Farmerswith 0.5 haofland | Opentoallbutthe  commercialfarmerhave toobtainauthorizationin advance |
| **Paymentstosuppliers** | Ministrythroughthe Districts  Offices | ThroughNationalMicro  FinanceBank(NMB) | TheMinistryofAgriculture  (LogisticUnit) | Retailersscanvoucher  and IDcardand createan automaticrecordfor paymentwhenmemory stickistakentoBank | TheMinistry |
| **Pricing** | FixedUniformPrice | Marketprice | Marketprice | Marketprice | MarketPrice |
| **Voucher** | Voucherforeachinputtype  withfixedvalue | VoucherforeachInputtype  withsubsidizedamount | VoucherforeachInputtype  withsubsidizedamount | Voucher50%forWheat  orMaizefertilizer  25%supportforRice, Tea,Coffee | VoucherforeachInput  typewithsubsidized amount |

1. World Bank. World Development Indicators 2012 [↑](#footnote-ref-1)
2. World Bank. Country Brief. March 2009 [↑](#footnote-ref-2)
3. There are several classifications of agro-ecological zones in Kenya at various levels of detail but the basic division is into high rainfall, semi-arid and arid zones. The medium and high potential areas are mainly in the high potential areas, although some semi-arid areas are also considered high potential. These classifications are outlined in detail in the technical working paper on production. [↑](#footnote-ref-3)
4. KIHBS 2007 [↑](#footnote-ref-4)
5. 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. [↑](#footnote-ref-5)
6. Most of these studies draw on the four period panel data from the Tegemeo Institute (Egerton University) which provides longitudinal quantitative and qualitative 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. The Tegemeo panel data is particularly useful for the KCEI because it is nationally representative (though not statistically) and it excludes very large farmers and purely pastoral AEZs and livelihoods. [↑](#footnote-ref-6)
7. The transient poor are then broken into three separate categories: those that exited from poverty between 2000 and 2007, those that descended into poverty, and those that oscillated in and out of poverty. Those that exited poverty are households that started off with an income below the poverty line in 2000, were above the poverty line in 2007, and whose mean income over the three periods was greater than the average of the three poverty lines. Households that descended into poverty are those that started off non-poor in 2000, were poor in 2007, and whose mean income over the three spells was below the average of the four poverty lines. The rest are considered to be oscillators in and out of poverty. [↑](#footnote-ref-7)
8. Kimenju, S. and D.Tschirley (2008) Agriculture and Livelihood Diversification in Kenyan Rural Households, Working Paper 29; Tegemeo Institute. [↑](#footnote-ref-8)
9. These are extensive: distance to roads, type of roads, segmented markets, seeds, cold storage. [↑](#footnote-ref-9)
10. Chamberlin (et al) 2011, Unpacking the Meaning of Market Access: Evidence from Kenya & Zambia, Michigan State University. [↑](#footnote-ref-10)
11. For example central province has a more favourable ‘province effect’ than the western province in regressions that capture factors associated with location, climate, rainfall, soil quality and access to physical capital. There is also a more positive relationship between ethnic fractionalisation and consumption and the returns to education are higher even at the primary school level. [↑](#footnote-ref-11)
12. The categories refer to: (i) sell only–households that sold but did not buy maize; (ii) buy only–households that bought maize and did not sell any; (iii) net sellers–households that bought and sold maize but maize sales exceeded purchases; (iv) net buyers–households that bought and sold maize but purchases were greater than sales; (v) neither buys nor sells–households that did not participate in the market; and (vi) net equal–the quantity of maize sold and bought were equal. This is a useful table but several points should be clarified: (i) further research (Kimenju and Tshirley 2008) shows that households that buy and sell maize in the same year are often grain traders and/or households that have sufficient non-agricultural income to avoid distress sales; (ii) the income and asset differential between sell-only and buy-only households is not as high as between the top and bottom quintile or the rural gini co-efficient. The reason is that this table looks only at smallholder households and excludes large commercial farmers. [↑](#footnote-ref-12)
