



Household Survey 2015



Livelihoods and Food Security Trust Fund



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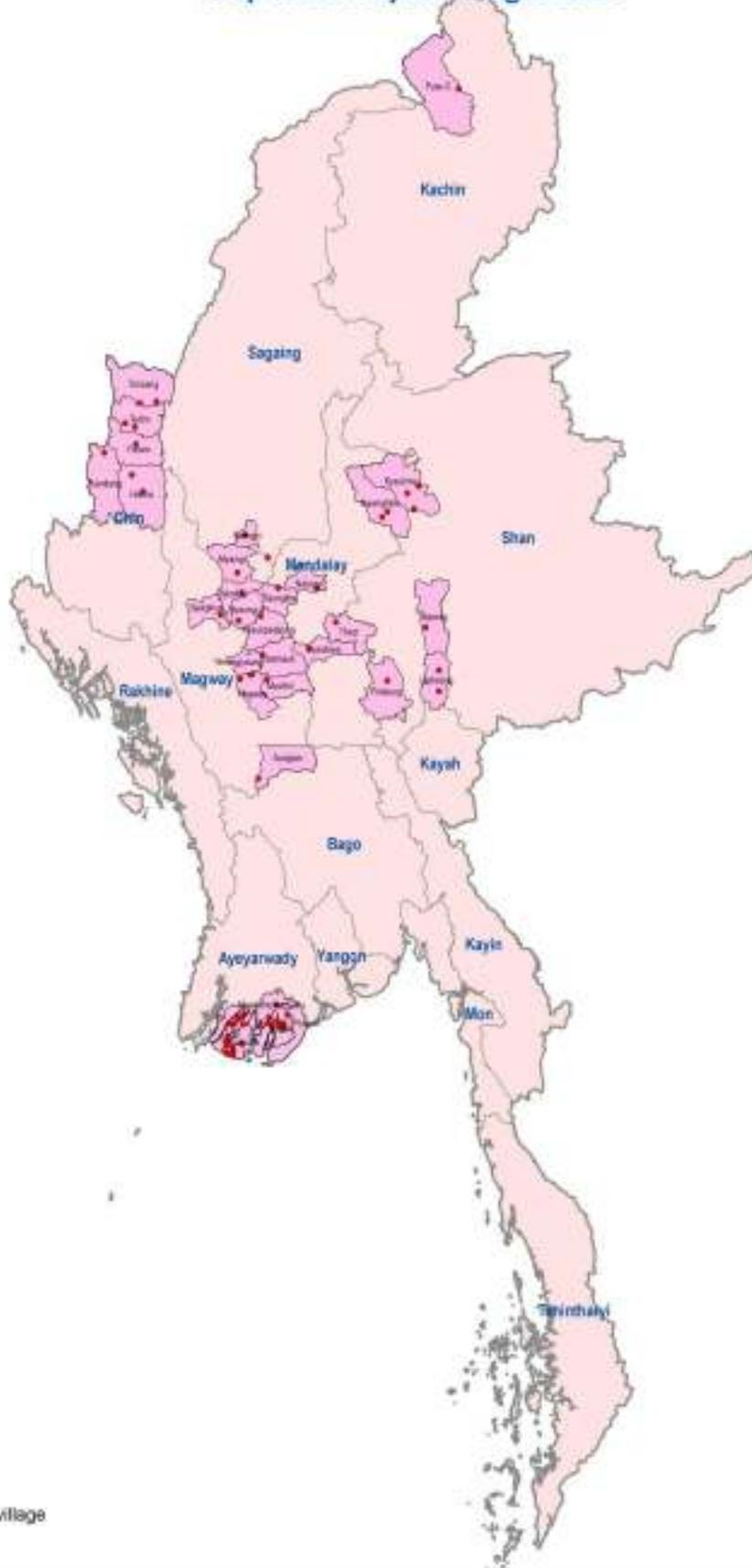
