

AFRICAN LEAFY VEGETABLES EVOLVES FROM UNDERUTILIZED SPECIES TO COMMERCIAL CASH CROPS

Stanely Mwangi and Mumbi Kimathi

Pro-poor market development initiatives applied by Farm Concern International, FCI, are aimed at triggering innovative market driven and private sector initiatives aimed at developing a sustainable smallholder commercial production of African Leafy Vegetables, ALVs. The implementation approach was designed to allow FCI an opportunity to enhance the capacity of smallholder farmers to competently outsource business development services, negotiate with value chain players, gather market information from various value chain players and effectively sustain buyer partnerships. 'Enhanced Market Access for ALVs' is an innovative programme implemented by FCI, in collaboration with various stakeholders and with support from Rockefeller Foundation, Gatsby-UK, Farm Africa and USAID. FCI market development approach was benchmarked to private sector approach offering a market opportunity for over 2,700 smallholders.

Commercial Villages Approach, FCI approach to smallholder commercialization, has enhanced the set-up of collective marketing systems, increased smallholder participation along value chains, collective access to business development services like transportation and increased smallholders' competitiveness in the market place. The set up of Marketing Support Units, MSUs, at the various commercial villages has enhanced the development and adoption of business and marketing plans. Increased group efficiency is conducted through production skills training, increased access to technologies and capacity building. Village-based extension services systems have been established through 'Community-based Technical Experts' (COTE), an initiative aimed at enhancing the local extension capacity. Commercialization and market entry involves a relatively high cost which is prohibitive for smallholders however, FCI has developed an innovative savings and credit model, 'Market Access Financial Services', MacFis, a financial service embedded to market access. MacFis credit is applied for inputs, transportation of products to markets and invoice discounting. ALVs farmers achieving a 10% saving per sale while Over 50% of the Marketing Support Units, have been weaned-off from the MacFis.

Keywords: African leafy vegetables, smallholder, underutilized, market access

1. INTRODUCTION

Worldwide there are about 13000 species of plants used as food; out of this 3000 are found in Africa. There is no exact figure how many of these are used as vegetables in sub Saharan Africa. In Kenya for example there are 800 plants used as food crop 210 of them being vegetables, 60 of them have been listed as potential crop for conservation as well as more research underway to improve them. United Nations Food and Agriculture Organization (FAO) has widely noted that most widespread and debilitating nutritional disorders, including birth defects, mental and physical retardation, weakened immune systems blindness and even death has resulted from poor fruits and vegetables consumption habits. African Leafy Vegetables (ALVs) though rich in Vitamins, minerals and trace elements, over several decades has been recording an ever-diminishing consumption and production trend however the reawakening of demand for nutrition and health has gradually created an enormous consumer demand for traditional food crops whilst ALVs are on the spotlight due to their superior nutritive value. A

consumer research conducted in 2003 by Farm Concern International, FCI, on African Leafy Vegetables highlighted poor product image and lack of consumer awareness as the key drawbacks to ALV consumption while at production level, low demand, poor seed systems and weak ALV value chains were further identified as major constraints to ALV commercialization.

“Enhancing Market Access for African Leafy Vegetables” was designed against the back drop of emerging consumer demand for ALVs and supported by Rockefeller Foundation, Gatsby UK, Farm Africa and IPGRI and implemented in Kenya and Tanzania by Farm Concern International and AVRDC – World Vegetable Centre. The project interventions sought to empower small-scale women farmers through sustainable leafy vegetable production, seeds supply and marketing of high quality ALVs in Eastern Africa. The project focused on enhanced ALV commercialization, productivity skills for smallholders, increased utilization, to streamlined efficiency of the value chains, consumption linkages and to improve health, nutrition and income of vulnerable groups. The project focused on achieving its goal through stimulation of maximum utilization of home gardens and commercial farming systems with a focus on progressive economic development, enterprise promotion related to the mainstream activities of the target groups and an improved socio-economic environment that is right and conducive to the needs of urban and peri urban small holder producers in Kenya.

At the commencement of the project in early 2003, a baseline survey was undertaken by FCI and AVRDC aimed at assessing the ALV production and marketing status. The baseline revealed ALV non-commercialization in the target regions and neighboring areas, weak seed supply systems and minimal ALV awareness was noted among target farmers. At the commencement of the project Nairobi market was transacting approximately 31 Tonnes of ALVs per month primarily sourced from western Kenya and transported in gunny bags to Nairobi via night buses.

The ALV project implementation was based on the successful Farm Concern International’s approach to smallholder commercialization, **Commercial Village Approach, CVA** a model tested across various villages and diversity of smallholder commodities. Under the CVA, a four-tonged strategic approach for the project was designed which included; ALV commercialization, smallholder seed multiplication systems, value chain development, market development and demand creation.

ALV seed system is benefits 300 smallholder women farmers in western Kenya while over 2700 smallholder farmers are currently practicing ALV commercial farming. Consumption for ALV in Nairobi has increased from **31 Tonnes in 2003** with an estimated farm gate value of USD 6,000 to **600 Tonnes in 2006** with an estimated farm gate value of USD 142,860 Farm gate prices increased by 30% and the current supply of 500 Tonnes is estimated to account for 60% of the demand level. The ALV distribution network includes supermarkets, kiosks, informal markets and street markets.

To make a successful entry into the market and build a positive image for African Leafy Vegetables, Farm Concern International initially partnered with Uchumi Supermarkets, a lead supermarket in Eastern Africa. Through the partnership, Uchumi supermarket stocked ALVs for the first time and opened a platform for FCI to conduct **product promotions and consumer awareness** at no charges. Uchumi top quality requirements for all fresh produce, led the farmers to effectively apply various production skills acquired from FCI and AVRDC enabling them to achieve top quality supplies to Uchumi Supermarkets. To build a strong coordinated awareness campaign, FCI partnered with local

radio stations, TV stations and also participated in various trade fairs, exhibition and out-door promotional events.

Effective partnership with smallholder farmers required a wide range of Business Development Services, BDS, like transport, credit, to ensure timely and quality supply however, farmers have no resources to invest in the required BDS. FCI developed a partnership between farmers and various BDS providers focused on **leveraging resources from private sector players**. For efficient deliveries of fresh ALVs to the Uchumi stores early mornings, six days per week, FCI in collaboration with smallholder farmers, identified reliable and affordable transport providers while for seed supply, input suppliers were identified who would stock seeds supplied by the smallholder seed multipliers.

