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# IHEA ENDLINE GRADUATION STUDY REPORT

ASSESSING EFFECTIVENESS OF MARKET LED  
GRADUATION MODEL

**FEG**  
CONSULTING

LIVELIHOODS | POLICIES | PROCESSES

# Acknowledgements

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## List of acronyms

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BRAC	Building Resources Across Communities (formerly Bangladesh Rural Advancement Committee)
FSD Kenya	Financial Sector Deepening Trust
GMP	Greater Marsabit Pastoral Livelihood Zone
GoK	Government of Kenya
HEA	Household Economy Analysis
HHS	Household Hunger Scale
HSNP	Hunger Safety Net Program
IGA	Income Generating Activities
IHEA	Individual Household Economy Analysis
LSP	Laisamis Sedentary Pastoral Livelihood Zone
NDMA	National Disaster Management Agency
rCSI	Reduced Coping Strategy Index
VSL	Village Saving and Lending

# Executive Summary

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## Graduation Study Objectives

Financial Sector Deepening Kenya (FSD Kenya) implemented a four-year, pilot graduation project targeting a part of the beneficiary caseload in the Hunger Safety Net Programme (HSNP) in Laisamis Sub-County in Marsabit County. The overall objective of the pilot project was to test adaptable, market-responsive approaches to building the livelihoods of very poor households, built on the Building Resources Across Communities<sup>1</sup> (BRAC) graduation model. Targeted HSNP beneficiaries were already receiving a consumption stipend, thereby the intention of FSD Kenya was to gain greater leverage for the cash and asset transfers provided by the pilot project. In addition to this, the pilot project support package also included facilitation of savings through savings groups, which in addition to enabling access to own-finance also improved the cost-effectiveness of delivering the business planning, financial skills training, coaching and mentoring services. FSD Kenya partnered with Equity Bank which provided the financing to beneficiaries for working capital to undertake income generating activities. The pilot project was implemented in six sub-locations of Laisamis Sub-county: Laisamis, Gudas, Logologo, Korr, Merille and Irrir, designed and implemented in partnership with CARE International in Kenya (CARE).

This report describes a three-phase impact study that assesses and quantifies effects on household income, assets and resilience outcomes for participant households as compared with non-beneficiaries. FSD Kenya contracted FEG to undertake this impact study. The comparison between two different categories of beneficiaries, and comparison with a Non-Beneficiary Group was intended to determine the extent to which HSNP beneficiaries who participated in the FSD Kenya programme achieved positive gains in terms of improved incomes and resilience in contrast to those who only got the HSNP support. The findings of the study were to provide key lessons and recommendations for application in the design of similar projects through replication and/or scaling-up and to provide judgement on how the market responsive activities have influenced local economies.

The three phases of the impact study were implemented over three years using the Individual Household Economy Analysis (IHEA) methodology to gather household livelihoods data on sources of food, cash income and expenditures among intervention beneficiaries and non-beneficiaries. Phase one involved the establishment of baselines to benchmark the livelihood situation of targeted communities. Two livelihood baselines were done in 2016 covering Greater Marsabit Pastoral and Laisamis Sedentary Pastoral livelihood zones. Phase two collected and analysed project and context monitoring data to track project outcomes in the context of external shocks and IGAs. The monitoring enabled appropriate adjustments to maximize project impact. A total of four monitoring rounds were completed after the 2016 baseline. The final phase of the study was an Endline assessment of individual households who participated in the interventions implemented since 2016. The specific objectives of the Endline were;

- I. enable a comparison between intervention and non-intervention areas, and within intervention areas
- II. quantify impacts on income and assets
- III. assess short and long-term impacts and their sustainability on household resilience<sup>2</sup>

This report presents the findings of the IHEA Endline impact study.

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<sup>1</sup> Formerly Bangladesh Rural Advancement Committee

<sup>2</sup> including market access, skills development, gender, social capital, health and so forth and determine the sustainability of these impacts.

## Methodology

The Endline graduation study design utilised a combination of quantitative and qualitative data collection methods. The objective of the study was to test if there are differences in the capacity of households by beneficiary intervention type, as well as comparison with non-beneficiaries. The study compared two different groups of beneficiaries ‘treatment groups’ and a non-beneficiary ‘Non-Beneficiary Group’. The first of the treatment groups were households who received only training but did not pursue or have access to financial loans or grants, herein referred to as the Training Only group. The second of the treatment groups were those households who received the same training mentioned above, but also accessed financial services, such as loans, herein referred to as the “Training + Loans” group. The “Non-Beneficiary Group” did not receive any training or financial services.

Quantitative data was collected from a total of 300 households from six sub-locations of Laisamis, Gudas, Logologo, Korr, Merille and Irrir. The sample of 300 was equally distributed, with 100 households from each comparison group. Qualitative data was gathered through five key informant interviews in markets to understand the observed and perceived effect of interventions on market access and function. In each market visited traders were asked about their perceptions and opinions on the impact of FSD Kenya’s interventions.

For the analysis of quantitative data, the two approaches summarised below were used. Regression analysis was used to better understand the key explanatory factors associated with food security of the target population, being a measurement of resilience.

- Comparison of income, balance sheets and resilience score between Training Only, Training + Loans and the Non-Beneficiary Group households in the time period of the Endline itself.
- Comparison of changes of the three groups’ livelihood outcomes as compared with the initial baseline benchmarks.

## Summary of Key Findings

Marsabit County, including the sampled sub-locations, is located in a semi-arid to arid part of Kenya, considered to be an area at significant risk of climate change and food insecurity. In recent years this area has experienced an increase in the frequency of poor seasonal production performance, characterised by repeated periods of dry and drought conditions. This process has seen many households losing their livestock and experiencing heightened food insecurity. The following points provide a summary of the key findings as they relate to each of the study objectives. The study hypothesis was that households with access to market-oriented interventions will undertake income generating activities, improve their incomes and thereby increase resilience. Overall, the Training + Loans households, who represent the desired intervention model, had the best outcomes of the three groups.

**Household Income:** The Training + Loans households had better incomes in comparison to both the Training Only households (i.e. partial intervention model) and Non-Beneficiary Group households. The difference in total cash income of households was found to be statistically significant ( $p < 0.01$ ). Of the various sources of cash income, only self-employment and loans had statistically significant differences ( $p < 0.01$ ). These sources are linked to the interventions implemented by FSD Kenya which indicates that the interventions had an impact on household income.

**Household Food access:** Generally, there was no statistical difference in total food accessed by households across comparison groups. However, food from livestock production, milk and meat, was statistically significant at 95% confidence ( $p < 0.05$ ). This food source is linked to ownership of livestock with Training + Loans households having relatively larger herd sizes. The ownership of livestock is linked

to the access to loans that most households used to trade in livestock (80% of loan recipients bought livestock) and rebuild their herd sizes. The lower significance level may be related to the effect of slowed herd growth due to poor seasonal performance in the two years when households started to access loans.

**Household Expenditure:** Debt repayment was the only expenditure with a statistically significant difference ( $p < 0.01$ ). This is mainly because expenditures for other items were relatively similar for all groups while loans accessed by Training + Loans beneficiaries were bigger in comparison to the other forms of loans through the VSL associations.

**: Total Income and** thresholds indicate that the total combined cash and food income of Training + Loans households was higher, whilst the difference with the Non-Beneficiary Group households was statistically significant ( $p < 0.01$ ). This is a positive finding as the Training + Loans households are the ones that represent the desired, complete intervention model. Analysis of a scenario without HSNP indicate that the Training + Loans beneficiaries could still meet their livelihood protection needs albeit with the assistance of a loan or credit facility. This indicates that progress in increasing resilience has been made but may not yet be at a sustainable level as livestock assets and savings have not grown significantly. A greater intervention period is needed to build up assets and savings such that households could deal with moderate frequent shocks.

# I. Introduction: Programme background

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Graduation programmes were pioneered by BRAC, the largest microfinance institution and multi-purpose non-government organisation in Bangladesh, to reach ‘ultra-poor’ households who were not able to join its microfinance programmes. The term ‘graduation’ referred to both the idea of graduating out of extreme poverty and reaching the point at which accessing mainstream microfinance lending is feasible.

There are five elements to BRAC’s ‘targeting the ultra-poor’ (TUP) graduation programme which aims to enable participants to engage in more income generating activities to escape poverty. The starting point in recognising the marginalisation of ultra-poor households, seeks to build social integration and motivation through a process of coaching and mentoring. A stipend is provided throughout the typically two-year programme in order to provide participants with a basic income to meet their consumption needs. This provides the platform upon which to build other support for livelihoods and resilience. Savings, the third element, helps to create a cushion to bridge variations in cash flows and protection against risks. Technical skills training is provided, and a productive asset granted to enable the participant to engage in a new income generating activity. In addition, coaching and mentoring is offered to the beneficiaries to build self-belief and provide the motivation for them to want to rise above their current economic status. Recognising the importance of health to programme outcomes, sometimes training is provided on primary healthcare and a linkage made to providers.

Since its successful development and rollout in Bangladesh, graduation programmes have now been expanded across the world and tested in a variety of settings in Africa, Asia and Latin America, notably by CGAP and the Ford Foundation and others such as the BOMA Project. Most of the CGAP – Ford Foundation pilots were successful. Rigorous multi-country randomised control trials (RCTs) of the seven pilots demonstrated a positive impact on incomes. Not only was impact found immediately following the period of support but when follow ups were made two and three years later, the increase in income was found to have been maintained. One challenge, however, remained. Most of these seven pilots were small (about 1,000 beneficiaries) and the cost of delivery of the graduation suite of supports high. The estimated cost per participant varied significantly. Even the lowest cost seen (\$1,455 per participant), a level unlikely to be replicated in Kenya given generally somewhat higher implementation costs, was envisaged as a constraint that could limit its application.

It is against this background that FSD Kenya set out to undertake exploratory work on graduation based on a market systems development approach to tackle the scale-up challenge using an action research approach. The proposed target area was Marsabit in northern Kenya where FSD Kenya was already involved in work with the poorest communities through the Hunger Safety Net Programme (HSNP) and the promotion of savings groups. These two projects immediately provided two of the five elements of a graduation approach: a source of a regular stipend and a mechanism for savings. CARE Kenya, which was the lead implementation partner for the savings groups project, was to play a similar role in this pilot initiative. The payments channel for HSNP also offers a linkage with a commercial bank (Equity Bank) through which FSD Kenya was to seek to develop and pilot a solution to financing the asset acquisition component. The pilot which was co-designed with CARE and borrowed heavily from the savings groups project’s experience on building cost-effective and sustainable community-based knowledge and skill transfer structures.

The Marsabit graduation pilot, whose objective was to test use of market-based approaches in building the livelihoods of poor households, was designed in August 2015 but the actual project implementation

began in 2016. The project which was initially planned to last three years was later extended to the end of 2019. As opposed to the conventional direct delivery, the intention was to disaggregate the five set of inputs and adapt them as much as possible to market-based delivery approaches as follows outlined below.