13. Kirimi (et al) 2011, A Farm Gate to Consumer Value Chain Analysis of Kenya’s Maize Marketing System, Working Paper 111, Michigan State University. [↑](#footnote-ref-13)
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). [↑](#footnote-ref-14)
15. Table 7 is not intended to provide an exhaustive list, but to illustrate the targeting rationale, as well the main types of activities and how these apply to different target groups.. [↑](#footnote-ref-15)
16. The project design is based on an extensive consideration of lessons from other projects and programmes presente in Annex 3. This section only covers lessons on targeting specifically. [↑](#footnote-ref-16)
17. These approaches aim to reduce the amount of data collection necessary on household characteristics and make the selection criteria specific to the poverty profile of local communities. Extensive research has compared the outcomes of CBT with statistical targeting and found them to be broadly similar. [↑](#footnote-ref-17)
18. The lessons are drawn from extensive review of a range of interventions including the targeting of Kenyan Social Safety instruments. Ref. [↑](#footnote-ref-18)
19. Extracted mainly from the KCEI concept submitted in May 2013 [↑](#footnote-ref-19)
20. World Bank. World Development Indicators 2012. [↑](#footnote-ref-20)
21. Republic of Kenya. Kenya Post-Disaster Needs Assessment (PDNA), 2008-2011 Drought, 2012. [↑](#footnote-ref-21)
22. Main actors active in the rice sector include: (i) Kenya Agriculture Research Institute (KARI); (ii) ASARECA And AGRA as regional funders of breeding and access to improved varieties; and (iii) IRRI through AfricaRice as a CG funder. [↑](#footnote-ref-22)
23. Stockholm Environment Institute. Economics of Climate Change Kenya, 2009 [↑](#footnote-ref-23)
24. Annual consumption per capita is estimated at 98 Kg (approx. one 90kg bag per person per year). [↑](#footnote-ref-24)
25. Between 2004 and 2009, total maize imports from both Uganda and Tanzania fluctuated between 150,000 - 200,000 T. [↑](#footnote-ref-25)
26. Based on the “*EU Quarterly Food Security Bulletin (April – June 2013)*”, farmers are holding about 1.8 million MT (21,012,440 bags), Traders 240,000 MT (2,682,475 bags), Millers 42,000 MT (466,720 bags) and the National Cereals and Produce board (NCPB) 204,000 MT (2,271,820 bags) [↑](#footnote-ref-26)
27. Stanley Guantai and Paul Seward, Maize Handbook, (ACDI/VOCA, 2010), page 7. [↑](#footnote-ref-27)
28. FewsNet livelihood map. [↑](#footnote-ref-28)
29. Ibid. [↑](#footnote-ref-29)
30. National target is 1 field extension worker to 1 000 farmers but in reality it is closer to around 1 extension worker to 2000 to 6000 farmers. [↑](#footnote-ref-30)
31. Calculation is made for a family composed by 2 adults (2 bags per adult per year) and 3 children (1 bag per child per year) [↑](#footnote-ref-31)
32. ‘’Competitiveness of Kenyan and Ugandan Maize Production: Challenges for the future’’ Tegemo Institute working paper 10. [↑](#footnote-ref-32)
33. From KARI’s Service Charter, 2009. [↑](#footnote-ref-33)
34. The Centre focuses on sustainable agricultural production opportunities in dry (semi-arid) mixed farming areas. The research mandate may be summarized as follows: (i) development of technologies for soil and water management for the dry farming areas (soil fertility, soil and water conservation/harvesting, tillage and small-scale irrigation); (ii) improvement of crop varieties (maize, sorghums, millets, beans, cowpeas, pigeon peas, green grams, cassava and sweet potatoes) which tolerate various stresses including high temperatures, low and erratic soil moisture levels, low soil fertility, sustainable husbandry technologies and pests and diseases which are prevalent in the area; and (iii) developments of strategies for all-year-round feed, management and health requirements for sustainable breeds of livestock. [↑](#footnote-ref-34)