Uchumi Supermarkets, like many formal markets, procures produce on 30-60 days credit period, which smallholder farmers could not sustain due to limited resources, however, to commence a sustainable approach that would **maintain smallholder in the marketplace**, FCI injected a fund of approximately USD 100,000, a **Market Access Financial Service (MacFis)**, aimed at discounting the credit period and settle transport bills while the fund would gradually be recovered from Uchumi payments. To enhance the producer group to build and maintain a fund similar to MacFis, FCI introduced a savings component and the groups commenced 10% savings, which has enabled some groups to be weaned off the FCI MacFis and discount invoices from a group-managed fund. Producer groups weaned off from MacFis have further attracted Micro Finance Institutions due to their savings enabling them to access credit for ALV commercial expansion.

FCI's approach to evolving producer groups from socially oriented producer groups to commercially oriented groups (**Marketing Support Units, MSUs**), has been a catalytic process to enhancing trust among group members drastically enhancing their discipline to consistently save. Several MSUs with an average membership of 25 were clustered into Commercial Villages, and Commercial Villages Coordination Units, CVCU, enabling the development systematic production schedules, business plans and marketing plans. To implement the various schedules and plans developed, FCI also restructured group leaderships introducing production, marketing, financial and social programmes sub-committees with all members participating in at least one sub-committee and drastically involving the participation of most of the members in group activities. Leadership capacity enhancement was conducted with all group members since all members had assumed some level of leadership. Exchange visits to successful groups were organized offering farmers a platform to learn from other farmers.

To scale up market development initiatives and make a successful entry into various market segments, FCI developed **partnerships** with lead supermarkets, groceries, kiosks, food departmental stores, informal market / street market wholesalers & retailers, market intermediaries and the local authority. Development-oriented partnerships aimed at increasing the outreach and replication of the model to other projects and regions, were established with Ministry of Agriculture, Urban Harvest, CIP, IPGRI, NGOs and CBOs.

2. IMPLEMENTATION APPROACHES AND METHODS;

FCI market development approaches for ALV as an underutilized product were **benchmarked to private sector approach** for market entry for new products offering FCI a platform to undertake an

implementation approach based on a business model. Six strategic implementation pillars were utilized leading successful commercialization and market positioning of African Leafy Vegetables (ALVs)

- Market Research based on ‘Value Networks and Marketing Systems’ (VNMS) Research Tool’.
- Commercial Villages Approach (CVA) (Includes smallholder commercialization and market-led smallholder production strategies)
- Value networks development
- Market Access Financial Services
- Product promotion, Consumer Awareness and Image building campaigns

2.1 MARKET RESEARCH

‘**The Value Networks and Marketing Systems’ VNMS Research Tool**, developed by Farm Concern International, is a hybrid of private sector and development market research tools. The VNMS Research Tool is based on six pillars, designed in response to shifting gears from a conventional chain analysis or market research to a **multi-portfolio analysis of a dynamic market** leading to identification of **key hubs** in a market and a **comprehensive analysis** of opportunities and threats.

The 6 pillars of VNMS Research Tool

1. Establishing size of **market demand**
2. Analyzing **consumer markets** and **buying behaviors**.
3. Identification of **market segments** and selecting **target markets**
4. Analyzing **value networks** and **marketing channels systems**; includes value chain analysis, supply chain analysis and marketing channel analysis
5. Scanning **business markets** environment (Pillar not applied for ALV study)
6. **Target group integration** in value network profiling, business viability analysis and product value analysis.

The ALV market research was conducted in early 2003 based on the VNMS Research tool creating an avenue for FCI and its various partners to appreciate the dynamics of the markets, understand the target market and designed strategic project intervention to respond to market opportunities and threats.

Market Demand

A dormant ALV consumer demand was identified emanating from low consumer perceptions for ALVs largely due to a ‘poor man’s food attitude’ and a strong fear for ALVs waste water farming in Nairobi slum areas. The monthly sales level in Nairobi was estimated at 31 Tonnes primarily harvested from the wild and a few subsistence farms in western Kenya while dry seasons reported insignificant quantities in the market. It was also noted that a significant number of households reported sourcing ALVs directly from their rural homes, while such data was not captured under study, it revealed that households are ready consume ALVs if rural or peri-urban sourcing is assured to all consumers through the outlets. Potential demand identified was enormous however, such potential demand would only be tapped if product information was availed to consumers through various outlets due to low product awareness identified and supply regions highlighted to address the fear on possibilities of sewer farms supply. Demand potential was also analyzed along the value chains with most value chain players expressing an interest in product diversification to include African Leafy Vegetables.

Consumer markets and buying behaviors

The tool was applied across various income levels; low income, medium and high level to determine level of ALV awareness, attitude and perceptions, the preparation methods, social cultural aspects of ALVs, sourcing and frequency of consumption. The upper consumer class expressed a health-related desire however the high-income earners predominantly associated ALVs to poverty while only a few who recorded minimal consumption. The middle and average income earners partially consumed ALVs but expressed fear especially on urban wastewater farms, which consumers termed as great health risk. However, the middle class consumers were optimistic that if these vegetables were available in the markets and grown and handled in a cleaner environment at the selling points, they would consume ALVs. The lower class consumer segment considered a higher awareness though highlighted unavailability as a drawback to consumption.

Most of the young consumers lacked information on the ALVs while those with some exposure to ALVs reflected a negative attitude and image ALVs and also viewed them not trendy and unfashionable as compared to fast foods. Whereas other consumers hardly consumed the ALVs due to lack of reliable information concerning their nutritive value, the vegetables were not available in the formal markets and what was available in the informal markets particularly street markets was of poor quality, source questionable whether to be waste-water farms and poorly handled.

Market segments and target markets

Notably, potential demand was cutting across all market segments however, lower and middle-income earners indicated a higher level while upper incomes earners reflected a smaller percentage though a niche' market. Institutional markets reflected an enormous potential however subjected to mass volumes demanding high commercialization and consistent availability.

Value networks and marketing channels systems

Value networks refers to the value chains, business development services networks and distribution channels which were analyzed with an aim of identifying value networks presenting a competitive advantage for ALVs and smallholder farmers. Lead supermarket and informal markets were identified as potential entry point however an initial entry into lead supermarkets would build the product profile while an entry to informal markets would offer the project a platform to enhance ALV supply to the mass market.