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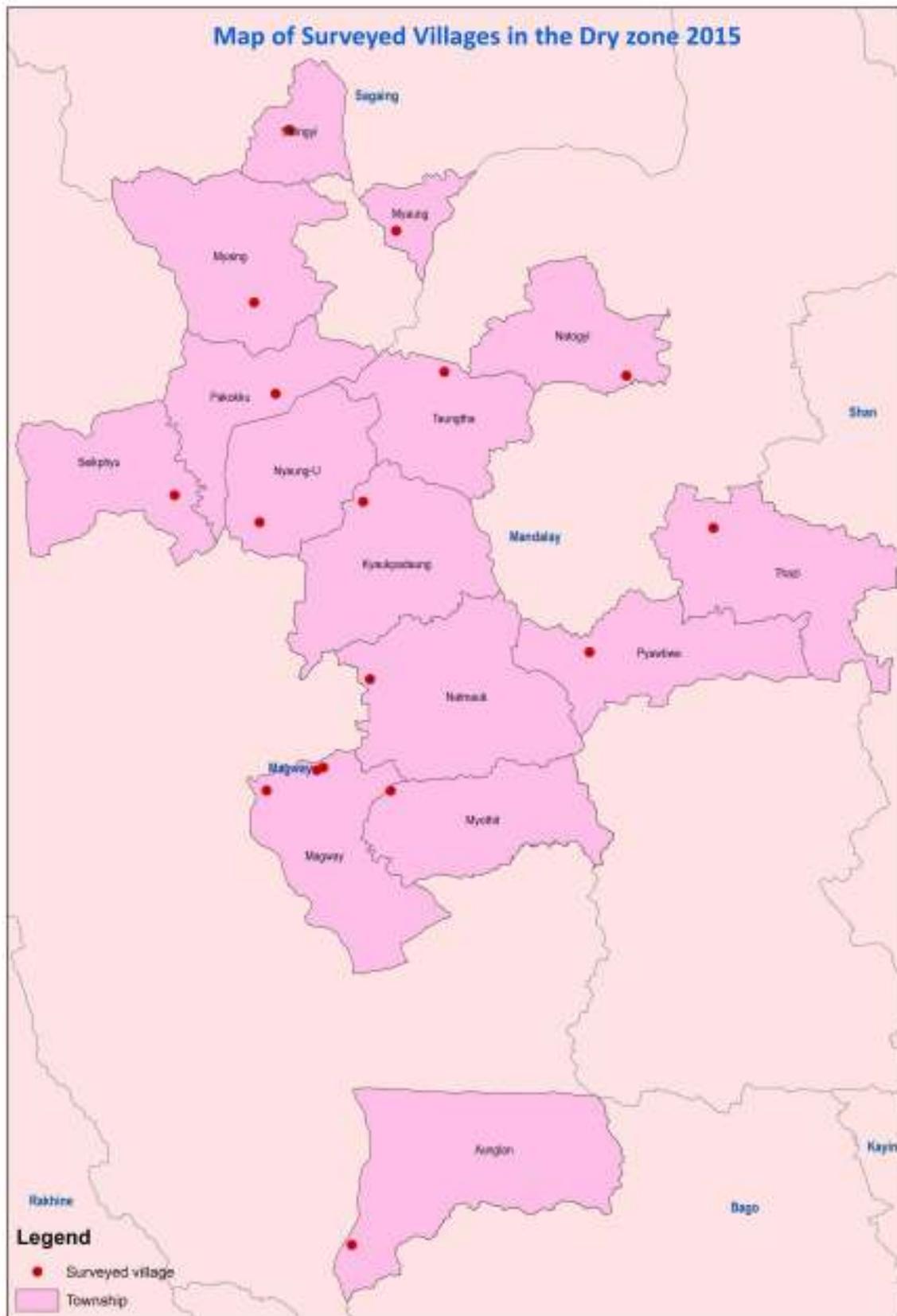
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Map of Surveyed Villages 2015