- i) *Targeting of poor households and consumption stipend:* the project did not do fresh targeting but worked with the about 1,200 recipients of the government's Hunger safety net programmes (HSNP) in Laisamis sub-county who had been identified as poorer households within Marsabit county which has approximately 80% poverty rate. The consumption stipends are paid as cash through Equity Bank, a commercial financial service provider.
- ii) *Savings/financial services:* About 15% of the participants were beneficiaries of the earlier FSD Kenya supported savings groups project which provided an avenue for informal financial services to the members. The rest of the beneficiaries were mobilised into savings groups. Additionally, all the HSNP beneficiaries have bank accounts with Equity bank through which the social transfers are made. These provided an alternative saving avenue.
- iii) *Knowledge and skills transfer to undertake business to diversify household incomes:* A community-based peer learning model was created and facilitated by CARE using community-based facilitators (CBFs). The aim of this approach was also to cut the cost of delivery related to use of staff as is the case with the BRAC model, and to embed the skills in the community.
- iv) *Asset transfer to kickstarting households' productive engagement for livelihood development:* Rather than grant a productive asset either in cash or in-kind, the pilot was to trial a credit solution through a commercial financial service provider. Given that the target market segment was way below those that the bank currently serves, FSD Kenya provided a credit guarantee to mitigate the added risk.
- v) *Coaching and mentoring to build intrinsic motivation and confidence:* Rather than undertake individual household's coaching and mentoring which is a key cost driver in the conventional BRAC model, coaching and mentoring was to happen in the groups. The intention was to stimulate a peer to peer self-organised learning technique and role modelling at group level using the CBFs.

Besides financial services, the savings groups served as avenues for delivery of the other supports to the beneficiaries including linkage to markets, both financial and non-financial. For instance, it is in the savings groups that most participants borrowed their first loans. This gave them an opportunity to interact with the borrowing and repayment process and provided a financial history which was useful in accessing the commercial loans. Contrary to direct delivery, the FSD Kenya graduation approach was to build local institutions for delivering the graduation suite of support and facilitating their linkage to markets.

The premise was that such market-based approaches hold the promise to deliver sustainable and scalable benefits, addressing the dual challenge of the model as raised by the sceptics of the time of design. To establish if this was really the case, there was need to design a credible research method and to rigorously measure the impact of deploying the graduation pilot interventions on both the direct beneficiaries and the community. The proven impact through RCTs on the CGAP-FORD pilots was because of access to the full five-intervention BRAC graduation package. Although all the HSNP beneficiaries in the pilot area were targeted, their participation in the various project activities was voluntary. Thus, the anticipation was that the levels of support to the households would vary and consequently the impact. FSD Kenya contracted FEG to undertake a quantitative impact assessment of the project which constituted a baseline survey, periodic seasonal performance monitoring waves and an end-line survey.

## 2. The Inquiry Process

### 2.1 Individual Household Economy Analysis – IHEA<sup>3</sup> Approach

The analytical approach chosen for this Endline study is based on the [Household Economy Approach](#) (HEA). In HEA, the core objective is to accurately estimate; quantities of sources of food, total cash income sourced, and expenditures made by households, disaggregated by different homogenous groups based on levels of wealth. Levels of wealth are determined by access to and ownership of assets, in particular productive assets such as livestock, land, labour units, as distinct from non-productive assets or luxury items (e.g. quality of home construction, televisions). The analytical elements of HEA are designed to measure impact of interventions in the context of other changes that influence household livelihoods.

In an *individual* Household Economy Analysis (IHEA), these estimates on food consumption, cash income earned, and expenditure patterns are collected for individual households, broadly similar to a conventional household income and expenditure survey. In IHEA/HEA, an effort is made to identify all possible sources of food and cash income, and all expenditure categories and items, and to subsequently quantify amounts generated or spent by each source. The items listed in **Table I** provides a summary of the categories of inquiry for sources of food, cash income, expenditure and types of assets.

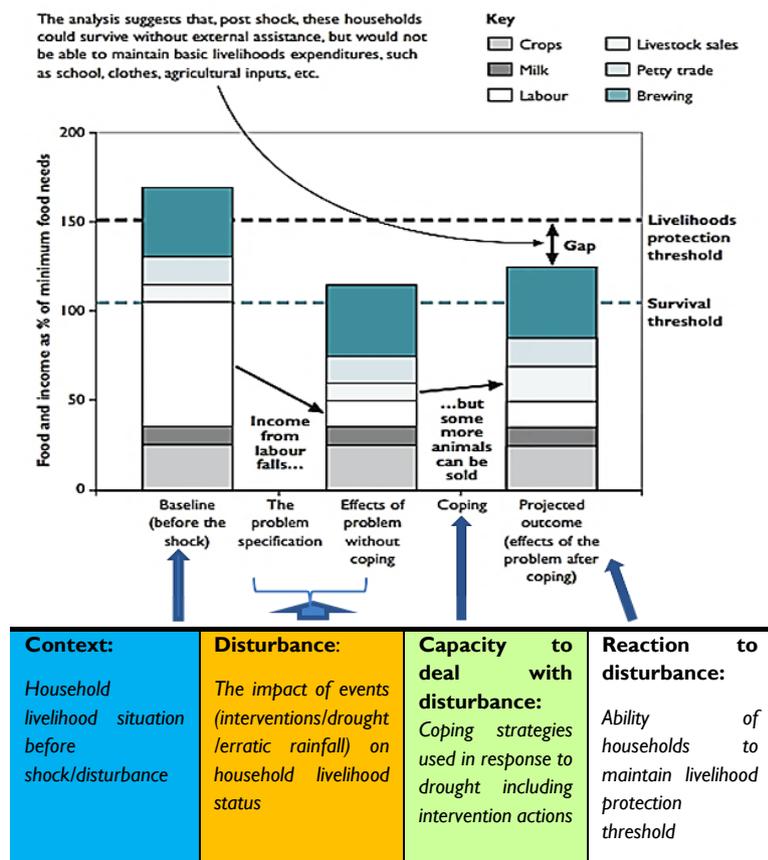
Table I: Detail of household economy inquiry in the Endline study

Sources of Food	Sources of Cash	Expenditure category	Types of Asset
<ul style="list-style-type: none"> <li>- Livestock production (e.g. milk, meat and eggs)</li> <li>- Payments in kind</li> <li>- Purchased staples and non-staples</li> <li>- Food aid</li> <li>- Gifts</li> <li>- Crops and gardens</li> </ul>	<ul style="list-style-type: none"> <li>- Livestock sales (e.g. camel, cattle, goats, sheep and chickens)</li> <li>- Livestock product sales (e.g. meat, milk, eggs)</li> <li>- Employment (e.g. Casual – local and migrant labour)</li> <li>- Self-employment (e.g. firewood sales, brewing, petty trade)</li> <li>- Remittances</li> <li>- Gifts</li> <li>- Aid cash transfers (HSNP)</li> <li>- Loans (Equity bank, Savings group)</li> <li>- Crop sales</li> </ul>	<ul style="list-style-type: none"> <li>- Staple food</li> <li>- Non-staple food (e.g. meat, pulses, oil, sugar, vegetables)</li> <li>- Household items (soap, washing powder, water, grinding etc.)</li> <li>- Social services (e.g. education and health costs)</li> <li>- Transport</li> <li>- Clothes</li> <li>- Inputs (e.g. livestock drugs, animal feed, business capital)</li> <li>- Loan repayment</li> <li>- Other (Gifts, community obligations, entertainment/festivals)</li> <li>- Investment/savings</li> </ul>	<ul style="list-style-type: none"> <li>- Land holding</li> <li>- Livestock holdings (Camel, cattle, sheep, goats, poultry)</li> <li>- Hand tools (Panga, axes, spears)</li> <li>- Vehicles (bicycles, motorcycles, cars)</li> <li>- Labour units (number of adult members)</li> </ul>

A basic understanding of gender roles in the household economy is developed by collecting information on who earns cash incomes by different sources as well as who decides on the expenditure requirements of the household.

<sup>3</sup> More details on approach are found here [HEA](#)

Figure 1: Simplified HEA Framework (Save the Children, 2008)



meet the costs of attaining the resources required for meeting minimum food needs, maintaining existing livelihood assets that includes expenditure on productive inputs, as well as the maintenance costs associated with new intervention (collectively referred to as the *livelihoods protection threshold* in HEA).

## 2.2 Endline study design

The Endline study design used a mixed methods approach to collect both quantitative and qualitative information from beneficiary and non-beneficiary households across different project sites in Marsabit County; Gudas, Merrille, Irrir, Laisamis, Logologo, Korr, Lontolio, Kamboe and Koya. The Endline study applied comparative analysis between the two groups of beneficiaries, Training Only households and Training + Loans households, as well as a further comparative analysis between these two groups with households who did not benefit from FSD Kenya or any similar interventions from other organisations, the Non-beneficiary/Non-Beneficiary Group<sup>4</sup>. All households from these three different categories belonged to the same wealth category and therefore broadly comparable.

Beneficiary profiling information was obtained from HSNP lists provided by the National Disaster Management Agency (NDMA). FSD Kenya selected beneficiaries that were identified as extremely poor and placed in category I on the HSNP cash transfers list. The selection of control households was also done from these HSNP lists, although in villages that did not have FSD Kenya and other similar activities except presence of HSNP. The comparative analysis differences and statistical significance tests provide information on the value of projects interventions contrasted with Non-Beneficiary/Control Group. The design of the comparative test is summarized in

<sup>4</sup> Non-Beneficiary Group here is used to simply denote the group of households who did not benefit from FSD Kenya interventions and or similar interventions by other organisations also referred in this document as Control Group

In HEA, information on sources and volumes of food, cash incomes by source and amount, as well as expenditure patterns by type and amount are always collected for a twelve-month reference period. This ensures the understanding of household livelihoods captures all relevant seasonal variation.

For this graduation study, the phase one baseline data was collected for period the reference period October 2014 to September 2015. Monitoring of changing context and interventions was carried out in 2016, 2017, and 2018. This Endline study collected household food, cash and expenditure information for the comparative period **October 2018 to September 2019**.

The analysis of the IHEA data on food, cash and expenditure ultimately determines whether households

Table 2 on page 5.