Target group integration in value network profiling

To assess ALV business viability at a smallholder farmer's level, FCI team analyzed potential market opportunities across various value networks applying a participatory approach. Farmers identified the profitability of ALVs, which was almost double of the high value horticultural produce, and minimal cost of production would further increase profit margins. Table 1 shows a yields and profitability analysis conducted with farmers.

Table – Yields and Profitability of ALV's in a ¼ acre (Mono cropping)

Type of ALV	Production per ¼ acre in Kgs	Bunches per ¼ acre (0.7Kg)	Selling price @ farm gate Ksh	Market value in Ksh	Market value in USD	Cost of production	Gross profit	Profitability in USD
Spider plant	3409	4870	7	34090	454.5	14,040	20,050	267.3
Amaranthus	7500	10714	7	74998	1000.0	19040	55,958	746.1
Cow peas	2841	4059	7	28413	378.8	14,040	14,373	191.6
A. Night shade	2841	4059	7	28413	378.8	14,040	14,373	191.6
Jew's mellow	2273	3247	7	22729	303.1	12,040	10,689	142.5
<i>Total</i>	18864	26949	35	188643	2515.24	73200	115443	1539.2

Source: Farm Concern International, ALV Production Analysis, 04

2.2 COMMERCIAL VILLAGES APPROACH (CVA)

Highest percentage of the Africa's poor live in rural areas predominately in village settings exhibiting extensive similarities between households in the same villages however there is always a minimal number of households portraying a higher access to more resources than other households. To increase outreach to the number of households under various FCI commercialization and marketing initiatives, Farm Concern International has developed and tested a development approach '**Commercial Villages Approach**' in Eastern Africa.

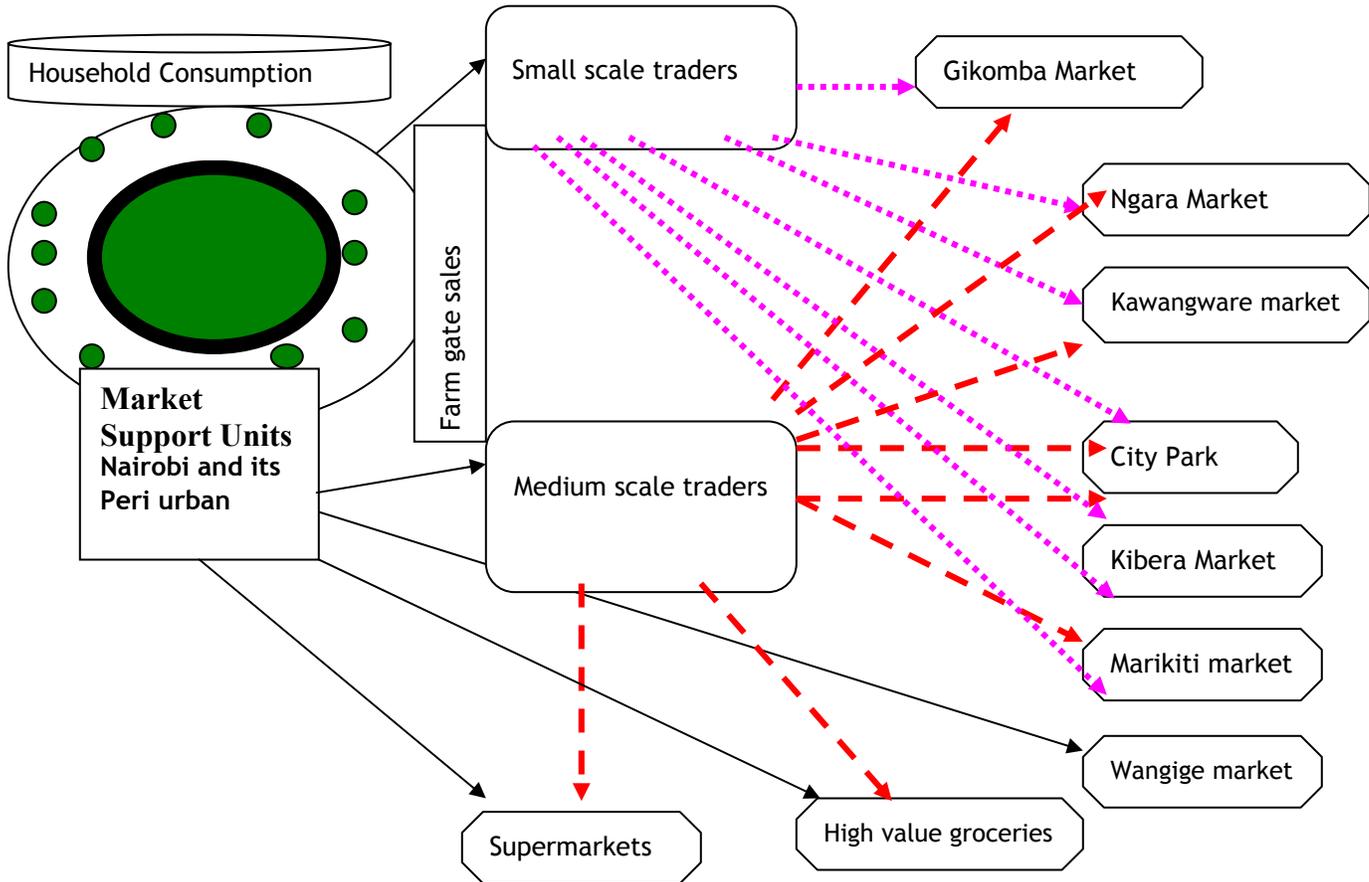
The Commercial Villages Approach (CVA) is a concept that involves commercialization of various farmer groups clustered in a village to ensure that highest numbers of members of a village are practicing commercial farming. The approach has various benefits, which increases the performance of FCI projects;

- High adoption of commercial practices across a village
- Attracts private sector partners since they can build bulk for a village and it is logistically easier to procure from the same region
- A village easily acquires formal or semi-formal agreements with buyers when commercialized e.g. villages producing snow peas attract export companies as opposed to a farmer group producing the same product.
- Strong value chains develop based on commercial villages as opposed to value chains based on few farmers
- Attraction of business development services like extension services & technical trainings; access to inputs becomes affordable due to economies of scale gained by the services providers

African Leafy Vegetable smallholder farmers were organized into groups of 25 neighborhood farmers and groups further clustered per village to set up commercial villages under the successful Commercial Villages Approach (CVA) a village-based commercialization initiative designed by Farm Concern