Map of Surveyed Villages in the Uplands 2015

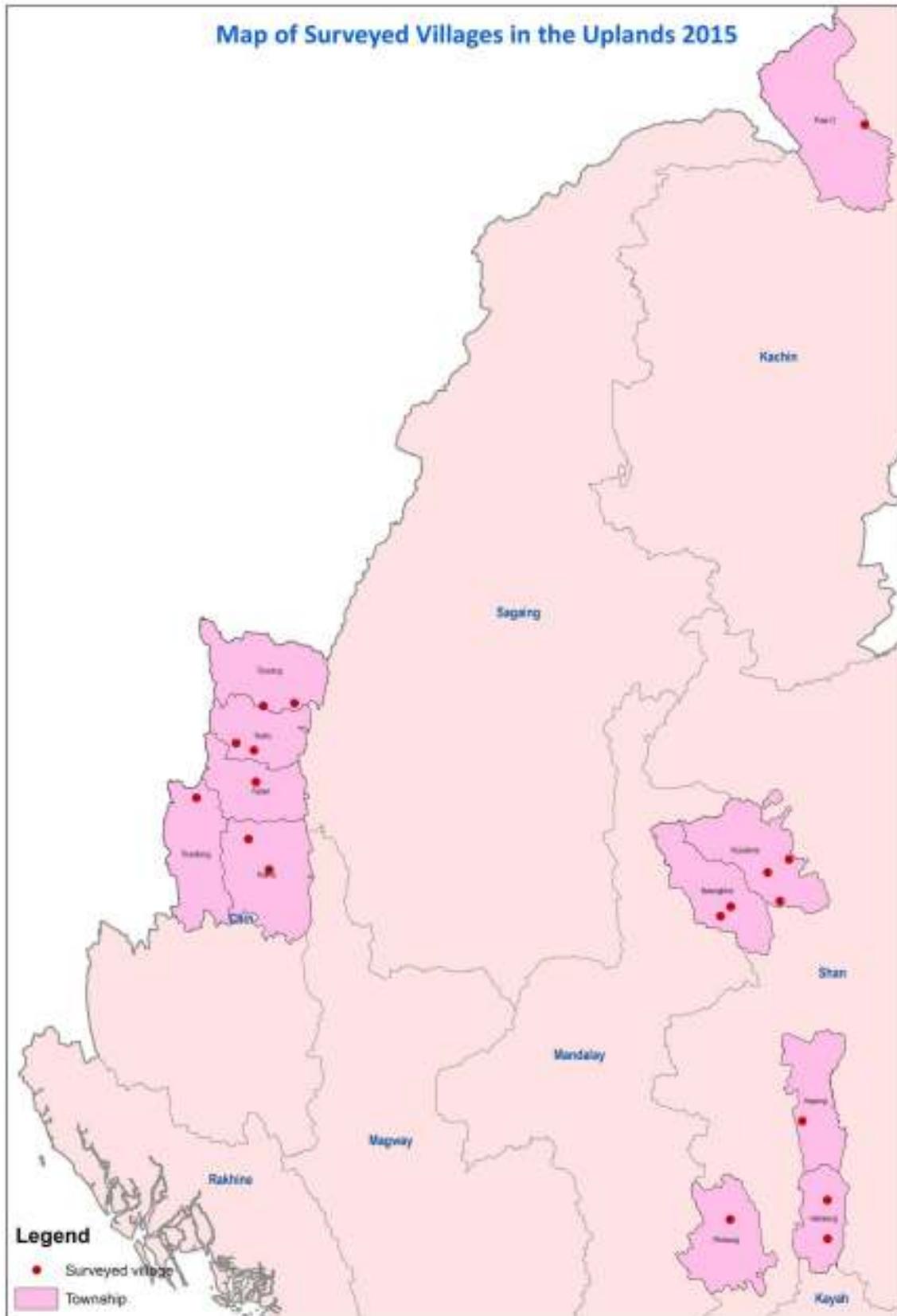


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Abbreviations and acronyms

CBO	Community-based organisation
CSPro	Census and Survey Processing System
DID	Difference-in-differences
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus group discussion
HDDS	Household Dietary Diversity Score
ICP	International Comparison Program
IP	Implementing partner
LCU	Local currency units
LIFT	Livelihoods and Food Security Trust
MAHFP	Months of adequate household food provisioning
MCHN	Mother and Child Health and Nutrition project
MFI	Microfinance institutions
MSR	Myanmar Survey Research
MUAC	Mid-upper arm circumference
NGO	Non-governmental organisation
PG	Poverty gap
PGI	Poverty gap index
PPP	Purchasing power parity
SD	Standard deviation
UNOPS	United Nations Office for Project Services
WHO	World Health Organization

Executive summary

The multi-donor Livelihoods and Food Security Trust (LIFT) Fund, designed to increase food security and improve the livelihoods of poor families in Myanmar, undertook programmes from 2010 to 2015 across rural Myanmar. By 2011 the programmes covered three of the country's main agro-ecological zones — the Delta, Dry, and Uplands Zones — and in 2012 they expanded to Rakhine State in the Coastal Zone.