Table 2: Survey design Theory

Study group	Baseline	Implementation Time (T)	Endline test	Impact over 3 years	Net effectiveness**
'Training only group' R	B1	Interventions	A2	A2- B1	<b>(B2-B1) – (A2-B1) – (C2-B1)</b>
'Training + Loans group' R		Interventions	B2	B2-B1	
'Non-Beneficiary Group' R		No Interventions	C2	C2-B1	

*\*\* Effectiveness of implementation approach (represented by Intervention 'Training + Loans group',) being tested will be assumed to be the difference in outcomes at Endline from baseline and difference from other study groups*

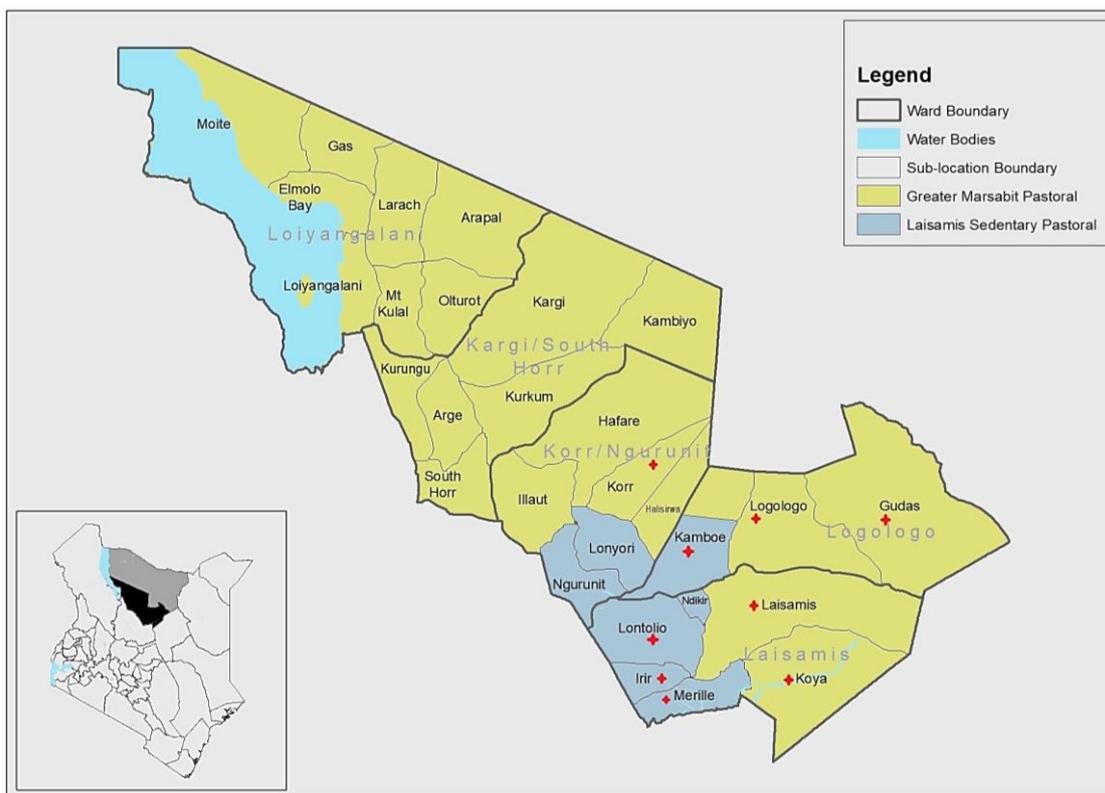
**Where.**

- ⇒ A is the Intervention Group of households on HSNP which only received training
- ⇒ B is the Intervention Group of households on HSNP which received training and Equity loans
- ⇒ C is the Non-Beneficiary/Control Group of households on HSNP only
- ⇒ R refers to use of random selection of sample
- ⇒ T is the implementation time during which the Intervention Group received project support, while the 'Comparison' Group does not receive any benefit
- ⇒ B1, indicator value of all household before interventions started in April 2016
- ⇒ A2, B2,C2 indicator value of the Intervention Group and control in Endline study October 2019
- ⇒ (B2-B1) – (A2-B1) – (C2-B1) is the net impact that has accrued to the measured indicators which can be attributed to the absence and or variation in intervention packages provided by FSD Kenya.

In addition to the comparative analysis, a qualitative analysis on perceptions and observations on changes in market access and function was carried out drawing on key informant interviews, and existing secondary information. This was used to answer questions around effectiveness of interventions on markets.

## 2.2.1 Study Areas and Sample size

Figure 2: Study Location



### 2.2.1.1 Geographic sampling

The Endline graduation study was undertaken in seven sub-county locations. Figure 2 shows a map of the sub-counties with villages where data for this study was collected. The locations are in two livelihood zones<sup>5</sup>. Gudas/Kamboe, Korr, Koya, Laisamis, Logologo are in Greater Marsabit Pastoral Livelihood Zone. Irrir, Merille/Lontolio are in Laisamis Sedentary Pastoral Livelihood Zones. A listing of villages within the locations was obtained to determine where FSD Kenya was working. Control villages within the same livelihood zone but which did not have interventions by FSD Kenya or similar interventions by other organisations were also identified.

### 2.2.1.2 Sampling of research units

The study used probability sampling methods directly in proportion to population without any weighting by location or livelihood zone. The minimum sample size desired for each group was 75 households across intervention sub-locations. During data collection, the sample size was increased to 100 to allow for sub-group comparisons, as well as to minimize the influence of non-response on overall results. To enable comparison of the different household groups the same sample size was allocated for the treatment and Non-Beneficiary Groups. The total sample size for the Endline study was 300 households from two livelihood zones, 100 households each for the Training Only group, Training + Loans group, and the Non-Beneficiary Group.

The sampling scheme for beneficiaries was done to ensure collection of data from all seven implementation locations where sample size was distributed in proportion to population of beneficiaries. Control sites were randomly selected from villages not receiving FSD Kenya support within the same

<sup>5</sup> A distinct geographic area within which people broadly share similar livelihood patterns as defined by production systems, agro-ecology potential, and access to markets.

sub-location but not neighbouring project villages. The objective on sampling considered same number of households across comparison groups from a sub-location. Where control villages could not be found within the same sub-location the next location with similar livelihood conditions was selected, in particular Lontolio for Merille and Kamboe for Gudas. Table 3 provides a breakdown of the sample by sub-location and study group.

Table 3: Sample size distribution

Sub-County	Beneficiary Type		Control Group	District Total	%age of total Sample
	Training Loans	+ Training Only			
Gudas/Kamboe*	8	8	8	24	8%
Irrir	10	10	10	30	10%
Korr	38	39	38	115	38%
Koya	9	9	9	27	9%
Laisamis	9	8	9	26	9%
Logologo	10	10	10	30	10%
Merille/Lontolio*	16	16	16	48	16%
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>300</b>	<b>100%</b>

\*Lontolio and Kamboe data collected for control sample only

In each sampled village, a household list of the different groups was used to randomly select households to be interviewed. Where selected households were not available during data collection and recall time, the team used the same random sampling technique for replacements. The aim of the sampling scheme was to give every household in each sampling unit an equal chance of being selected, which is why larger villages had a bigger chance of selection (according to their population size) but the sample size per location remained the same. The sampling scheme was done to meet principles of statistical analysis, that is, the sample should be representative of the population from which it has been drawn. This allows the addressing of two related types of statistical analysis questions, a) how reproducible are the results (i.e. if we were to repeat the survey, how confident can we be of obtaining the same result), and b) what is the likelihood that a difference between two sets of results is real, as opposed to having arisen by chance?

### 2.2.1.3 Data analysis

For quantitative data, Microsoft Excel, STATA and SPSS were used to clean and analyse data. All analysis indicators are by comparison group. In cases where any sub-group analysis is provided, the results must be understood as indicative as the sampling scheme is only representative at household group and livelihood zone levels.

Initial data entry, data screening and coding were performed using a spreadsheet. The data was then transferred to a standard statistical package (SPSS) for detailed statistical analysis. Relatively few of the variables examined were normally distributed, and log and square root transformations were calculated to generate normally distributed variables where this was possible. For the resulting normally distributed variables, differences between groups were investigated using multiple linear regression analysis for cluster survey data, with each of the explanatory variables (location, livelihood zone, etc.) fitted as a series of categorical variables. For these analyses the sub-location was defined as the primary sampling unit (PSU) and each household's result was weighted to reflect its chances of being selected according to the sample scheme set out in the previous section. Multiple regression analysis was used to investigate

whether crude (or unadjusted) differences between townships/livelihood zones could be accounted for by differences in the other factor (i.e. whether differences between townships could be explained by differences in livelihood zone, or vice versa). Differences have only been reported as significant where they persisted after adjustment for the other possibly confounding factor.

Where a simple transformation failed to generate a normally distributed variable, a categorical variable was calculated. In this case logistic regression analysis was carried out to perform the same analyses as described above for the normally distributed variables. Because the analysis involved a large number of variables and many comparisons between groups, a large number of individual statistical tests were performed (over 200). The conventional level for accepting a result as statistically significant is  $p < 0.05$ , which means there is a 1 in 20 chance that the result has arisen by chance as opposed to being “real”. If we accepted this level of significance for the current study, then we might expect 10 results to arise by chance (1/20th of the 200 tests performed). Clearly, this would be misleading. To avoid this problem, a more rigorous threshold was applied, and a result has only been accepted as statistically significant at the  $p < 0.01$  level, i.e. a 1 in 100 chance that the result has arisen by chance.

### 2.3 Study Limitations

The fieldwork and data collection for the Endline study was conducted in October -November 2019 for a 12 month recall period from October 2018 to September 2019. The following factors must be taken into consideration in interpretation of the results discussed in this report.

- ❖ **Recall challenge:** The 12-month timeframe can create problems in terms of participants accurately recalling, for example, amounts of work obtained at different times of year, or average prices for the year as a whole. Careful probing and cross-checking by the interviewer were key to obtaining accurate data.
- ❖ **Absence of business records:** The households who were engaged in income generation activities typically did not keep or maintain complete business records. This meant the team had to adjust the approach of the Endline to collect this data using recall.
- ❖ **Profiling of households:** The assessment depended on the profiling of households done by the HSNP project in 2012, particularly for selecting control households. Given the information was not updated, the identification of sampled households was a lengthy process with many replacements required for households that had migrated to other areas.
- ❖ **Project activities delay:** The full package of project services started less than two years before the time of the Endline study.

### 3. Background: Program Context

Marsabit county is located in the semi-arid to arid regions of north-eastern Kenya prone to erratic rainfall. For the past four years seasonal performance and its impact on existing livelihoods has been monitoring and analysed. This is particularly important as it establishes a context within which Endline results are interpreted. It is worth noting that five out of the last nine seasons have been ranked as of poor performance, with only one ranked as above average and three as average as compared to long term averages.

As regards the recent seasons preceding the Endline study, the long rains season of March – September 2019 was considered average. Conversely, the short rains season of October 2018 to February 2019 were considered below average, with poorly distributed rains characterised by below normal rainfall in November, near normal rains in December and below normal rains between January and February. In the previous long rains season (March – September 2018) the Marsabit experienced good rainfall performance. These were considered the best rains in the county for the past five years, providing relief after the consecutive, below-normal seasons since March - September 2015 season. However, this more recent situation was preceded with consecutive periods of poor to very poor seasonal performance, whose underperformance and quality resulted in slow and fluctuating recovery of livestock assets – the main means of livelihoods in the area.

The monitoring data indicated that households are typically able to cope with the deficits of one season if it follows two good seasons. It has been noted that the frequency of poor seasons encumbers the ability of households to sustainably cope with effects of poor seasons requiring more time to recover, an external boost of investment in normal income generating activities or external humanitarian support.