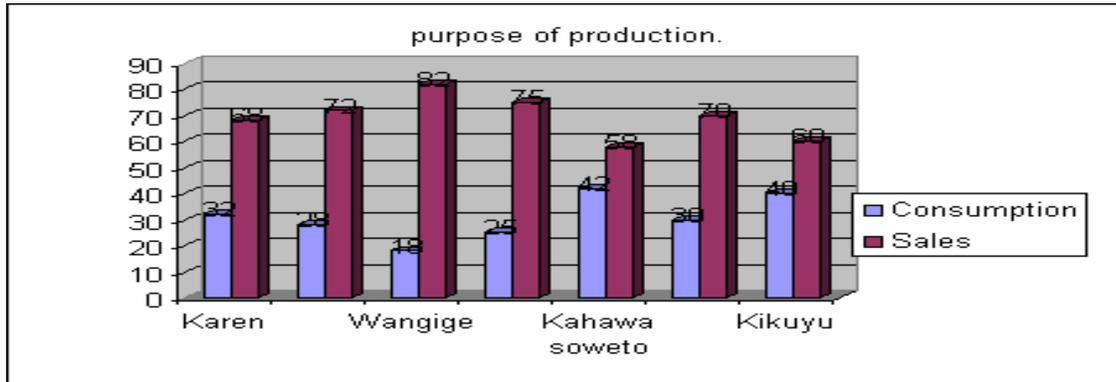
International and tested across various smallholder products. The commercial villages approach deals with a spectrum of commercialization and collective marketing parameters as outlined below aimed at increasing the commercial levels of smallholder farmers, increase their participation along value chains and enhance their competitiveness in the marketplace.

Figure 1 – Flow diagram of ALVs in Nairobi and its peri -urban



Leafy vegetable production in the urban and peri-urban regions is highly commercialized with only 30% of the farmers focusing on a household consumption. However, this is also varied significantly in regions with higher number of farmers practicing urban farming like Wangige.

Graph 1 – farmer’s purpose for production



Source: Farm Concern International and Urban Harvest, 03.06

ALVs production technology dissemination

Githunguri and Wangige Divisions are the current project target sites 45 and 20 Kilometers north of Nairobi respectively. During a baseline survey conducted at the commencement of the project, most farmers recorded minimal exposure to ALV production and lacked information on potential commercialization. A participatory needs assessment on production technologies was conducted by FCI in collaboration with Ministry of Agriculture and Kenya Agricultural Research Institute (KARI). A series of ALV production training was designed and delivered on appropriate technology on land preparation techniques, manure application and soil fertility management, seed drilling and seed media mixing ratio, and general vegetables husbandry practices for vegetables and farm management practices. Over 1700 farmers have been trained while for sustainability over 50 lead farmers attended training of trainers (TOT) courses organized by FCI in collaboration with AVRDC World Vegetable Centre. A further 1000 farmers from other regions have received training under the farmers-to-farmer training. ALV profitability is much higher than other horticultural products due to high productivity and low input requirements leading to recognition of ALV as commercial crops and reducing the land under such crops as outdoor cut flowers like arabicum, Lilly and others like snow peas, French beans, sugar snaps among others to get into African leafy vegetables farming which requires lesser inputs and has a ready domestic market.

Seeds dissemination, distribution, and multiplication

ALV seeds availability has been a challenge and thus development of seeds distribution system has been a key factor in ensuring sustainability in the value chain. Though seed multiplication systems in Kenya are well established, input companies had not commenced ALV multiplication since it was ALV seeds was not considered as a commercial opportunity. To address the required seed supply systems and enhance leafy vegetable commercialization, FCI in collaboration with a ROP, a local NGO, developed seeds multiplication systems based on approximately 300 smallholder women farmers. Smallholder seed multipliers are equipped with seeds multiplication technologies, processing and packaging technology. The distribution system has channels that have ensured that smallholder farmers accessed quality seeds timely and the varieties presenting high demand in the market. AVRDC World Vegetable Centre supplied clean base seed for seed multiplication. The seed distribution channels developed are based on establishment of links with seed companies and seeds stockists offering a sustainable platform for seed

supply. FCI and private sector partners have facilitated distribution of over 10 tones seeds, however there is another 10% of the seeds retained for own production. ALV seed multiplication target crops include as African nightshades (*Solanum scabrum spp* and *S.Villosum*), Spider plant (*cleome gynadra*), Amaranths (*Amaranthus spp*), Cow peas (*Vigna unguiculata*)Ethiopian kale (*Brassicas carinata*) Pumpkin (*cucurbita maxima*) Fig leafed gourd (*cucurbita ficitolia*), Sun hemp (*crotalaria spp*).

FCI seed multiplication partnership with formal and informal private sector players has opened up the ALV seed market increasing the number of private sector companies recognizing ALVs as a major seed line and further increasing the number of formal and informal seed suppliers within and without the target region.

Scheduled production and calenderized production programs

Smallholder simultaneous production and supply to markets has been a major drawback to negotiating prices along the value chains and at the marketplace. The scheduled production strategy was designed to ensure that a consistent supply of vegetables to the market was achieved, which is paramount to sustained demand in the markets. The schedules and production calendars are made in tandem with market demands and every Market Support Unit (MSU) has the members' plant over the same period to ensure the leafy vegetables are available all through the year. This has also been very crucial for order processing for high value markets like supermarkets that have particular days designated for supplies. Owing to the fact that ALVs matures over a shorter period, farmers have been able to maximally utilize their small portions with less depletion of soil nutrients reserve through the management skills acquired. Production schedules are developed by production sub-committees who during the groups meetings allows members in a participatory and a democratic way to decide the favorable dates ensuring that every one of them has his/her land ready and has enough inputs for target market supply volumes. The farmers from various MSUs have been equipped with the production scheduling skills and are able to make a calendar of production process, which has drastically increased their competitiveness in the market place through targeted production and supply.

Multifaceted technology dissemination forums (MTDFs)

These are forums, which are geared to not only pass production technologies but marketing skills of successful MSUs or CV (commercial villages). FCI in collaboration with Ministry of Agriculture have held these forums in the forms of field days and need based exchange visits which involved the MSUs in the commercial village or in a developing commercial village exposes the attending groups to the process of ALVs commercialization from production technologies through formal and informal market transactions and documentation. FCI and partnering institutions have held over 40 *MTD* forums leading to increased rate of adoption of ALVs as commercial farming.