To evaluate the effectiveness of these programme, LIFT conducted a baseline household survey in late 2011 covering 252 villages across these zones. Subsequent surveys covered 200 villages in 2013 and 300 villages in 2015, including the expanded LIFT programme area. This report focuses on the results of trend analyses for 60 villages in the Delta, Dry and Uplands zones where LIFT was active and that were surveyed in all three data collection rounds.

LIFT contracted ICF, which worked with Myanmar Survey Research, to carry out the 2013 and 2015 surveys.

Food security

The increase in food availability is one of the most significant changes that took place since the start of the study. In 2011, more than three-quarters of households in LIFT villages indicated that over the previous year they did not have enough food in at least one month. This decreased to 9 per cent in 2013, and then to less than 5 per cent in 2015 ($p < .001$). These improvements and changes in food availability were most noticeable amongst the poorest households.¹

These changes were accompanied by improvements in the diversity of foods that were consumed in households in LIFT villages. In particular the percentage of households consuming foods made from flour (noodles, bread, biscuits, etc.), meat (beef, pork, chicken, liver, heart, etc.) and eggs, and the drinking of coffee or tea all increased by 10 percentage points between 2011 and 2015.

Stunting, underweight, and wasting of children

The health of children in households in LIFT villages improved significantly between 2013 and 2015. In 2013, more than one in five children under age 5 in the survey population showed signs of being moderately or severely underweight. By 2015, this had decreased to 14 per cent of children ($p < 0.01$). Meanwhile the prevalence of stunting decreased from nearly 33 per cent of children in 2011 to 25 per cent in 2015 ($p < 0.01$). Furthermore in 2013 the percentage of children under age 5 who showed signs of moderate and severe wasting was 6.8 per cent among households in LIFT villages, but 5.8 per cent in 2015 ($p < 0.01$). These improvements suggest a marked increase in the well-being and nutritional status of children in LIFT villages between 2013 and 2015, and mirror the improvement in household food security over this same period.

¹ The poorest households refer to those earning less than 50,000 MMK [Kyat] per month.

Income

Average income dramatically increased in households in LIFT villages from 2011 to 2015.² In 2011, over 50 per cent of households in LIFT villages had an average monthly income of less than 50,000 MMK [Kyat], and only 12 per cent of the households had an average income greater than 100,000 MMK per month. By 2015, less than 15 per cent of households in LIFT villages were earning less than 50,000 MMK per month, and 57 per cent of the households were earning more than 100,000 MMK per month.

Furthermore, the percentage of households in LIFT villages that perceived that their income had increased compared to the previous year was greater in 2015 than in 2011. In 2011 less than 19 per cent of households in LIFT villages believed that their income had increased; in 2015 35 per cent of households in LIFT villages believed that it had. This perceived increase was experienced across all zones and income groups.

Ownership of assets

Ownership of assets and household items increased between 2011 and 2015. Households in LIFT villages increased the number of assets by an average of 1.5 and in 2015 households owned an average of five assets. The greatest change in household assets occurred in the ownership of mobile phones, increasing from 2 per cent in 2011 to more than 50 per cent by 2015 ($p < .001$). The ownership of gold and jewellery also increased by 24 percentage points ($p < .001$) over the five years of the study. The percentage of households owning TV satellite dishes, motorcycles, and DVD players all increased by more than 10 percentage points.

Mechanisation and ownership of agricultural equipment

The household survey reported that the ownership of power tillers, tractors and power threshers all increased from 2011 to 2015. Power tillers increased the most from 4 to 9 per cent ($p < 0.001$). However it is important to note that the household survey findings relate to the ownership of agricultural equipment and not to the renting or use of such equipment. Questions on the use and uptake were only included in the household survey questionnaire for 2015. As such these numbers only tell part of the story and should be understood alongside the focus group discussions (FDGs), which suggest significant changes in the availability and use of tractors and mechanical equipment in LIFT villages.

Housing

The percentage of households in LIFT villages that owned their own houses increased between 2011 and 2015 from just under 90 per cent in 2011, to 94 per cent by 2015 ($p < .001$). The greatest increase was seen among the poorest households. The household survey and FDGs also recorded a marked

² The results for these findings were not controlled for inflation.

shift towards more robust materials for the roofs and flooring of houses between 2011 and 2015 suggesting improvements in living conditions.

Financial services

Between 2011 and 2015, credit-seeking behaviour among the interviewed households changed. In 2011, the two most important sources of credit for households in LIFT villages were family or friends and moneylenders, in that order; however, by 2015, micro-credit institutions had become the most important source of credit for households in LIFT villages.