#### 3.1.1 Implications of poor seasonal performance over years: Hazard Timeline

Table 4: Hazard Timeline

Season	Performance*	Season	Study timing
<b>Mar 2019 – Sept. 2019</b>	<b>2.5</b>	<b>2019 Long rains</b>	<b>Endline</b>
Oct. 2018 -Feb 2019	2	2018 Short Rains	Fourth round
Mar 2018 – Sept. 2018	4	2018 Long Rains	
Oct. 2017 -Feb 2018	3	2017 Short Rains	Third round
March 2017 – Sept. 2017	1.5	2017 Long Rains	Second round
Oct. 2016 – Feb. 2017	2	2016 Short Rains	First round
Mar 2016 – Sept. 2016	2	2016 Long Rains	
Oct. 2015 – Feb. 2016	2	2015 Short Rains	
Mar 2015 – Sept. 2015	3	2015 Long Rains	
<b>October 2014 – Feb. 2015</b>	<b>3</b>	<b>Reference Year: Short Rains</b>	<b>Baseline year</b>
<b>March 2014 – Sept. 2014</b>	<b>3</b>	<b>Reference Year: Long Rains</b>	

\*Ranking is done based on NDMA reports on seasonal performance

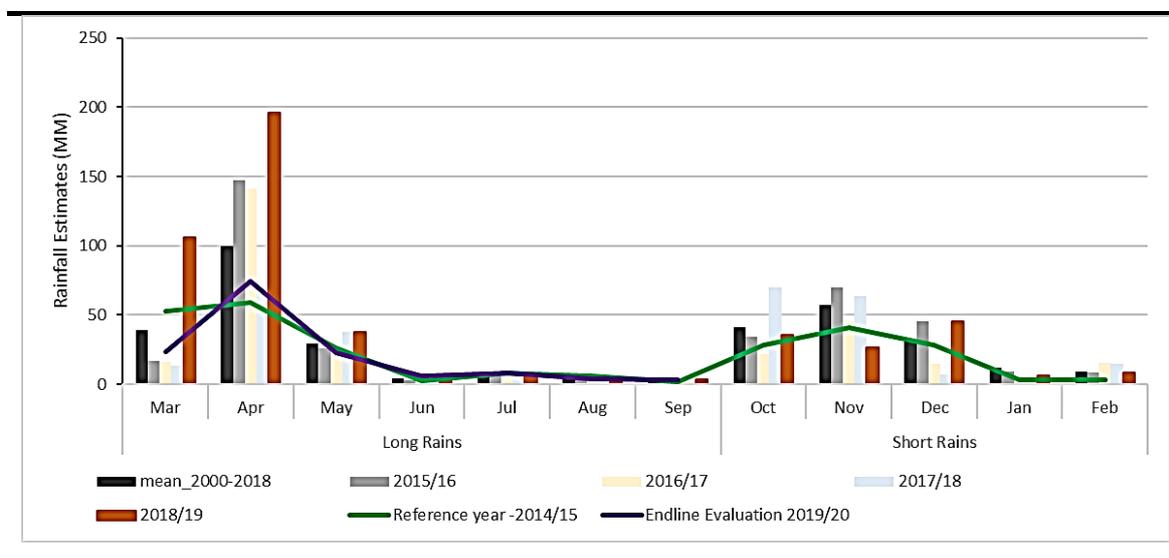
Hazard timelines help in determining the performance of the seasons following the “reference year.” In pastoral economies of the two livelihood zones seasonal performance is particularly important as it influences livestock births and deaths which determine the extent of growth or decline in livestock herd sizes.

The four very poor to poor seasons immediately following the baseline reference year, from March 2015 to September 2017,

were followed by two seasons of normal to above normal rains. These latter two seasons, October 2017 to February 2018 and March to September 2018, led to an improvement in livestock births, a decrease in livestock deaths, increases in livestock prices due to good body condition, and increases in overall herd sizes due to births and the reduced rate of selling associated with a lower need to resort

to coping strategies. However, the two seasons following this saw a return to poor to fair seasonal performance which was beginning to see stress in herd sizes and animal condition. It is this period that immediately preceded the evaluation.

Figure 3: Rainfall estimates compared to long-term mean (FEWS NET CHIRPS data)



The 2019 long rains started below normal and remained below normal throughout the season, except in May and June where it was above average. Overall, the season was slightly below average receiving 7% less cumulative rainfall as compared with the average. Although the cumulative rainfall is 17% above the rains received during the baseline year, the distribution was poor. The preceding 2018/19 short rain season also had a poor distribution, with above normal rains in the beginning but overall below average throughout the season. Kenyan Meteorological Services data shows that the short rains in this area are becoming more poorly distributed, whilst cumulative amounts for most seasons are near average to average.

When compared to the baseline year, the 2019 long rains and 2018 short rains received more rainfall by 17% and 58% respectively. While this may look positive, it must be emphasized that most of the rains were not evenly distributed, but rather were received in one or two months. This means that any comparison of seasonal performance must consider the quality of the distribution as it has an impact on vegetation and water resources which support livestock. The above average 2018 long rains performance provided a period of relief to the county which had experienced prolonged periods of poor rainfall performance, allowing recovery in livestock herd sizes. The effect of the below average 2018 short rain season was mitigated by a fair long rains season from March to September 2019. The recovery of herd sizes has thus not been severely affected by the recent slightly below average seasonal performance. Methods of livestock management across the two zones are similar meaning that the influence of seasonal performance is anticipated to have a similar impact on herd sizes, with the capacity to re-invest in building livestock assets being a contributory factor to any differences to be observed in livestock holding.

## 4. Study Findings

The findings of the graduation study have been organised into four themes answering the specific objectives and the key study questions as set out in section 1.2. The themes include (i) basic study data, (ii) effect of intervention on livelihoods indicators, (iii) the assessment of broader impact on markets, (iv) conclusions and recommendations.

### 4.1 Basic Statistics

This section provides a description of key characteristics of basic household statistics for Training + Loans and Training Only beneficiary households and Non-Beneficiary Group households. These characteristics include asset ownership, household composition and dependency ratios. Table 5 provides an overview of the key demographic statistics for the two comparison groups. This summary provides an understanding of key differences and similarities in the characteristics of beneficiaries that could have a bearing on the results. Overall, there are very few statistically significant differences between the sampled households in different locations and livelihood zones in terms of asset holdings, sources of food and income or patterns of expenditure. The most important results, therefore, are presented in this section for the whole sample.

Table 5: Basic Data for Whole Sample

	Non-Beneficiary Group		Training Only		Training + Loans	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Household Size	6.2	0.2	6.6	0.2	6.7	0.2
Dependency Ratio	2.8	0.2	2.5	0.2	2.8	0.2
<b>Food Consumption (as % annual kcals need)</b>						
<b>Food summary Total</b>	<b>97</b>	<b>1</b>	<b>91</b>	<b>1</b>	<b>102</b>	<b>1</b>
Own Production*	6	1	8	1	14	1
Food Purchase	79	1	78	1	78	1
Aid/Gifts	11	1	10	1	10	1
Other food	0	0	0	0	0	0
<b>Cash Income (per person per month)</b>						
<b>Total**</b>	<b>1,316</b>	<b>41</b>	<b>1,326</b>	<b>38</b>	<b>1,790</b>	<b>55</b>
Own Production	550	51	605	43	656	49
Casual employment	270	37	183	29	124	27
Self-employment**	160	35	172	28	345	42
Equity and SG Loans**			122	43	349	27
Safety Nets (HSNP)	337	31	362	13	347	13
<b>Cash Expenditure (per person per month)</b>						
<b>Total Expenditure</b>	<b>1,444</b>	<b>40</b>	<b>1,355</b>	<b>38</b>	<b>1,795</b>	<b>51</b>
Purchase of food	1,183	25	1,096	26	1,156	26
Household Items	43	3	36	5	41	3

	Non-Beneficiary Group		Training Only		Training + Loans	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Health	17	3	45	10	33	4
Education	99	26	82	16	169	28
Inputs (Livestock drugs, feed, business capital)	31	6	42	7	37	5
Debt Repayments	1.2	1.2	3.4	2.2	286.1	21.9
Clothes	49.3	6.7	38.5	4.3	50.8	5.5
Other	20.7	3.8	12.1	2.9	21.3	4.6
<b>Average ownership of livestock in sample</b>						
Camels	2	0	2	0	3	0
Cattle	2	0	3	0	4	1
Goats	17	2	18	2	23	2
Sheep	13	1	18	1	17	2
Hand tools	1		1		1	
<b>ASSETS - % of households owning**</b>	<b>Proportion and Confidence Intervals</b>					
Camel**	42 (39.9-44.1)		55 (52.25-57.75)		70 (66.5-73.5)	
Cattle	39 (37.05-40.95)		50 (47.5-52.5)		49 (46.55-51.45)	
Goat**	89 (84.55-93.45)		98 (93.1-102.9)		95 (90.25-99.75)	
Sheep**	79 (75.05-82.95)		93 (88.35-97.65)		93 (88.35-97.65)	
<b>Average ownership of livestock among those who own livestock</b>	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Camels	5	1	5	1	6	1
Cattle	5	1	6	1	7	1
Goats	19	2	19	2	24	2
Sheep	16	1	19	2	18	2
Hand tools	2		2		2	

\*\* Denote statistical significance of differences between comparison groups

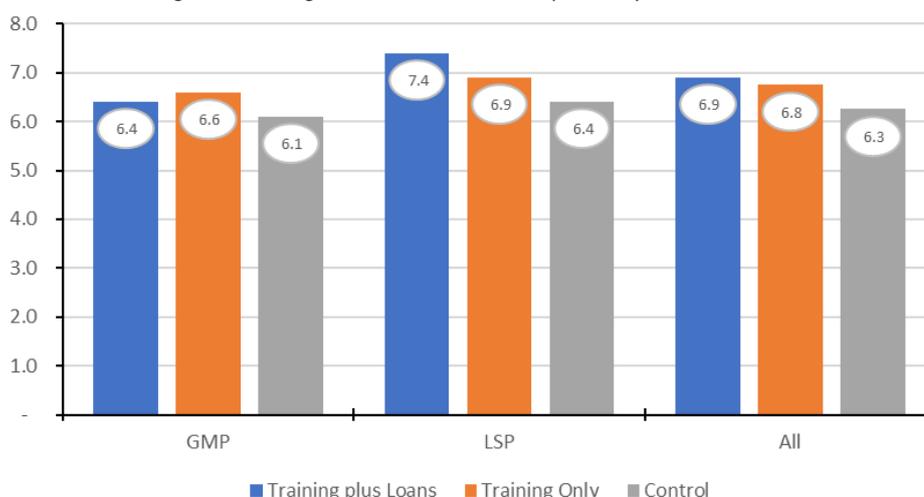
Total food consumption averaged above 90% of the annual calorie needs of households, based on the reference figure of 2100 kcals per person per day. Total expenditure averaged 100% of total income across all households. This indicates that the quality of interviews was good. The breakdown of food, cash income and expenditure will be discussed in separate sections in the report. The key assets for the sampled households are livestock. Sheep and goats are the most typical type of livestock owned, followed by camels and cattle. Ownership of livestock among Non-Beneficiary Group households is generally lower than other groups, with 62% of households owning livestock compared with 74% and 77% for Training Only and Training + Loans households respectively. When considering livestock type a majority of households across all groups own sheep and goats, while the more households in Training

Only group own cattle and sheep than all groups and more Training + Loans households own Camel a high value livestock asset. Differences in the average number of animals owned by a household is not statistically significant, however, control households have relatively lower numbers of cattle and sheep. Conversely the Training + Loans households have relatively more animals than the rest. The Training Only have more sheep than the rest and more of other livestock than Control households.

There is very low standard deviation of the averages for all groups in livestock ownership, food consumption, and household size and dependency ratios. However, the deviation widens on cash incomes and expenditures, an indication of possible variation within the sample.

#### 4.1.1 Household Size and Structure

Figure 4: Average Household Size and dependency ratios



County	Training + Loans	Training Only	Non-Beneficiary Group
<b>ALL</b>	<b>2.8</b>	<b>2.5</b>	<b>2.8</b>
Greater Marsabit Pastoral	2.7	2.6	2.9
Laisamis Sedentary Pastoral	3.0	2.2	2.8

There is no significant difference in the average household size between the groups or dependency ratios across the livelihood zones and between beneficiary groups. The overall average household size ranges 6.3 to 6.9 people. Training + Loans households have slightly bigger household sizes with an average of 6.9 compared to 6.3 for Non-Beneficiary Group households. Most of the households in all groups have bigger household sizes of over 7 household members with 68% for Training + Loans, 70% for 'Training Only, and 61% for Non-Beneficiary Group households having above 7 members in household. However, the Training Only have more households with large family sizes after this range compared to Training + Loans who have smaller household sizes.