Strengthening public extension service

For sustainability of the production and marketing technology disseminated beyond the life of the project period FCI in partnership with AVRDC-World Vegetable Centre, established working partnerships with the Ministry of Agriculture and National Research Institutions enhancing the incorporation of ALVs as a food crop. Experts' trainings were conducted at AVRDC-World Vegetable Centre where NARES representatives were trained on seed / leafy vegetable production technologies

and vegetables marketing. Field visits and case studies have been utilized to expose target officials to various commercial villages.

The Ministry of Agriculture in the target areas has prioritized African leafy vegetables as very a commercial / food crop and advised farmers to adopt it both household consumption and marketing for increased incomes.

Establishing Community-based Technical Experts (COTE)

The COTE approach is aimed at enhancing the local capacity based on building on existing or potential local expertise. FCI facilitates producer groups' structures to include; Production / processing, financial, social and marketing subcommittees which forms a basis for COTE.

Participants of the farmer-based Trainer of Trainers are drawn from various commercial villages, trained on various aspects ranging from agronomic to marketing issues to supplement the groups' trainings and to offer trainings to new groups within their commercial villages. Some of the groups who act as TOT to other groups are paid USD 7 per training as a training provider.

Marketing Support Units (MSUs)

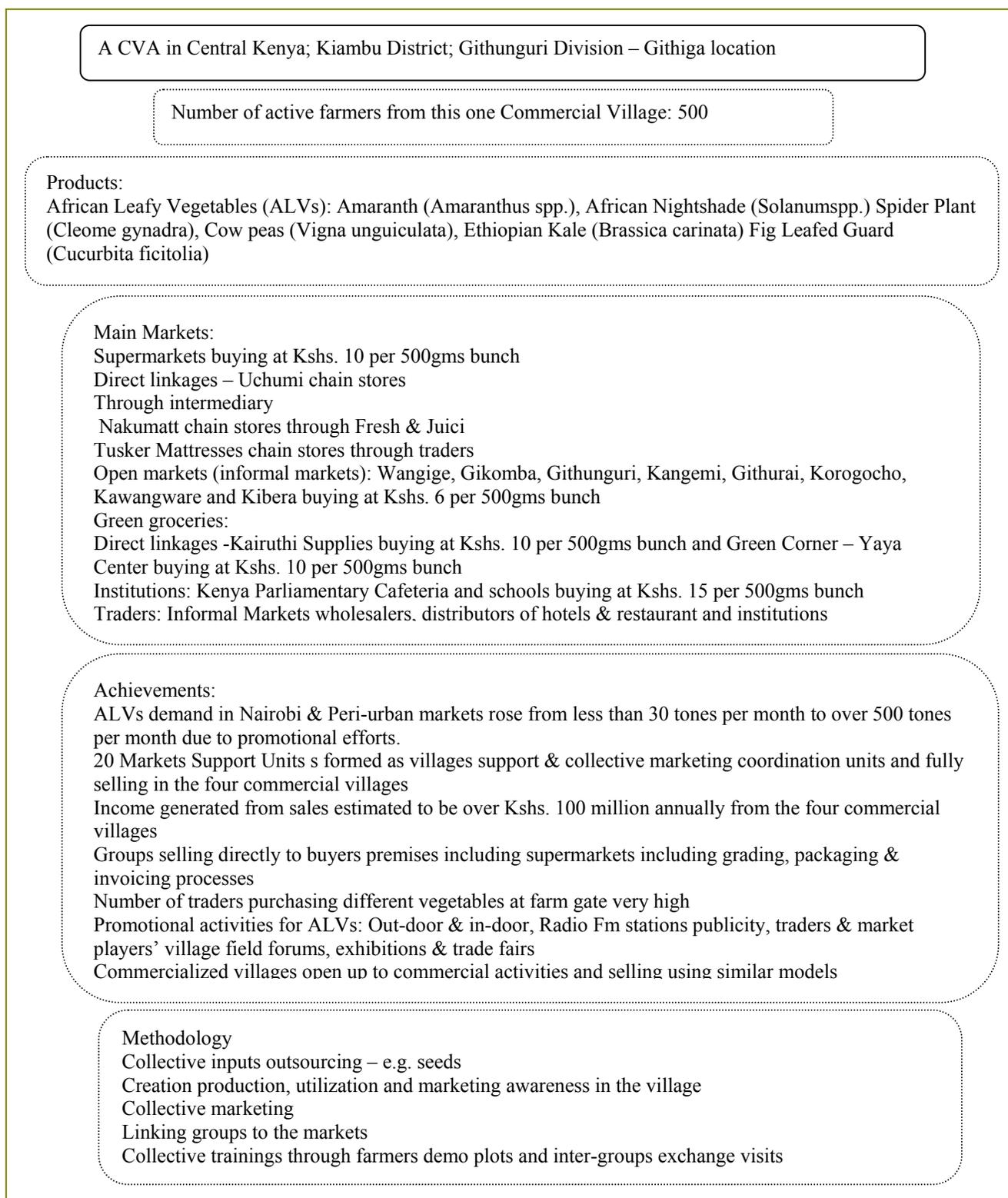
Under the Commercial Villages Approach (CVA), farmers are clustered into collective action units, Marketing Support Units (MSU), which are an avenue to enhancing order processing, product bulking, collective transportation and price negotiations. MSUs in the various commercial villages have drastically increased the voice in the farmer in the marketplace through bulk supply which offers them a platform equivalent to that of large-scale farmers and further reduces the cost of transaction particularly transportation cost which is inhibitive to single smallholders however collective transportation is cost effective reducing individual smallholder farmers' transportation cost from 67% of the farm-gate price to 14% of the farm-gate price.

To evolve producer groups to viable Marketing Support Unit, FCI has developed a model on Collective Agro-Enterprise Package involving capacity building training, exposure to markets, buyer/supplier forums where buyers hold business forums with smallholders, practical market information gathering, processing & application and exchange visits to successful MSUs.

To enhance the capacity and recognition of the farmer groups in the marketplace, besides registration with Ministry of Social Services, FCI has facilitated the groups' registration with Horticultural Development Authority, H.C.D.A, the Government Authority in charge domestic and export horticulture in Kenya.

Increased participation of producer groups' leaders and increased dormancy of members is a key challenge across various producer groups in developing countries, however, FCI has developed an leadership MSU structure that has 4 sub committees, marketing, production, financial and social sub-committees. FCI has successfully clustered farmers into viable MSUs in various commercial villages.