35. Other programmes are: a) Horticulture and industrial crops research on flowers, vegetables, fruits, fiber crops, herbs and spices, pyrethrum and oil crops; b) Animal production and range research on dairy, beef, small ruminants, poultry, pigs, pastures and fodder crops; c) Animal health research on priority livestock diseases; d) management of information and communication technology (ICT) in support of the research function. [↑](#footnote-ref-35)
36. Not yet available in local languages. [↑](#footnote-ref-36)
37. A Common Interest Group (CIG) –is defined as a self managed, independent group of farmers with a shared goal and interest. The members work together to achieve this goal by jointly developing an Enterprise Development Plan, learning together but individually implementing the lessons learnt. They then pool their produce in order to market/ process together and share the resulting benefits. Amalgamation of CIGs coupled with the expansion in scope of the CIG activities will lead to the realization of a Producer Group (Organizations). [↑](#footnote-ref-37)
38. KAPAP phase II started in September 2009 and will close in December 2014. The total World Bank financing is about USD 82 million. [↑](#footnote-ref-38)
39. ‘*’Can Agro-Dealers Deliver the Green Revolution in Kenya*?’’, HanningtonOdame& Elijah Muange, Future Agricultures Consortium, June 2011. [↑](#footnote-ref-39)
40. Namely: (i) Kenya Agrodealer Strengthening Programme (KASP) funded by AGRA from July 2007 to August 2010 in Western, Nyanza Easter, Central , Coast and Rift Valley Regions; (ii) Agrodealer Trade Across Borders (ATAB) funded by USAID COMPETE from March 2012 to December 2012 in Uganda, Rwanda, Tanzania, South Sudan and Kenya; (iii) Sustainable Smallholder Cross Border Trade Integration (SSMATI) funded by USAID COMPETE from February 2010 to May 2011 in Southern and Eastern Regions of Uganda, Western Kenya and Kigali, Rwanda; (iv) Fertilizer and Seed Promotion Project funded by Rockefeller Foundation from 2004 to 2007 in Western Kenya; (v) COMESA Regional Agro Inputs Programme (COMRAP) funded by EU. COMESA and IFDC from October 2010 to December 2011; (vi) Business Service Market Development Project (BSMDP) funded by DFID from 2005 to 2006 in Western Kenya; and (vii) Syngenta Foundation for Sustainable Agriculture (SFSA). [↑](#footnote-ref-40)
41. KEPHIS was established in 1996 and is the only regulatory agency in Kenya which has the authority and mandate to undertake inspection, testing, certification, quarantine control, variety testing, description of seeds and planting materials, and issue release of the cultivar. KEPHIS' activities and services involve but are not limited to offering inspectorate services on all matters related to plant health and quality control of agricultural inputs and produce. The procedures of variety release initially involve registration of the germplasm for inspection. [↑](#footnote-ref-41)
42. Maize and beans in Meru, Transmora, Tranzoia, Eldoret and Nakuru. [↑](#footnote-ref-42)
43. sorghum, millet, beans, pigeon peas, green grams and cow peas green. [↑](#footnote-ref-43)
44. ‘*’Kenya’s competitiveness in domestic maize production: implication for food security’*’ Tegemo Institute, Nov. 2002. [↑](#footnote-ref-44)
45. Ibid. [↑](#footnote-ref-45)
46. The adoption of hybrid maize, if it is not accompanied by adequate levels of fertilizer, will not result in the full hybrid maize potential. [↑](#footnote-ref-46)
47. Ibid. [↑](#footnote-ref-47)
48. Ibid. [↑](#footnote-ref-48)
49. Information available in this section are from NAIAAP Evaluation (Final report, December 2011). [↑](#footnote-ref-49)
50. instead of 1000 kg per farmer per year assumed by the programme. [↑](#footnote-ref-50)