There is no statistically significant difference between the dependency ratios of the different comparison groups, with an average of 2.5 to 2.8 dependents per working adult. The absence of statistical significance in labour units, increases the efficacy of the comparison as it limits other factors that could influence observed differences, other than the interventions themselves. In other words, the household size or labour availability should not influence the differences we see in income and resilience between the three groups.

## 4.2 Comparison of Key indicators

This section provides comparison of proxy indicators focusing on the following areas: (i) Asset ownership; (ii) Livelihood strategies (food, income and expenditures); (iii) Total income and resilience estimation. Comparisons, of the beneficiary groups Training + Loans and Training Only will be made with Non-Beneficiary Group for each of the three impact areas to estimate the gains in terms of graduation capacity.

### 4.2.1 Assets ownership

An asset index<sup>6</sup> was used to assess the wealth differentiation between the Training + Loans and Training Only beneficiary households, and the Non-Beneficiary Group households. The asset index is a proxy indicator to evaluate asset build-up or loss over time. For this analysis the major asset build-up was in livestock assets which households use as a store of wealth as well as supporting income generation.

The 'Training + Loans' beneficiaries had a higher value of asset ownership, with an index value of 23 compared to 20 for Training Only and 19 for Non-Beneficiary Group households (see Table 6). The results are statistically significant at 5% significance level ( $p < 0.05$ ). Livestock ownership, defined as owning at least one of the livestock types, was higher for Training + Loans households, at 77% compared with 74% for Training Only households and with 62% for Non-Beneficiary Group households. In the range of assets owned, livestock is commonly the primary source of cash income, as well as being a form of saving that can be used to deal with shock events. Overall, the asset index suggests that Training + Loans households have a greater capacity to respond to shocks than Training Only and Non-Beneficiary Group households.

Table 6: Value of Asset Index by beneficiary type and livelihood zone

District	October 2019		
	Training + Loans	Training Only	Non-Beneficiary Group
Greater Marsabit Pastoral	12.9	10.2	9.4
Laisamis Sedentary Pastoral	10.3	9.7	9.2
<b>All</b>	<b>23.2</b>	<b>19.9</b>	<b>18.6</b>

The difference between livelihood zones was not statistically significant although households in Greater Marsabit Pastoral zone had relatively more livestock assets in comparison to Laisamis Sedentary Pastoral zone. While households in GMP have a relatively higher asset index the difference indicate that location has limited influence on the observed results on asset ownership.

### 4.2.2 Household Livelihood Situation

To estimate the livelihood situation of households, the study made use of the three elements of household economy enquiry through quantification of; i.) how households access food and the amounts, ii.) how households obtain cash incomes and the amounts, and iii.) the expenditures that people make over a consumption period. The food security status is measured using households' ability to meet their annual minimum food energy needs, based on the reference value of 2100Kcal per person per day<sup>7</sup>, which looks at the adequacy of household food consumption. Livelihoods are measured based on a combination of livelihood coping strategies and expenditure choice. The following sub sections will provide a comparison between groups.

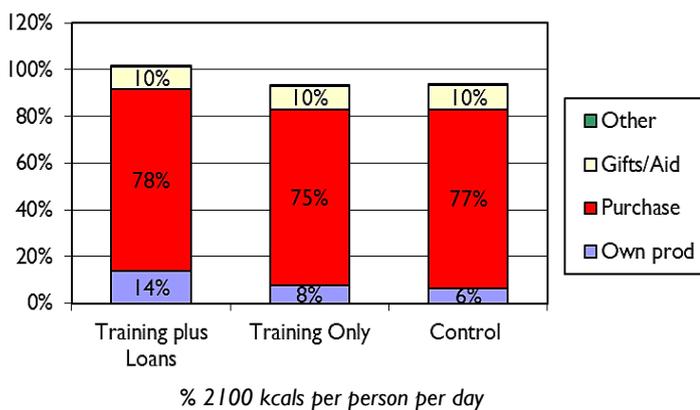
<sup>6</sup> A composite indicator reflecting a household's, ownership (or lack thereof) of a range of assets; in this case livestock, and productive equipment (bicycles & hand tools)

<sup>7</sup> Households are judged to be food secure if they at least obtain 90percent of their minimum energy needs, equivalent to 1900Kcals per person per day.

#### 4.2.2.1 Food Consumption

The average picture for food consumption for all sampled households is presented in Figure 5. Total food energy intake averaged 2,135 kcals (101%) per person per day for Training + Loans, 1,952Kcal (92%) for Training Only and 1,965 Kcals (93%) for Non-Beneficiary Group households. This result is based on adjusted household composition, as the minimum food energy requirements vary according to household composition. This is a reasonably typical figure for a population categorised as poor.

Figure 5: Food Consumption, by Source



% 2100 kcals per person per day

#### Statistically Significant differences

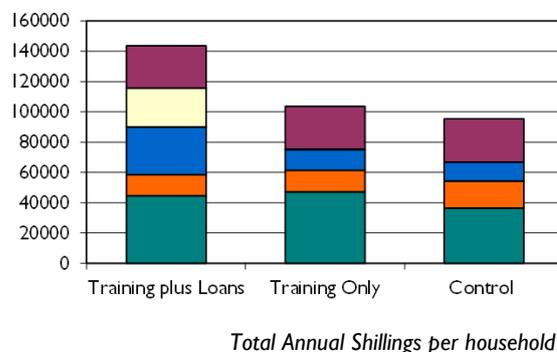
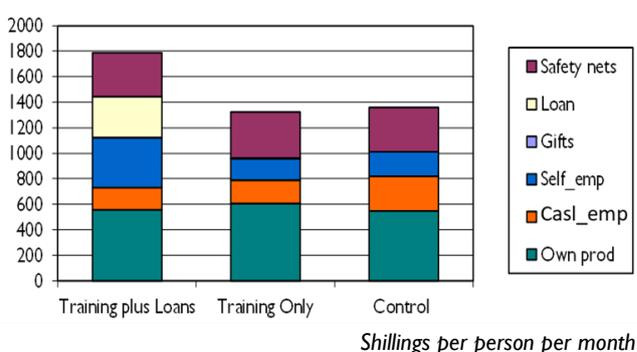
Own Prod (milk and meat)  $p < 0.05$

There are three main sources of food across all the comparison groups. Food purchase is the most important source of food contributing over 70% of minimum food needs, supplemented by gifts/food assistance providing about 10% for each of the households, and livestock products (milk and meat). The only significant difference is in livestock products, an indication of the contribution of more livestock ownership among the Training + Loans households. This significance suggest that livestock ownership is driving differences in this source. This is particularly important as most households were involved in livestock trade which contributed to the increase in the livestock assets.

#### 4.2.2.2 Cash Income

Figure 6 (page 15) presents total cash income and the amount of income from different sources. The comparison is done using average monthly per person income for the period October 2018 to September 2019. The income per person for Training + Loans households was 1,790 shillings, 1,353 shillings for Training Only and 1,393 shillings for Non-Beneficiary Group households. The result indicates that the Training + Loans households had higher income than all the groups with at least more than 30% difference in earnings in comparison to other households. There is a marginal 5% difference in incomes between Non-Beneficiary Group and Training Only households, suggesting little difference between these groups.

Figure 6: Average Cash Income Average for All HHs



#### Statistically Significant differences

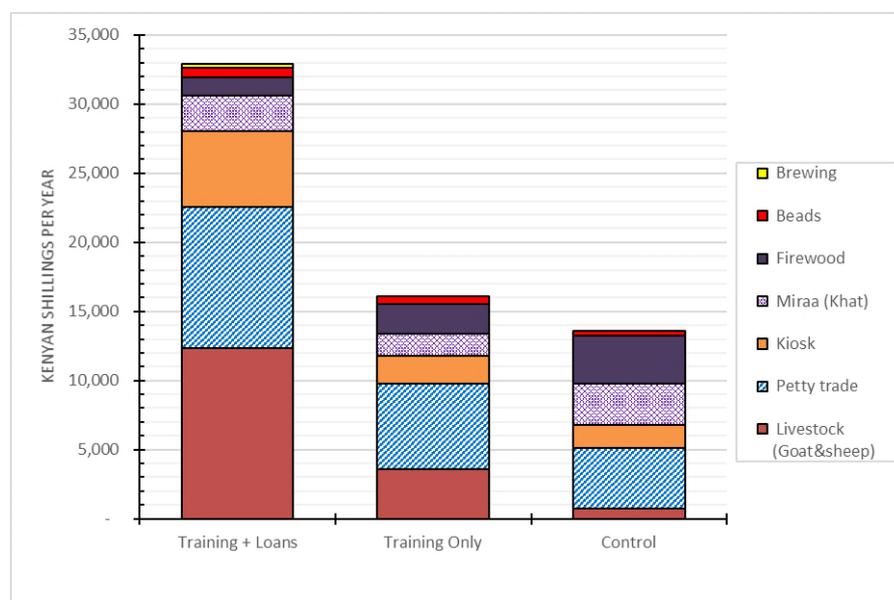
Total income  $P < 0.01$

Loan  $P < 0.01$

Self-employment  $P < 0.01$

The most important source of cash income was livestock production (“Own Prod” in the graphic Figure 6). This was mostly from sale of livestock (camel, cattle, goats and sheep) and milk sales. The second most important source was the HSNP transfers (“safety nets” in the graphic). However, there is no statistical significance in the difference across comparison groups. Statistically significant differences between the three groups is found in self-employment and access to loans. While all three groups earned income from self-employment, the Training + Loans group were able to earn more given the access to capital through loans to invest in their activities. This result suggests that absence of training and access to finance encumbers investment capacity, as indicated by the low incomes earned by Control households through similar activities when compared to Training Only and Training + Loans. Self-employment (“Self\_emp”) activities were predominantly livestock trade (mostly of goats and sheep), kiosks and petty trade (e.g. sale of grocery items), handicrafts (beads), and firewood sales. Other less important sources of employment income included construction labour, herding, remittances, and domestic work.

Figure 7: Self-employment Activities



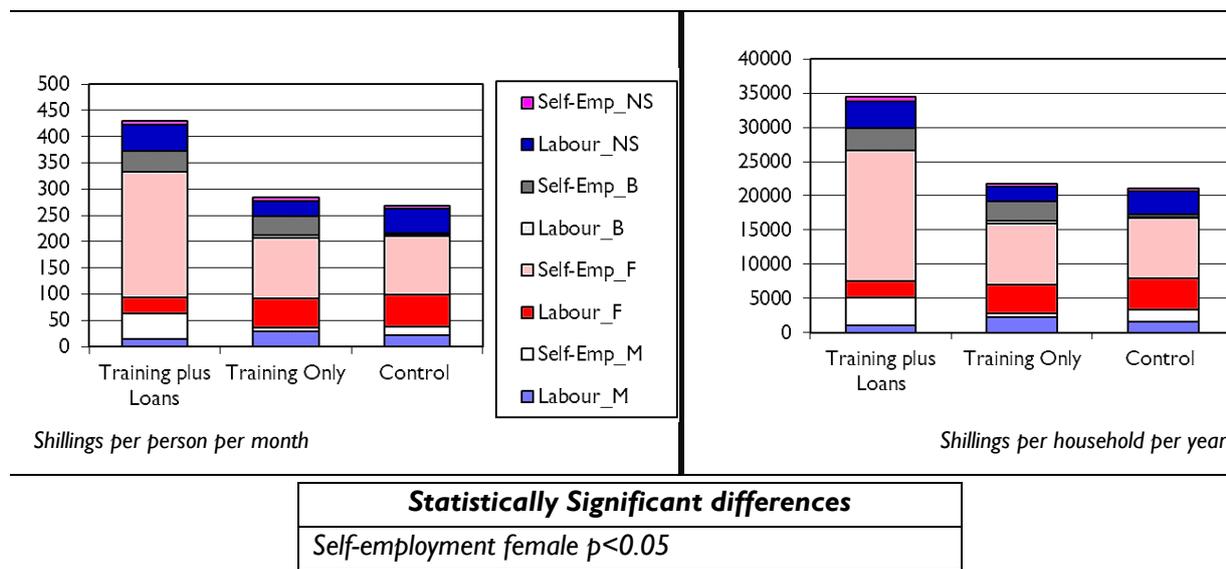
A further analysis of the specific self-employment activities pursued by different households was done to identify key variances in the self-employment profiles. Self-employment income was found to have statistically significant differences between groups ( $p < 0.01$ ) and given that interventions supported by FSD Kenya were mostly to encourage investments in self-

employment income generation as a pathway to build assets and household resilience, it is important to explore the root of the differences.