Figure 2 – Commercial Village Approach (CVA)



Source: Farm Concern International, 2006

2.3 VALUE NETWORKS DEVELOPMENT

Value Networks is designed in response to shifting gears from a conventional chain analysis or market research to a **multi-portfolio analysis of a dynamic market and economy** leading to identification of **key hubs** in an economy and a **comprehensive analysis** of opportunities and threats. Value Networks refers to the network systems which comprises of value chains, business development services network supporting a value chain e.g. transport, input supplies and further comprises of distribution channels to final consumer market. Unlike private sector companies who ride on well established value networks, smallholder farmers lack capacity to make an entry into such networks and further lack capacity to establish networks where they don't exist or underdeveloped.

The ALV commercialization and marketing cases highlights a scenario of new product and an underdevelopment value networks and further within the context of subsistence farmers. The various value networks parameters developed under this context included;

Value Chain Players

A Rapid Value Chain Analysis was conducted at the commencement of the project, aimed at identifying key value chain players who primarily were a driving force and further identified players with low value along the chains and designed approaches to developing short and efficient value chains. Partnership with Market Intermediaries in the informal market, groceries, supermarkets and institutional markets were established. Joint development of market entry strategies initially with Uchumi Supermarkets and later other players offered FCI an opportunity to develop a sustainable approach to market entry.

Business Development Services (BDS)

Farmers lack the capacity to invest in BDS however; FCI designed a very successful model where farmers leveraged resources from private sector based on a Business Model Approach enhancing an effective market entry. BDS networks established under the highlighted project included:

- (i) Input supply systems enhancing increased access to inputs e.g. seeds
- (ii) Transportation facilities outsourced from truckers
- (iii) Training offered by Community-based Technical Experts
- (iv) Collective market through Marketing Support Units
- (v) Market advocacy enhanced through Commercial Villages Approach
- (vi) Market Entry offered by private sector

Distribution Channels

Value Networks Development enhances the products to access distribution channels which are then effectively established by formal and informal market players to enhance product flow to the target consuming market either in domestic or export markets. Horticultural formal and informal players were noted to have effectively developed various distribution channels, which would have been diversified, and a partnership with such companies offered ALVs a sustainable market entry.

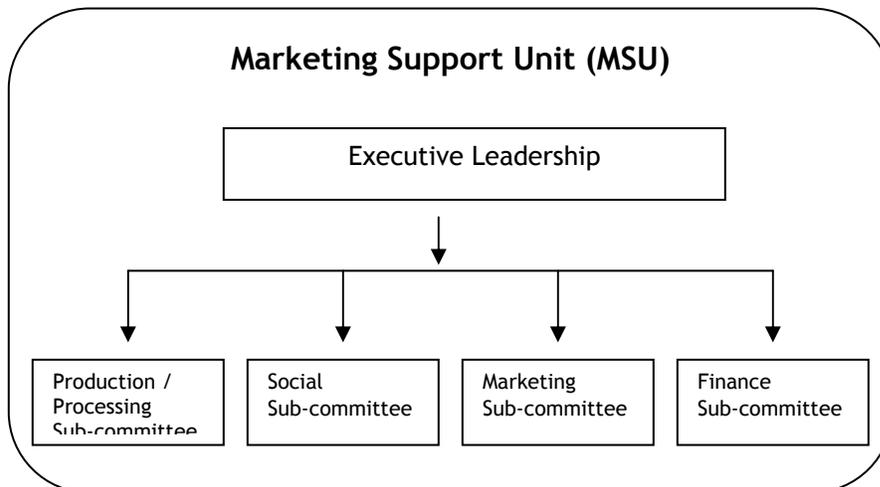
2.4 MARKET ACCESS FINANCIAL SERVICES

Access to financial services by smallholder farmers and farming communities is an increasing challenge particularly due to the existing structure of micro credit, which requires weekly payments and savings; fairly unfavorable terms for seasonal incomes earners. Besides investing in inputs and working capitals, smallholders are required to offer a credit period to formal and institutional buyers a growing major trade barriers which eventually ‘pushes’ smallholders out viable value chains leaving the platform for medium and large-scale buyers in business since they consistently supply products and sustain credit periods. Formal and institutional buyers in Kenya ordinarily offer premium prices estimated at 20-30% higher than informal markets however quality requirements and grading and sorting is a requirement for such market as opposed to the informal markets which differentiate grades and peg prices according to grades offering an opportunity to transact higher volumes across various grades of products.

To increase smallholders’ participation along value chains, Farm Concern International, FCI, designed the ‘Market Access Financial Services’, MacFis, aimed at introducing a catalytic fund with the following unique characteristics;

- (i) MacFis is a catalytic fund and only accessible to producer groups over a certain period (3-4 years)
- (ii) MacFis is utilized for transactional costs for assured markets e.g. transport, packaging materials, invoice discounting, inputs etc.
- (iii) Accessed only by collective marketing groups
- (iv) Group savings is conducted over the period a group is accessing MacFis; ALV collective marketing groups achieved 10% per sale
- (v) Group constitutions reviewed to suit functions of the group
- (vi) The leadership structure as per FCI recommended group structure as outlined below;