51. Both crops require less water than maize thus offering great potential for supplementing food and feed resources while both can be consumed by farm. [↑](#footnote-ref-51)
52. It should be noted that subsidies are not supposed to correct market and policy failures but rather to compensate/complement distortions and gaps that these failures can create. [↑](#footnote-ref-52)
53. According to interviews with EABL seeds are already available at seed companies level. [↑](#footnote-ref-53)
54. ‘*’Technologies for enhancing the productivity of cereals, pulses, roots and tubers in the arid and semi-arid lands of Kenya’’*ReSAKSS, 2012 [↑](#footnote-ref-54)
55. e.g. the effect of zai systems what is this? Known to everybody? on sorghum yields is about 250% increase with zai + cattle manure, 600% increase with zai + mineral fertilizer and 750% increase with zai + cattle manure + fertilizers in ‘*’African soils: their productivity and profitability of fertilizer use’’*. Africa Fertilizer Summit, 2006 Nigeria. [↑](#footnote-ref-55)
56. KARlKatumani, in Machakos has developed a locally adapted manual pitting system which is called the “katumani-pit”. [↑](#footnote-ref-56)
57. Conservation agriculture will be promoted by another EU funded Project implemented by FAO in complementarity with KCEI. [↑](#footnote-ref-57)
58. Complementary soil samples to NAIAAP (141 sub-counties already covered by NAIAAP) [↑](#footnote-ref-58)
59. the nutrient omission trail sites also serve as learning sites for agro-dealers, extension systems and farmers to understand the role of NPK and micronutrients in optimizing crop production. [↑](#footnote-ref-59)
60. For more information on the reduction of post-harvest losses see Working Paper 2 on Component 2 – Post-Harvest Management and Market Linkages. [↑](#footnote-ref-60)
61. For more information on the weather-index based crop insurance, see Working Paper 3 on Component 3 – Financial inclusion. [↑](#footnote-ref-61)
62. This approach expands agro-dealer networks in rural areas and ensures that small rural retailers have access to necessary inputs and are mentored by trained agro-dealers. Hub-agro-dealer also serves as a focal point for suppliers that have new products to introduce. [↑](#footnote-ref-62)
63. 2 Executive Directors (Agribusiness Specialists); 1 Country Director; 3 Business management specialists; 6 Agricultural specialists; 2 M&E specialists; 1 Finance and Admin Manager; 2 Accounts Assistants, 2 Office Assistants; and 3 Drivers. [↑](#footnote-ref-63)
64. Namely: (i) Africa Fertilizer Agribusiness Partnership (AFAP)in several African countries; (ii) Seeds for Development (S4D) in South Soudan in partnership with USAID, IFDC; (iii) Deepening Agrodealer Impact in Coastal Kenya cross (DAICK) with AGRA in Kilifi and Kwale districts; (iv) Innovations in Gender Equality (IGE) with USAID in Siaya and Vihiga Counties Western Kenya; and (v) Kenya drylands Livestock Development Programme (KDLDP) with USAID in Northeast Kenya in the districts of Garissa, Wajir, Mandera, Ikara and Tana River. [↑](#footnote-ref-64)
65. Including where CGAhas active on-going projects in some of the proposed project areas (Meru, Kitui, Machakos, North and South Rift). The profile for the existing groups needs to be established which shows where they are and their statuses of operation. [↑](#footnote-ref-65)
66. This training is similar to the one provided to staff of the storage facilities (see paragraph below). [↑](#footnote-ref-66)
67. The same service provider that will implement the other capacity building activities in component 2. [↑](#footnote-ref-67)
68. See details in Annex **4.** [↑](#footnote-ref-68)
69. The project targets 20 000 smallholders within the maize/beans value chain; 15 000 smallholders within the sorghum/pulses value chain and 5 000 smallholders within the finger millet/pigeon peas value chain. [↑](#footnote-ref-69)