The range of activities done by households are similar across all comparison groups, however there are variances in the extent to which each group depended on a particular source. A majority of self-employment incomes for the Training + Loans households was obtained from Livestock sales (38 %), Petty trading (31 %) and Kiosk (17 %), while for the Training Only Petty trade (39 %), Livestock sales (22 %), Kiosks and firewood (13 % respectively) are the top income earners in this category. IN comparison Control households obtain most of their income in this category from petty trade (32 %), firewood (26 %) and sale of Miraa/Khat (22 %). For beneficiary households there is less reliance on firewood a source that most households were reliant on during baseline providing over 40 % of annual incomes. The major difference comes from mostly the livestock trading, and trading activities which seem to be driven by the capital capacity and business skills obtained through trainings, mentoring and coaching, as well as, access to finance which benefitted the Training + Loans and Training Only groups. The sale of Miraa/Khat seem to have increased in the area due to improved accessibility following to completion of the Laisamis to Nairobi road link.

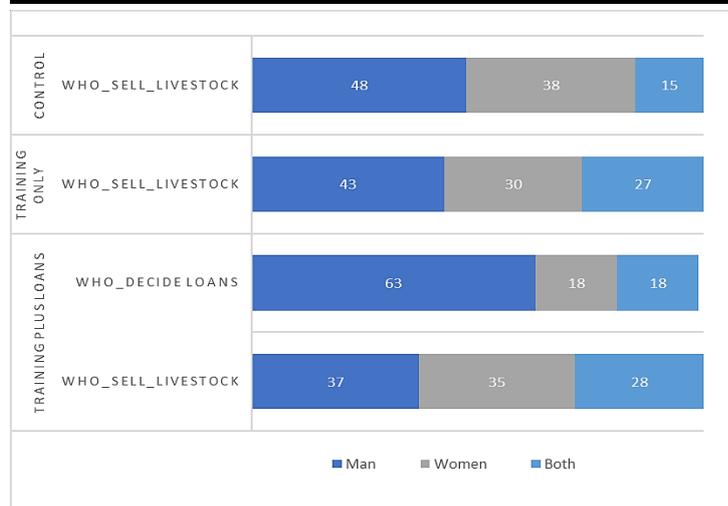
Figure 8 below provides an analysis of the contribution of men and women to the household income through labour bases activities (*casual employment and self-employment*).

Figure 8: Cash Income from Casual Employment and Self-employment by Gender



For each type of employment and self-employment, information was gathered on who was doing the work: men, women, or both. The results are summarised in **Error! Reference source not found.**<sup>8</sup> Over half (55%-65%) of employment and self-employment income was predominantly generated by women and less than thirty % by men. The inclusion of the category “both” indicates cases where both men and women ‘equally’ generated income through labour-based income sources.

Figure 9: Decision Making on Loans and Livestock sales



This result is significant as it shows that most labour based income sources are earned by women. This is different when compared to the main livelihood source – sale of livestock from the family herd is mostly done by men with 37 % for Training + Loans, 43 % and 48 % for Training Only and Non-Beneficiary Group households respectively. The category of 'both' means that men on their own or women on their own are not the single majority drivers of livestock sales makes the results less clear. However, a significant proportion of the findings (**Error!**

**Error! Reference source not found.**) indicate that men are relatively the main decision makers and participants in sale of livestock, as well as when to a household should take a loan<sup>9</sup> (over 60%) in Training + Loans households.

The self-employment earnings by female households is statistically significant. This is likely attributable to the fact that activities such as handicrafts and petty trading done by Training + Loans households are

<sup>8</sup> M = male, F = female, B = both, NS = not specified.

<sup>9</sup> The question asked was “Who made decision on getting loan ?”

typically done by women. However, this result has a lower significance level (a 1-in-20 probability the result is by chance). The results indicate that women are contributing more to household income due to the support received through interventions that promote income generation.

Table 7: Comparison of time spend on IGA

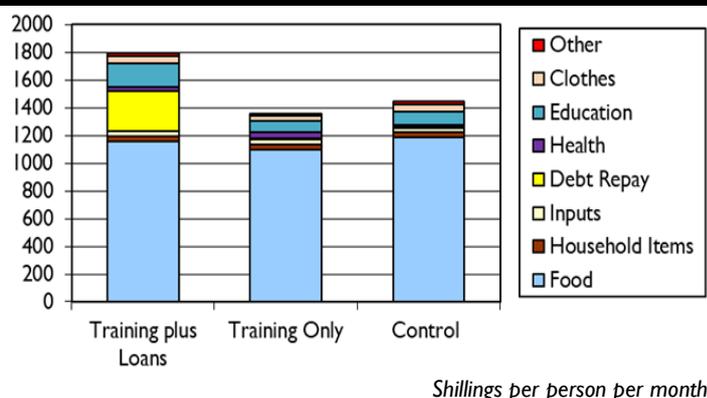
	Training + Loans	Training Only	Non-Beneficiary
Same time	49.5%	32.6%	51.1%
More time	40.6%	48.8%	26.7%
Less time	9.9%	18.6%	22.2%
Who is affected more by changes in time?			
	Training + Loans	Training Only	Non-Beneficiary
Men	8.6%	3.1%	10.7%
Women	55.2%	53.1%	64.3%
Both	36.2%	43.8%	25.0%

In an additional method at trying to establish the effects of interventions, the study inquired on changes in the time spent by households on self-employment activities. Table 7 summarises the results of the responses. The majority of Training + Loans households say they are spending the same time as pre-intervention, whilst 41% suggest they spend more time on activities now. This effect was even more pronounced in comparison, around 49% of

Training Only households whom reported having to spend more time now. In contrast, Non-Beneficiary Group households had a lower proportion who are reporting increases in time, whilst around 52% reported spending the same time. Non-Beneficiary Group household had the highest proportion reporting a reduction in time spent on income generating activities. Among the households whose time increased, a majority indicated that this change has affected women mostly, around 50% of households across all groups.

#### 4.2.2.3 Expenditure

Figure 10: Expenditure, by Type, Average for All Households



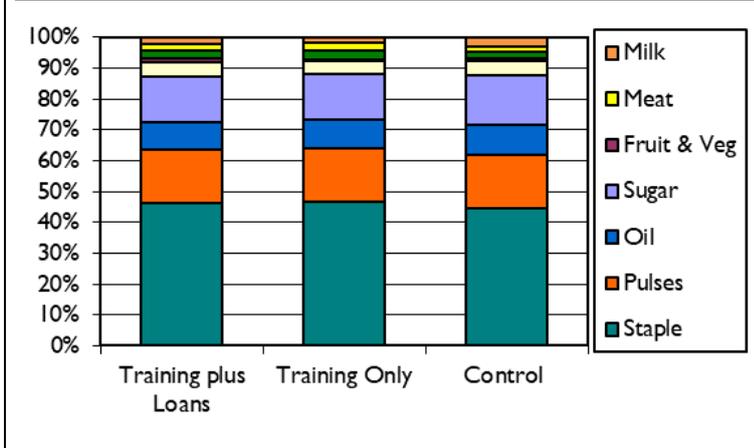
#### Statistically Significant differences

Dept Repayment  $P < 0.01$

Expenditure on food constitutes the greatest proportion of total expenditure for the sampled households. Around 80% of expenditures for both Training Only and Non-Beneficiary Group households was on food. In contrast, around 63% of total expenditures was spent on food by the Training + Loans households (Figure 10). This result is in line with the fact that food purchases are main source of food among pastoral communities. High food expenditure share is an indication of vulnerability as most incomes are dedicated to this basic survival need. All other expenditures taken individually

constituted less than 5% of total spend, for all three groups, with the exception of loan repayments for the Training + Loans households, around 15% of total expenditure. It is worth noting that 99% of households had repaid their loans in the period of study. Debt and loan repayments were the only statistically significant expenditure item. This is not surprising given that the other households have not accessed loans.

Figure 11: Detailed breakdown of food expenditure



**Error! Reference source not found.** Figure 11 provides a more detailed breakdown of food expenditure for all households. The largest proportion of food expenditure for the three groups was for staple food purchase including maize grain and maize meal, wheat, and rice, coming to around 45% of the total expenditure on foods. The purchase of pulses constituted about 20% of total expenditure for the three groups. The rest of the expenditure was typically dedicated

to non-staple foods including oil, fruit and vegetables, meat, milk and sugar. There was no statistical significance in the differences across the comparison groups.

#### 4.2.2.4 Total Income

All groups under comparison were able to obtain adequate resources to cover their *Survival Threshold*. This means they were able to cover the cost of obtaining their annual food needs including the costs associated with food preparation and consumption (salt, grinding, etc). Crucially, they were also able to meet their respective Livelihood Protection Thresholds, which is the survival threshold of basic survival, plus the expenditures and costs associated with maintaining and using existing livelihood assets, expenditure on health and education, and maintaining the basics of a locally acceptable standard of living.

Figure 12: Total Income and thresholds



Figure 13: Total income Scenario without AID/HSNP



% 2100 kcals per person per day

#### Statistically Significant differences

Total income $P < 0.01$	Loans $P < 0.01$	Self-employment $P < 0.01$
-------------------------	------------------	----------------------------

However, meeting livelihood protection threshold was only possible because of the presence of safety nets, indicating the importance of this source in supporting household livelihoods. Non-Beneficiary Group and Training Only households could only meet their survival threshold needs if there was no HSNP safety nets, whilst Training + Loans households would be able to meet their survival threshold needs, as well as meet their livelihood protection threshold. This was due to the availability and use of

loan facilities. In the case of no HSNP and no access to loans and credit, all three groups would fall below the livelihood protection threshold (Figure 13). These results indicate that safety nets are a crucial element for Training Only and Non-Beneficiary Group households to meet their livelihood protection needs. In contrast Training + Loans households can be deemed to be able to meet their livelihood protection needs with the loan asset. In the absence of the loan asset, the Training + Loans households will fall below their respective livelihood protection threshold, suggesting that progress has been made amongst these Training + Loans households, supporting the graduation hypothesis.