Figure 3 – Structure of a marketing support unit



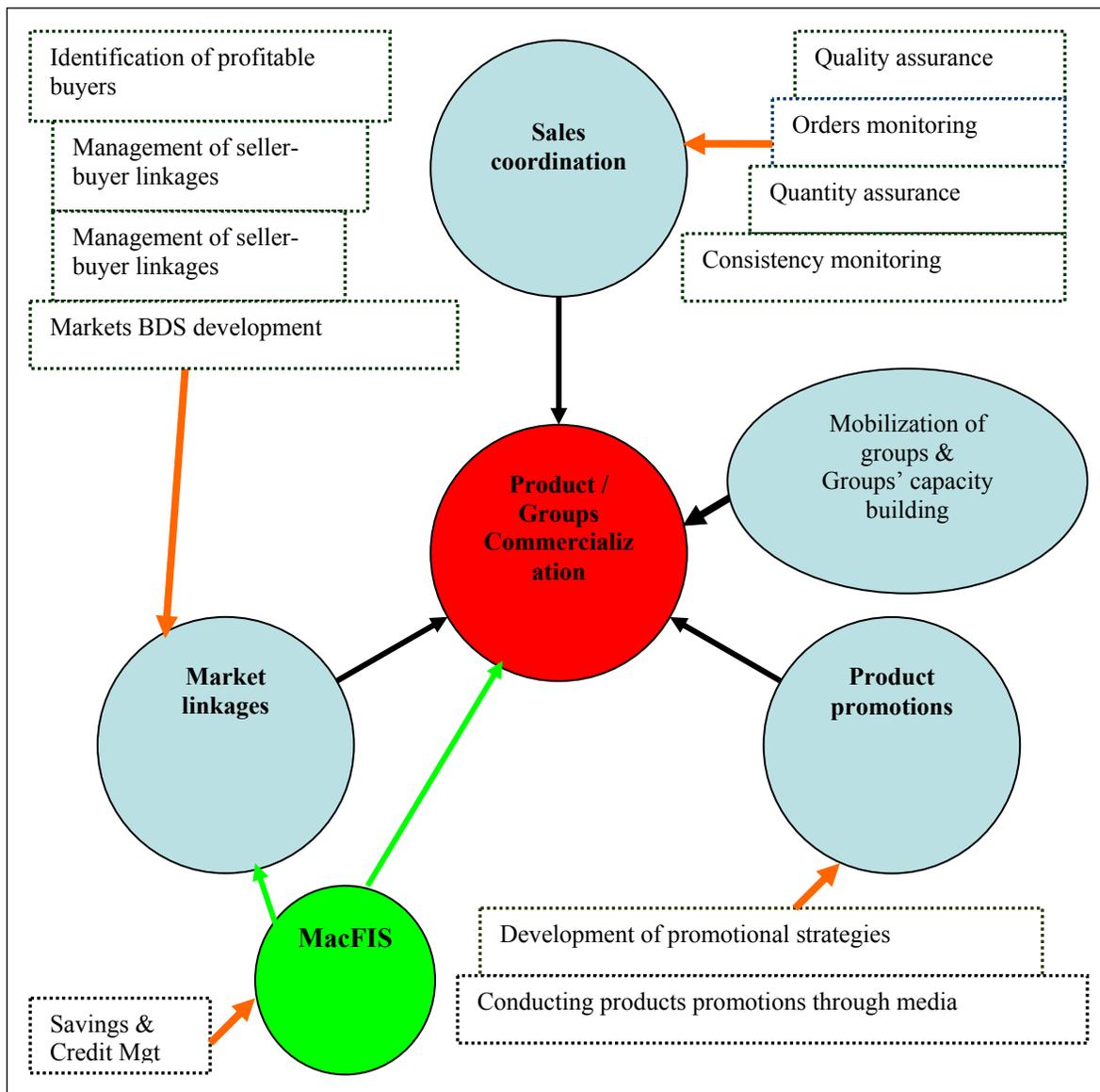
Source: Farm Concern International, 2006

Group saving is a requirement for all MSUs which has drastically increased the saving culture among the poorest however groups savings from agro-product sales is achieved through the smallholder’s cushion of assured markets enhanced through FCI initiatives. A 10% sales savings achieved by ALV

smallholder farmers has fast tracked their ability to bulk purchase seeds and animal manure while weaned-off groups are successfully offering invoice-discounting facilities for the group members.

Collective action at producer group level has proven to be an avenue that successfully enhances savings of available resources and further fills the money pot much faster among the poor. Currently over 50% of the MSUs have been weaned-off the USD 100,000 MacFis fund for ALVs.

Figure 4 – Flow diagram for commercialization process



Source: Farm Concern International, 2006

2.5 PRODUCT PROMOTION, CONSUMER AWARENESS AND IMAGE BUILDING

A strategic promotional campaign for ALVs was required with an equivalent intensity to that of a new product due to low product awareness recorded during the market research however the campaign was to include a 'Heritage marketing concept', 'image building approaches' and further 'nutrition-based promotional approach' which were applied across various promotional events.

FCI implemented a four-tonged product awareness approach, which ensured product awareness from production level through the value chains, distribution channels and consumers.

Farm Concern International benchmarked the promotional campaigns to the private sector focusing on enhancing the profile of ALVs as well as the smallholder farmers in the market place. Various approaches to promotions have been applied. FCI pegged nutritive benefits to the products leading to averagely 25% higher price.

- (i) In-store promotions at the supermarkets
- (ii) Out door promotions
- (iii) Radio promotional programs
- (iv) Radio topical live shows
- (v) Exhibitions & Trade fairs
- (vi) Nutritional walks
- (vii) Product sampling
- (viii) Product profiling
- (ix) Farmer field days

Consumer awareness through the promotional efforts has achieved an outreach to over 5 million consumers and enhanced availability of ALVs along various value chains and distribution channels has successful increased ALV monthly supply from 31 Tonnes to 600 Tonnes currently estimated at 60% of the ALV consumer demand.

2.6 AFRICAN LEAFY VEGETABLES PROFITABILITY ANALYSIS

Yields and profitability

- Spider plant (*Cleome gynadra*) – 30tons/ha, an acres approx. 13636kg per acre = 3,409 kg per ¼ acre.
- Amaranthus -30-40tons/ha= 30,000kg/2.2. Acres approx. 3,409kg per ¼ acre.
- Cowpeas (*Vigna unguiculata*) -25 tons/ha. =25,000kg/2.2 acres approx. 11,363 per acre = 2,840kg per ¼ acre
- Nightshade (*Solanum spp*) - 25 tons/ha =25,000kg/2.2 acres approx. 11,363 per acre = 2,840kg per ¼ acre
- Jew's Mallow (*Corchorus oritorius*) – 20 tons/ha = 20,000kg.2.2 acres approx. 9,090 per Acre = 2,272kg per ¼ acre.

African Night shades (Solanum scabrum S. villosum miller) and very similar to Cow peas (Vigna unguiculata)

1 acre produces 11,363 kg

1 bunch = 700gm

How many bunches produced from 1 acre?