70. The creation of the LLC owning the storage facility as a non-for-profit institution prevents private investors to participate in the share capital of the said-LLC as these investors will require a substantial RoI. Such an RoI would also imply the payment of income tax by the LLC (on its profit); hence increasing the fee per bag stored that would drastically reduce the profitability of production for farmers. [↑](#footnote-ref-70)
71. See <http://www.iibf.org.in/scripts/iib_financeinclusion.asp> [↑](#footnote-ref-71)
72. See <http://centerforfinancialinclusionblog.files.wordpress.com/2011/12/financial-inclusion-whats-the-vision.pdf> [↑](#footnote-ref-72)
73. Center for Financial Inclusion at Accion International. *Financial Inclusion: What’s the Vision?The Need to Agree On What Financial Inclusion Is.* Online. Available at: <http://centerforfinancialinclusionblog.files.wordpress.com/2011/12/financial-inclusion-whats-the-vision.pdf> [↑](#footnote-ref-73)
74. Alliance for Financial Inclusion. 2011. *The G20 Principles for Financial Inclusion: Bringing the Principles to Life – Eleven Country Case Studies.* Online. Available at: <http://www.gpfi.org/sites/default/files/documents/01%20GPFI_Principles.pdf> [↑](#footnote-ref-74)
75. This list was extracted from the Alliance for Financial Inclusion’s 2011 paper *The G20 Principles for Financial Inclusion: Bringing the Principles to Life – Eleven Country Case Studies.* [↑](#footnote-ref-75)
76. Alliance for Financial Inclusion. 2011. *The G20 Principles for Financial Inclusion: Bringing the Principles to Life – Eleven Country Case Studies.* Online. Available at: <http://www.gpfi.org/sites/default/files/documents/01%20GPFI_Principles.pdf> [↑](#footnote-ref-76)
77. The Guideline is issued under Section 33(4) of the Banking Act, which empowers the Central Bank of Kenya to issue guidelines to be adhered to by institutions in order to maintain a stable and efficient banking and financial system. Online. Available at: <http://www.centralbank.go.ke/images/docs/legislation/GUIDELINE%20ON%20AGENT%20BANKING-CBK%20PG%2015.pdf> [↑](#footnote-ref-77)
78. See s1.6 Guideline on Agent Banking – CBK/PG/15 [↑](#footnote-ref-78)
79. See s2.6.1 where it is mandated that “an application for specific agent approval will be made on an annual basis and is renewable.” [↑](#footnote-ref-79)
80. See s3.1.1 Guideline on Agent Banking – CBK/PG/15 [↑](#footnote-ref-80)
81. See s4.2.3 Guideline on Agent Banking – CBK/PG/15 [↑](#footnote-ref-81)
82. See s4.3.1 Guideline on Agent Banking – CBK/PG/15 where it is stated that “any outlet of an entity whose operations or activities are managed, controlled, supervised or is subject to the direction of the Head Office of the entity and has no separate legal existence from that of the Head Office of the entity shall be deemed to be part of the entity for purposes of an application to be appointed as an agent.” [↑](#footnote-ref-82)
83. See Global Financial Inclusion (Global Findex) database. Online. Available at: <http://datatopics.worldbank.org/financialinclusion>The data was collected by Gallup, Inc. Over the 2011 calendar year through the Gallup World Poll survey. [↑](#footnote-ref-83)
84. The information in this table is extracted from Pulver, C. 2012. Strategic Assessment of Payment Services for the Kenya National Safety Net Programme for Results [↑](#footnote-ref-84)
85. Equity is not yet a member of either Kenswitch or PesaPoint’s ATM switches. [↑](#footnote-ref-85)
86. See Rambure, D., and Nacamuli, A., 2008. *Payment Systems - From the Salt Mines to the Board Room*. New York. Palgrave Macmillan, where it is stated further that “buyer and seller must first agree on the payment instrument, be it cash, cheque, card or electronic. These various instruments are the “raw material” of payment systems and have evolved as a response to demands for ease of use, cost reduction, security and more information as well as technological progress. [↑](#footnote-ref-86)
87. Pickens, M., Porteous, D., and Rotman, S., 2009. *Banking the Poor via G2P Payments. Focus Note 58.* Washington, D.C.: CGAP. [↑](#footnote-ref-87)
88. See <http://www.zoona.co.za/default.asp?id=19> [↑](#footnote-ref-88)
89. See <http://www.zoona.co.za/default.asp?id=19> [↑](#footnote-ref-89)