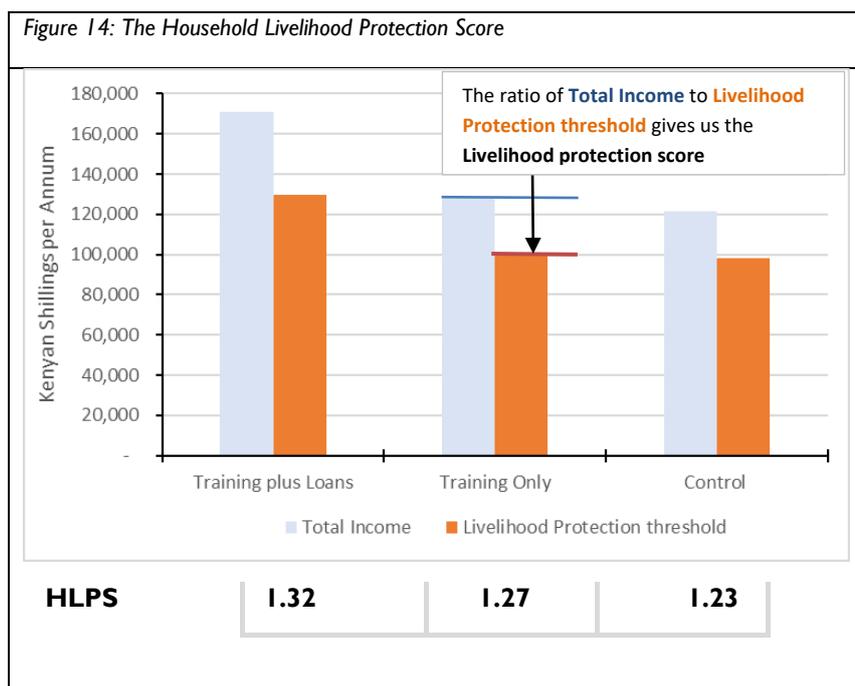
#### 4.2.2.5 Livelihood Protection Score

Total Incomes provides an overview of aggregate incomes total and how they compare to the important thresholds used in HEA, most importantly the Livelihoods Protection Threshold. Given that the cost of maintaining livelihood assets is relative to the asset level of households and not standard, it is not adequate to know about livelihood security by only using information of how much income people are able to generate. In order to understand what livelihood security means, we need to compare the incomes to the cost of maintaining the means used to generate the livelihoods shown by the Livelihoods Protection Threshold.

The comparison of the Livelihood Protection Threshold with the Total Income provides a sense of the net benefit of the invested costs to generate livelihoods. In essence the difference between Total Income and the Livelihoods Protection costs, provides an indication of how livelihood secure and or resilient a household is in the case of a shock happening.

Figure 14 shows the comparison of results of the Household Livelihoods Protection Score (HLPS), which is essentially a ratio of what households generate in cash and food income compared to what it costs to cover all their survival and livelihood requirements.

The results of this comparison show that Training + Loans households and Training only households had a greater HLPS compared to Non-Beneficiary Group households. This means that



even though they have a higher cost of maintaining their livelihoods the income generated remains greater in comparison to other groups. Put differently the investments made through FSD Kenya support (loans, maintenance costs, capital use) have a real benefit to household income. The results are statistically significant at 5% significance level ( $p < 0.05$ ), an indication that interventions have a significant contribution to building household resilience.

With an HLPS of 1.32, Training + Loans households had a larger buffer of income after covering their livelihoods protection needs, thus making them more livelihood secure than Non-Beneficiary Group households (HLPS 1.23) and Training Only households (HLPS 1.27). The lower buffer for Control

households means these households could be more vulnerable to facing deficits in the event of any slight changes in their livelihood access.

#### 4.2.2.6 Household Balance Sheet

In evaluating the benefit of interventions, in particular the loans extended for business, it is important to look at net worth of investments made by households (including loans), by providing a balance sheet statement. In the financial sector a balance sheet statement allows a quantification of a business’s assets, liabilities, and owner's equity at a particular point in time thus providing the business’s net worth. In this evaluation, a consideration of household income (being cash income generated in the year, valuation of livestock assets, and any cash savings) in relation to their expenses (being costs incurred to maintain livelihoods, and loans) is done to compare profitability of the household economy. The valuation of other assets such as land and buildings are not included in this analysis and therefore the results presented in Table 8 must be interpreted as indicative.

Table 8: Indicative Household Balance Sheet

	<b>Non-Beneficiary Group</b>	<b>Training Only</b>	<b>Training + Loans</b>
<b>Assets</b>			
Cash - Savings	708	835	2,795
Livestock	90,000	315,000	585,000
Business Capital	152	342	26,973
<b>Total Assets</b>	<b>90,860</b>	<b>316,177</b>	<b>614,768</b>
<b>Liabilities</b>			
Loans	99	282	23,699
<b>Total Liabilities</b>	<b>99</b>	<b>282</b>	<b>23,699</b>
<b>Net Worth = Assets – Liabilities</b>	<b>90,761</b>	<b>315,896</b>	<b>591,069</b>

The results indicate that Training + Loans households have a higher net worth when compared to their counterparts. The asset value of both the beneficiary groups is higher than that of control households who have a lower net worth. Livestock assets are the main driver of the asset value, in particular the ownership of camel, sheep and goats, in which case where beneficiary households have more animals available for sale above the minimum threshold herd size<sup>10</sup>. Using the thresholds Control households only have 2 goats above threshold, compared to Training Only who have 1 cattle, 3 goats and 3 sheep above thresholds, while the Training + Loans have 1 camel, 2 cattle, 8 goats and 2 sheep above thresholds. This analysis shows that beneficiary households had built more livestock assets compared to non-beneficiary households.

In comparison to the loan amounts borrowed by household, the potential liquidation of animals above the set threshold suggests that even in the absence of loans households with livestock could sustainably dispose additional animals to finance their businesses.

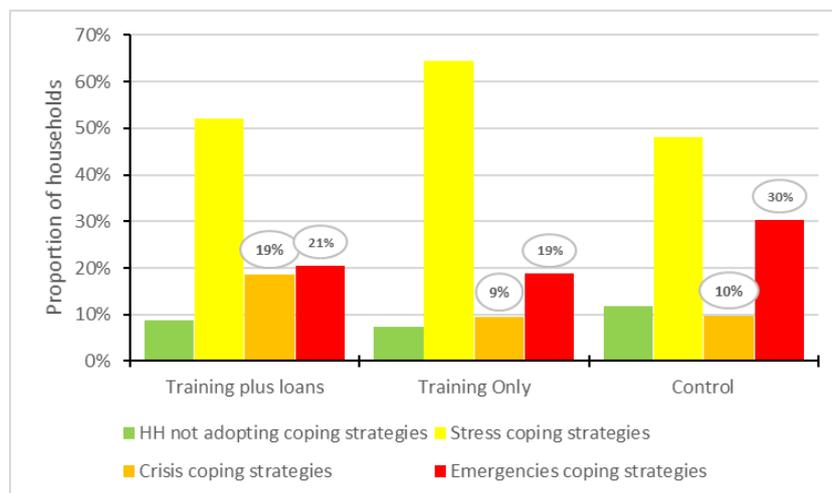
<sup>10</sup> The analysis considered part of the herd size to be valued for camel and cattle any animals above 2 and for sheep and goats any animals above 15 were considered savings that can be liquidated.

### 4.3 Comparison of proxy indicators

To triangulate typical IHEA data on food sources, cash income, and expenditure, the study also collected additional indicators to check if there is convergence of different measures. Three indicators were collected for this purpose: *Livelihood Coping*, *reduced Coping Strategy Index (rCSI)*, and *Household Hunger Scale (HHS)*.

#### 4.3.1.1 Livelihood Coping strategies

Figure 15: Livelihood coping strategies by comparison group



Livelihood coping strategies are classified into three categories<sup>11</sup> - *stress*, *crisis* and *emergency*. Households that did not employ any of these strategies are considered food secure on this indicator. The rationale of the FSD Kenya programming approach was to build resilience and one measure of doing this is enhancing coping capacity. In this case we would expect that the adoption of worse coping

strategies would decline over time and that Training + Loans households should generally be better off in this regard than Training Only and Non-Beneficiary Group households.

The results indicate that there are no statistically significant differences between the three groups in terms of using undesirable coping strategies. Figure 15 reveals that the proportion of households employing either crisis or emergency coping strategies comes to a total of 40 % both for Non-Beneficiary Group households as well as Training + Loans households, although, interestingly, this figure is lower for Training only households. The result does not show much difference, which is not surprising given that the study period included a season when rainfall was below average, and households had to deal with the effects of poor performance rainfall.

Given the limited array of coping options in the area, households tend to use the coping mechanisms with which they are most habituated. Another possibility is that the intervention groups had not yet had enough time to build livestock herd sizes sufficiently, with livestock being an asset that is often used as a means of coping. There is also a possibility that the model of livestock management is still to be fully commoditised with households only resorting to selling of livestock particularly cattle and camels as last resort. The result is in agreement with earlier findings on : Total Income and thresholds that while progress on income earning have been made, the income levels of incomes are not yet at a stage where loan assets and/ or safety nets are not required. The repeated shocks have also reduced capacity of households to rebuild their stock and savings.

<sup>11</sup> **Stress strategies**, such as borrowing money, selling more animals than usual, purchasing food on credit or borrowing food are those that indicate a reduced ability to deal with future shocks due to a current reduction in resources or increase in debts. **Crisis strategies**, such as cutting down expenses that directly reduce future productivity e.g. livestock drugs and feed. **Emergency strategies**, such as selling land or last female animals affect future productivity but are more difficult to reverse.

### 4.3.1.2 Reduced Coping strategy index<sup>12</sup>

The reduced Coping Strategies Index (rCSI) is an indicator that is used to measure the frequency and severity of food consumption behaviours or strategies that households engage in when they are faced with shortages. A high rCSI value is associated with frequent use of consumption-based coping strategies which is indicative of higher risk to food insecurity. Like livelihood coping, reducing the rCSI value is indicative of a reduction in use of consumption-based coping strategies, which may indicate increased capacity in use of acceptable coping mechanisms during times of shock or stressors. This is one of the key outcomes of resilience building actions. Table 9 shows the results of the comparison between groups.

Table 9: Average reduced Coping Strategy Index Comparison

Cohort	Mean
Training + Loans	11.7
Training Only	12.1
Control	12.4

Overall, the results show negligible differences between Non-Beneficiary Group households and households from the two treatment groups. The difference was found to be not statistically significant, although there is a trend that Non-Beneficiary Group households have a

higher index in comparison to Training + Loans households who have the lowest among the three groups. The result further confirms the point of limited change in coping capacity between beneficiary and non-beneficiary households. In September the [Drought Bulletin](#) indicated that the rCSI for Logologo and Korr averaged 14.6 (ranging from 10.9 to 18.3) an indication that the study results are within range of similar studies.