1kg = 1000gm

$11,363,000 / 700 = 16,232$ bunches

No. of bunches to be produced by each farmer with $\frac{1}{4}$ and $\frac{1}{8}$ acre farms:

1 acre = 16,232

$\frac{1}{4}$ acre = 4,058

$\frac{1}{8}$ acre = 2,029

Cost of production for African night shades;

- Manure. 10 tonnes = Ksh 10,000
- Seed @ seed rate of 1.5 kg /Ha = 600 grams = Ksh 1080
- Plough labour 6 man days @ 100 Ksh = 600 Ksh
- Other husbandry practices 12 man days @ 100 Ksh = 1200 Ksh
- Transport cost each 1000 bunches ,2000 Ksh = 32464 Ksh
- Council levies 3000 Ksh
- Any other cost = 5,000

Total expenses 53,344 Ksh

Each bunch in formal markets (super markets) goes for 10 Ksh; 16232 bunches = 162,320 Ksh

Profit = 109,976 (USD 1507) in 2 months

Monthly = 54,488 Ksh (USD 753.5)

Amaranth, Spider plant (Cleome gynadra)

An Acre produces 14000 kg

1kg = 1,000gm

700gm = 1 bunch

$14,000,000 / 700 = 20\ 000$ bunches

Cost price = 1 bunch = Ksh. 10

$20000 * 10\ Ksh = 200000\ Ksh$

Note that the costs of production are nearly the same for all the African leafy vegetables

- Expected outcome per 1 acre: Manure. 10 tones = Ksh 10,000
- Seed @ seed rate of 1.5 kg /Ha = 600 grams = Ksh 960
- Plough Labour 4 man days @ 100 Ksh = 400 Ksh
- Other husbandry practices 32 man days @ 100 Ksh = 3,200 Ksh
- Transport cost each 1000 bunches is 2000 Ksh = 40000 Ksh
- Council levies 3200 Ksh
- Any other cost = 4,000

Total cost of production = 61760 Ksh (USD 846)
Total sales = 200,000 Ksh (USD 2,739)
Profit = 138,240 Ksh (USD 1,894) 2 month
1 month = 69120 Ksh (USD 947)

CASE STUDY 1: A CASE STUDY OF MUGIMA MARKETS SUPPORT UNIT (MSU)

Mugima a Self-Help Group in Githunguri Division in Central Kenya, a successful Marketing Support Unit, has a membership of 40. FCI commended marketing support to Mugima in 2004, with the group practicing horticultural farming mainly kales, cabbage, field flowers and snow peas among other export products. Strategically based near the main road to Nairobi, only 45 kilometers from Nairobi, Mugima Marketing Support Unit has received technical assistances, production training, and group capacity building. The group has further been exposed to markets through buyer / supplier forums where buyers negotiate business partnerships with groups and also market visits to enhance their understanding of market dynamics and market forces. With introduction of ALVs, which is a much more profitable than export horticulture, Mugima MSU has sold over 300,000 bunches of assorted ALVs with a market value of over Kshs 2,000,000 (27397 USD) in the informal and the formal markets and Kshs 3,000,000 (41095 USD) in the high value market like chain stores. Mugima has been increasing the acreage under ALVs with increased profitability and reduced cost of production.

Mugima group has also been trained on ALV nutritive benefits and preparation methods leading to all households increasing consumption of ALVs with Amaranth for mainly children nightshade for adults. Mugima members, during a recent field day, highlighted noted decreased disease incidence among children, FCI will conduct a household survey to high health and nutrition benefits of increased consumption of ALVs.

The groups chairman Mr.Geofrey Njenga Njihia farm serves as demonstration plot where other farmers learn various production and post harvest technologies. ALVs, ordinarily with a high resistance to diseases and pests has significantly reduced Mr. Njenga's application of fertilizers and pesticides and increased the application of animal manure from his 4 dairy cos. For the last two years he has sold ALVS worth over Kshs 700,000 (9589 USD) which he sold an average of Kshs 29,167 (399 USD) a month to Uchumi supermarkets and others groceries and other informal markets.

CASE STUDY 2: INCREASED INCOMES FOR NAOMI WAMBUI, A 62 YEAR OLD LADY.

Naomi Wambui is a farmer and member of a Riakahara Markets Support Units comprising of 31members; 21 women and 10 men. Joining the FCI market development initiatives in 2004, Wambui has since then realized an average income of 25000 Kshs (342 USD) and 300000 Kshs (4109 USD) annually. She employs about 3-5 workers who carry out all the husbandry practices and also harvest and grade for supermarkets. Wambui's family now consumes ALVs in place of conventional leafy vegetables, which she feels, has greatly improved their health. ALV commercial farming is a reliable source of income and a source of employment for 4 women who consistently work on her 2 acres on ALVs.

3. CONCLUSIONS

3.1 MARKET-LED PRO-POOR MARKET DEVELOPMENT

Smallholder-based market development requires an increased identification of products presenting a high to intermediate demand growth offering the poor an opportunity to retain a market share. Medium and large-scale farmers are noticed to ‘push’ smallholders out of the market however, to sustain smallholder in business, the approach ought to further integrate the identification of products offering smallholder a competitive advantage e.g. ALV low cost of production is suitable for smallholder who primarily use animal manure from their small farms however the cost of production significantly increases for farmers producing on large parcels land of ALVs since the animal manure is purchased or would have to apply fertilizers.

3.2 ROLE OF COLLECTIVE ACTION IN MARKET DEVELOPMENT FOR SMALLHOLDERS

Collective Action plays a vital role in increasing the participation of the poor in the market place however; the skills on strategic collective market entry are required to ensure a sustained market entry, consistent market information feedback and partnerships with private value chain players. Farmers organized into Marketing Support Unit (MSU), have successfully adopted professional business skills that enhances their voice along value chains and at the marketplace.

3.3 FINANCIAL SERVICES EMBEDDED TO MARKET LINKAGES

Smallholder farmers are still highly disadvantaged by the existing mode of savings and credit which hinders the access to credit for seasonal income earners however, FCI approach to embedding financial services to market linkages through the ‘MacFis Model has proven that credit as a stand-alone product may not necessarily increase incomes however micro-credit embedded to market access increases rural incomes and contributes to increased rural savings and reduced poverty levels.

3.4 CONSUMER AWARENESS IS AN IMPORTANT FEATURE OF MARKET DEVELOPMENT

Widely applied by the private sector, consumer awareness is applied for demand creation, image building of products or rebranding of products. Globally, advertising is one of the highest private sector budget lines aimed at increasing various market shares. Large-scale farmers and medium –scale farmers, the key suppliers to leading super –markets, exporting companies and institutions, benefit from demand creation by the buyers however; smallholder farmers are currently out of the demand creation loop significantly affecting their overall market share and incomes. Farm Concern International approach to demand creation opens a window to highlight that development agencies have a role play in demand creation for smallholder-based products however, the approach must be strategically developed allowing sustainability of project initiatives.

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