90. See Langhan, S., Kilfoil, C., and Mackay, G. 2008. *Distribution Mechanism Scoping Study for a Regular Social Cash Transfer to the Chronically Poor and Vulnerable in Zambia* where it is stated that “open technology such as VISA ensures that the payments instrument (VISA Card) works in the manual branch environment, at an ATM, at retail outlets with a PoS, and funds are accessible via the mobile phone and the internet. This ensures the greatest degree of accessibility possible. The cost of issuing a VISA card is negligibly more than a proprietary white branded card. To date VISA charge no fee per card to member banks for issuing the VISA Electron debit card but would charge a nominal quarterly service fee of around three basis points (0.03%) of transactional volume.” [↑](#footnote-ref-90)
91. See Alexandre, C. 2010. *10 Things You Thought You Knew about M-PESA* where the following is stated “you thought M-PESA was not really contributing to financial inclusion as it only offers a transactional service. Actually, you’re right on this one, M-PESA does not equate financial inclusion. Poor people need a wide variety of different financial services, including savings, and the ability to transact, no matter how efficiently, is not enough. But let’s be clear about the objective here: it is access. M-PESA is the mechanism through which financial inclusion can be delivered. So it is the means, not the end.” [↑](#footnote-ref-91)
92. See Pulver, C. 2012. *Strategic Assessment of Payment Services for the Kenya National Safety Net Programme for Results* where it is stated that “currently the “account” provided by M-PESA does allow recipients to store value (save) and the maximum balance rules are unlikely to affect recipients. The account can be accessed through M-PESA agents, branded PesaPoint ATMs but not though any POS devices as yet. A weakness of relying on SIM cards for recipients without mobile phones is both the increased risk of loss (given the small form of the SIM smartcard) and the wear and tear in constantly swapping in and out of phones is likely to severely reduce their working life.” [↑](#footnote-ref-92)
93. The high loan interest rate is a disadvantage. 7.5% per month, that is 90% per year on a flat rate which is equivalent to 139% interest rate on a reducing balance. Safaricom announced that limits will be based on usage of Safaricom services. The initial loan limit is Kes 2,000. [↑](#footnote-ref-93)
94. See Alexandre, C. 2010. 10 Things You Thought You Knew about M-PESA where the following is stated “you thought M-PESA was not really contributing to financial inclusion as it only offers a transactional service. Actually, you’re right on this one, M-PESA does not equate financial inclusion. Poor people need a wide variety of different financial services, including savings, and the ability to transact, no matter how efficiently, is not enough. But let’s be clear about the objective here: it is access. M-PESA is the mechanism through which financial inclusion can be delivered. So it is the means, not the end.” [↑](#footnote-ref-94)
95. See Pulver, C. 2012. Strategic Assessment of Payment Services for the Kenya National Safety Net Programme for Results where it is stated that “currently the “account” provided by M-PESA does allow recipients to store value (save) and the maximum balance rules are unlikely to affect recipients. The account can be accessed through M-PESA agents, branded PesaPoint ATMs but not though any POS devices as yet. A weakness of relying on SIM cards for recipients without mobile phones is both the increased risk of loss (given the small form of the SIM smartcard) and the wear and tear in constantly swapping in and out of phones is likely to severely reduce their working life.” [↑](#footnote-ref-95)
96. Barclays Bank of Kenya also has 12 sales centres. [↑](#footnote-ref-96)
97. See *Equity Bank Investor Briefing December 2012*, where the bank states that as of December 2012, the were 147 Equity branches in Kenya. [↑](#footnote-ref-97)