Two changes in how households in LIFT villages were using loans reflect important developmental changes taking place in Myanmar. The percentage of households in LIFT villages using credit to purchase food dropped from 44 per cent in 2011 to 22 per cent by 2015 ($p < .001$). The percentage of households in LIFT villages using the loans to purchase agricultural inputs increased from 18 per cent in 2011 to 31 per cent in 2015 ($p < .001$). This indicates that households in LIFT villages are increasingly taking out loans to expand their agricultural production and improve food security.

Household debt

Levels of household debt increased markedly from 2011 to 2015 in households in LIFT villages.³ Eighteen per cent of LIFT households had a debt greater than 500,000 MMK in 2011; however, by 2015, over 38 per cent of households in LIFT villages had such debt ($p < 0.001$).

Although debt levels increased substantially from 2011 to 2015, participants' responses on their current levels of indebtedness compared with previous years suggest that they are better able to service this debt. The percentage of households in LIFT villages that indicated their level of indebtedness was increasing over this period fell by half, from 60 per cent to 30 per cent ($p < .001$). This decrease was experienced across all income groups.

Detecting programme effect through logistic regression

The analysis of the 2015 household survey piloted some basic logistic regression methods to better detect programme effect based on respondents' exposure to specific LIFT activities and particular outcomes. Specifically, binomial logistic regression tests were used to determine differences between households in LIFT villages that received either agricultural or livestock training and households that did not receive training, and their perceptions of increases in income, assets, crop yields, and food availability. The preliminary results indicate that households that received agricultural and livestock training experienced higher outcomes than households that did not receive training. Here are some examples:

- Households in LIFT villages that received agricultural training were 4.2 times more likely to indicate that their crop yields had increased, compared with households that did not receive

³ These particular findings were not controlled for inflation.

training ($p < .001$). Households that received livestock practices training were 2.4 times more likely to indicate a crop yield increase than households that did not receive training ($p < .01$).

- Households in LIFT villages that received agricultural and livestock training were 2.1 and 2.5 times more likely, respectively, to indicate that their income had increased, compared with households that did not receive training ($p < .001$).
- Households in LIFT villages that received agricultural and livestock training were 2.1 and 2.5 times more likely, respectively, to indicate that their total assets and wealth had increased over the past two years, compared with households in LIFT villages that did not receive training ($p < .001$).
- Households in LIFT villages that received agricultural and livestock practices training were 2.2 times ($p < .001$) and 2.3 times ($p < .01$) more likely, respectively, to indicate that their food availability had increased, compared with households that did not receive training ($p < .001$).

The differences between households in LIFT villages that did and did not receive training were statistically significant.

Although these preliminary results demonstrate positive programme effect, there needs to be more sophisticated analyses and the controlling for several key factors. Such in-depth analyses are planned to take during 2017 and 2018.

Conclusion

The LIFT household surveys highlight the tremendous scale and pace of change that took place in LIFT villages. Nearly all indicators showed dramatic increases from 2011 to 2013 and increases, albeit smaller than in the previous years, from 2013 to 2015. By 2015 households in LIFT villages enjoyed far greater food security, owned more assets, had greater access to credit and had reduced rates of malnutrition and stunting. Whilst the findings presented in this report need to be understood within the context of the changes taking place across Myanmar over this period, these household surveys and this report provide a framework and context from which programme effect can begin to be understood.

1. Introduction

The multi-donor Livelihoods and Food Security Trust (LIFT) Fund, designed to increase food security and improve the livelihoods of poor families in Myanmar, undertook programmes from 2010 to 2015 across rural Myanmar. By 2011 the programmes covered three of the country's main agro-ecological zones — the Delta, Dry, and Uplands Zones — and in 2012 they expanded to Rakhine State in the Coastal Zone.

To evaluate the effectiveness of the programmes, LIFT conducted a baseline household survey in late 2011. Subsequent surveys were conducted in 2013 and 2015. This report focuses on the results of trend analyses for 60 villages where LIFT was active and that were surveyed in all three data collection rounds.

LIFT contracted ICF, an internationally recognised global consulting firm, which partnered with the local firm, Myanmar Survey Research (MSR), to carry out the 2013 and 2015 surveys.