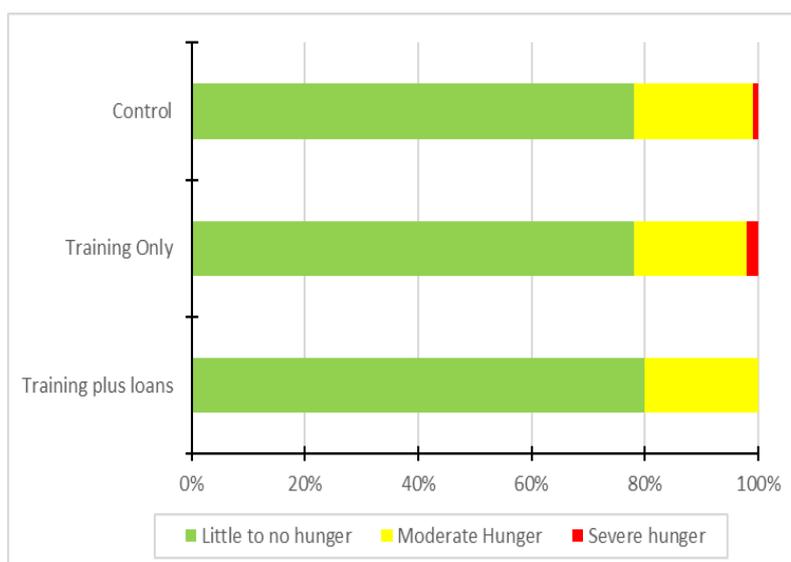
### 4.3.1.3 Household Hunger Scale (HHS)

The HHS is a household food deprivation scale, based on the response of households when they experience food scarcity<sup>13</sup>. The indicator combines frequency<sup>14</sup> of behaviours in past 30 days when households a) did not have food, b) slept without eating, or c) went whole day or night without food.

There is no significant difference in the hunger scales between three groups. As for the rCSI, the results here may suggest that the benefits of interventions are not yet significant and sufficiently established by the time of the period of this evaluation analysis.

The analysis of the three indicators described above indicate a trend in which the Training + Loans households have marginally better outcomes in comparison to other groups, although these differences are not

Figure 16: Household hunger scale Comparison



<sup>12</sup> The reduced rCSI is calculated based on five weighted individual consumption-based coping behaviours which include eating less-preferred foods, borrowing food/money from friends and relatives, limiting portions at mealtime, limiting adult intake and reducing the number of meals per day.

<sup>13</sup> <https://www.fsnnetwork.org/household-hunger-scale-indicator-definition-and-measurement-guide>

<sup>14</sup> Frequency which measure severity is classified into three categories: Rarely/**Little to no hunger** – (1-2times); Sometimes/**moderate hunger** (3-10 times) and Often/**severe hunger** (more than 10times)

statistically significant to conclude the difference to be the absence or presence of intervention. The positive trend is indicative of progress made by households in the context of only two years of engaging in the programme amidst recurring seasonal production difficulties, factors which may be affecting the extent of impact of interventions.

#### 4.4 Key livelihoods indicator trends from Baseline

The Endline was designed to mainly provide a judgement on the contribution of interventions to livelihoods of beneficiaries when contrasted to non-beneficiaries. However, it is also important to look at livelihood changes from baseline and Endline. This comparison is only indicative as the methods of baseline were different from the one used at Endline.

Table 10: Comparison of Total incomes from Baseline

	<b>Training + Loans</b>	<b>Training Only</b>	<b>Non-Beneficiary</b>	<b>Baseline<sup>15</sup></b>
Own Production <sup>16</sup>	57,125	56,847	43,919	54,691
Casual/Employment	15,355	16,058	21,815	24,031
Self-Employment	33,559	16,499	15,618	14,916
Gifts/Aid	37,828	39,268	39,775	26,931
<b>Total</b>	<b>143,868</b>	<b>128,671</b>	<b>121,127</b>	<b>120,569</b>

There is a general increase in livelihood earnings across all comparison groups when referenced to baseline. However, the Non-Beneficiary households had a marginal improvement of 0.5% of total livelihood earnings compared to 6.7% for Training Only and 19.3% for Training + Loans households. The differences are driven by changes in self-employment and livestock production. Beneficiary households have a 10.6% increase (Training Only) and over double (125%) for Training +Loans on income from self-employment activities. As discussed in section on self-employment the main driver was livestock trading, petty trade and Kiosks given access to capital and training in business skills given to beneficiary households. Income from livestock production has dropped by 19.7% for Non-Beneficiaries while it has increased by 4% for beneficiary households. This could be linked to growth in herd size and the ability of beneficiary households to have more animals to dispose in comparison to non-beneficiaries.

Casual employment contribution has decreased for beneficiary households by over a third from baseline an indication of less reliance on less drudgery income sources compared with the Non-Beneficiary. The general decline from baseline can also be explained by the less contribution of income from construction which was a major source at baseline attributed to opportunities that arose from the road construction work in 2016. This relative comparison suggest that the investments made by FSD Kenya have influenced changes in income choices for households and has the capacity to enhance household resilience and asset building even in the context of frequent shocks.

<sup>15</sup> Aggregate of total income at baseline (2016) for Poor and very Poor households – including those on PSNP and those not on PSNP. Adjusted for inflation using purchasing power parity

<sup>16</sup> Livestock sales + livestock product sales + consumption

# 5. Conclusions and Recommendations

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## 5.1 Conclusions

FSD Kenya has implemented market-based interventions aimed at enabling financial inclusion of poor households to participate in markets through income generating activities. The aim of this intervention was to help households increase incomes, build assets and enhance resilience. The interventions were implemented in the context of increasing exposure to multiple shocks for a population with underlying poverty challenges. Marsabit County is in the north-eastern part of Kenya, characterized as being at high risk of climate change and is among areas with the worst food insecurity outcomes in the past five years. The occurrence of poor rains appears to be increasing in frequency undermining inter-shock recovery. Building on existing village savings and lending schemes, FSD Kenya beneficiary households received specific training as well as access to loans for income generation. The following key conclusions are drawn from the analysis in answer to the assessment questions.

### 5.1.1.1 What are the observed and perceived impacts on household livelihoods?

The report presents key findings which provides indications of the impact of FSD Kenya interventions on household livelihoods, in particular when considered in contrast to non-beneficiary households. Training + Loans households, who represent the desired intervention model, had better outcomes overall in comparison to those that received training only and those that did not receive any interventions.

- **Household Income:** Training + Loans households had better incomes in comparison to Training Only households (i.e. partial intervention model) and Non-Beneficiary Group households. The difference in household's total cash income was found to be statistically significant ( $p < 0.01$ ). Two sources of income, self-employment and loans, were the only sources that had a statistically significant difference ( $p < 0.01$ ). These sources are linked to the interventions implemented by FSD Kenya which indicate that the interventions had an impact on household income.
- **Household Food Access:** Generally, there was no statistical difference in total food accessed by the three different household groups. However, food from livestock production, milk and meat, was statistically significant at a 95% confidence level ( $p < 0.05$ ). This source is linked to ownership levels of livestock where Training + Loans households had relatively larger herd sizes. The ownership of livestock is linked to the access to loans that most households used to trade in livestock (80% of loan recipients bought livestock) and rebuild their herd sizes. The lower significance level may be related to the effect of slowed herd growth due to poor seasonal performance in the two years when households started to access loans.
- **Household Expenditure:** Debt repayment was the only category of expenditure that had a statistically significant difference ( $p < 0.01$ ). This is mainly because expenditures for other items were relatively similar for the three groups, whilst loans accessed by Training + Loans households were larger in comparison to the other forms of loans through the VSLAs.

The key intervention areas of income generation, self-employment and loans, had an impact on incomes and relative improvement in livestock assets. Training + Loans households saw the most significant increase in income and assets compared with Control and Training only households. However, Training only households were clearly also investing in building assets in the form of livestock and showed significant differences in health expenditure and employment profiles, suggesting that the project had an impact on resilience for these groups. This confirms the hypothesis of the FSD Kenya graduation model

that a comprehensive package of market interventions with financial inclusion is required for an improvement in household income and resilience to be effected.

#### **5.1.1.2 Is the investment in graduation contributing to increased resilience?**

In the context of this study, resilience of households means their ability to meet their livelihood protection threshold in the context of underlying shocks and stressors. The Endline was conducted using a recall period of October 2018 to September 2019. The short and long rains in this period were judged to be poor to fair compared to average, thus can be considered a period with shocks. The : Total Income and thresholds indicate that the households representing the complete intervention model, Training + Loans, had higher total incomes (combined cash and food income). The difference with Non-Beneficiary Group households was statistically significant ( $p < 0.01$ ). Analysis of a scenario without HSNP indicates that Training + Loans households would still be able to meet their livelihood protection needs, albeit in the presence of loan access. This indicates that progress in resilience has been made, however is not yet significant or sustainable indicated by livestock assets and savings not having grown substantially. Interventions have thus made a contribution, with more time needed and sustained inputs required for households to build up assets and savings.

#### **5.1.1.3 What are the implications for graduation programming?**

Most households are highly dependent upon the market both in terms of what they buy and what they sell. The only own-production done by households is livestock sales and the consumption of livestock products. This degree of market reliance means that the functioning of markets is fundamental in its influence on livelihood security outcomes of households. FSD Kenya interventions improved trading confidence, benefiting communities and market players. Optimising demand and supply will require regular and improved monitoring of prices and volumes of trade, especially for livestock and petty trade activities. This study has demonstrated that the market intervention generally had a positive impact on household income, notwithstanding the presence of shocks.

Since 2016, the Marsabit to Nairobi road has been completed which has led to improvements in the economic linkages of Marsabit and other areas, opening up opportunities for communities in the area.

## **5.2 Recommendations:**

The following points provide a summary of the key recommendations for FSD Kenya and other stakeholders involved in graduation work in Kenya.

- ⇒ The study area has seen an overall increase in frequency and intensity of poor rainfall performance, a key influencing factor on pastoral livelihoods. Given the increasingly short periods of recovery between shock events, the support levels during good years must be intensified to achieve rapid recovery and rebuilding of assets and savings. This requires that recovery support must be increased in quantity, as well as stronger linkages made to appropriate insurance schemes.
- ⇒ Households will still require HSNP and loan and credit services to achieve the desired livelihood protection threshold. This support should focus on (i) sustainably increasing livestock holdings to strengthen household coping capacity<sup>17</sup>, and (ii) optimising petty trade and small business activities. Ongoing evaluations of market elasticity must become integral to monitoring systems to avoid over production and supply that could undermine the feasibility of initiatives. Given the

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<sup>17</sup> Goats, sheep were indicated as the most preferred livestock traded by beneficiaries. These livestock types can multiply in a short time frame

improved linkage with other areas, a broader market value chain analysis should be done to understand better additional demand potential or new opportunities for income generation<sup>18</sup>.

- ⇒ The analysis of total income and thresholds show that although progress in increasing incomes and livestock assets has been achieved, there has not yet been adequate build-up of assets and savings, suggesting that in the study area more time is required to sustainably build capacity of households. Given the recurring losses during drought years, it is worth considering putting in place a shock responsive HSNP, where ad hoc additional transfers are given in drought years to protect against excessive loss of livestock and household savings. On the basis of deficits observed in the monitoring, a calculation of the savings level can be used as a target for households to build resilience capacity.

The recommendations outlined in the box below are in addition to the ones raised during the monitoring round of this graduation study.

- ⇒ The feasibility of the IGAs should consider the capital requirements after households use profits to cover deficits. The aim would be to invest in activities that require lower capital investments but obtain high profits without market saturation.
- ⇒ The fluctuation in seasonal performance requires identification of respective optimal levels that IGAs can reach in both good and bad years. The aim is to enable households to build insurance/savings mechanisms that can be drawn down in bad years to cover the deficits and maintain investment capacity without increased demand for IGA loans during a drought.
- ⇒ The value chain of livestock needs strengthening through stock-feed banks that can be used during periods of limited pasture and drought seasons, to maintain breeding stock and keeping animal body condition for marketing.

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<sup>18</sup> During data collection fruits and vegetables supply from other areas was observed in main markets. These were absent or negligible four years back.