The 2011 survey established baseline information on household indicators. The second survey, conducted in 2013, covered 200 villages, of which 150 were LIFT villages and 50 were control villages. The third survey, called the 2015 survey, was conducted in late 2015 and early 2016 in 300 villages, of which 233 were LIFT villages and 67 were control villages.

It is important to note that the 2015 survey highlighted high rates of NGO and LIFT activity in the control villages. Nearly 60 per cent of the control villages had active non-governmental organisations (NGOs) working in their communities in both 2013 and 2015; and by 2015 LIFT supported microfinance institutions operated in nearly 70 per cent of the control villages. Important differences were also identified in the demographics between LIFT and control villages since 2011. These factors undermine the value of comparing LIFT and control villages in order to understand the changes taking place. This report therefore does not include the results from the control villages. This report focuses only on the results from the 60 LIFT villages that were included in all three surveys and looks at changes over time and between region, sex of head of household, land ownership and income level. See section 2.8 for more information.

Readers should also note the following:

- Nearly half of the villages where implementing partners had intended to work, selected as LIFT baseline villages in 2011, were not selected for programme work by the implementing partners; therefore, they could no longer be considered intervention villages. Furthermore the security situation made it impossible for 2015 survey data collectors to visit a small number of villages. The number of LIFT villages that overlap all three data collection rounds was thus reduced to 60.
- Some findings were not controlled for inflation.

The three surveys provide a partial basis to evaluate the effectiveness and outcomes of LIFT programme support to households, particularly for livelihoods and food security, and to highlight some of the successes of the programme to date.

1.1 Background

At the time of the 2015 household survey, LIFT donors included the governments of Australia, Denmark, the European Union, France, Ireland, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom, and the United States of America, and from the private sector, the Mitsubishi Corporation. The donors contracted with the United Nations Office for Project Services (UNOPS) as the fund manager to administer the funds and provide monitoring and oversight. The LIFT project works through a trust fund modality that provides funding to a broad array of implementing partners (IPs), which include international and national non-governmental organisations (NGOs), private sector agencies, civil society organisations and United Nations (UN) organisations.

1.1.1 LIFT 2010–2015

LIFT originally was designed as a livelihoods and food security programme to support Millennium Development Goal 1, the eradication of extreme poverty and hunger in Myanmar, by achieving the following outputs:

- Output 1: Increased agricultural production and incomes supported through improved production and post-harvest technologies, and improved access to inputs and markets.
- Output 2: Targeted households supported in non-agricultural livelihood activities and provided training in livelihood skills for employment.
- Output 3: Sustainable natural resource management and environmental rehabilitation supported to protect local livelihoods.
- Output 4: Effective social protection measures established to increase the incomes, enhance the livelihood opportunities, or protect the livelihood assets of chronically poor households.
- Output 5: Capacity of civil society strengthened to support and promote food and livelihoods security for the poor.

LIFT first started with funding projects to help people in the Delta whose livelihoods were devastated by Cyclone Nargis. These 22 projects predominantly involved the distribution of boats, nets, buffalo and other livestock, seeds and fertiliser, and cash for work. By the end of 2010, LIFT had expanded into the Dry and Upland Zones and was funding projects across Myanmar on financial inclusion, agriculture advisory services, access to markets, access to water, skill development for off-farm income generation, community development, and social protection. In 2012, LIFT placed a greater emphasis on applied research in its programmes through a learning and innovation funding window. These projects began in 2013 in the four townships that were the worst hit by Cyclone Giri in Rakhine State and focused on agriculture, fisheries, village savings and loan associations, governance, and nutrition.

1.1.2 LIFT 2015–2018

In light of Myanmar’s political, social, and economic transformation, and with substantial new funding, LIFT developed a new strategy with new programmes in late 2014. This new strategy supports the transformation of Myanmar’s rural economy by promoting inclusive growth and providing new knowledge, technologies, and access to finance and markets with more opportunities for agribusiness with the private sector. The new programmes reach across four agro-ecological zones—the Delta, Dry, and Uplands Zones and Rakhine State. The overall strategy focuses on helping target beneficiary groups to step up in commercial value chains, to step out of marginalised farming and into more profitable non-farm support jobs, and to hang in using agriculture as a safety net to reduce stunting and gain better nutrition and skills that will enable these groups to later step up or step out.

With its new strategy, LIFT seeks to strengthen the resilience and sustainable livelihoods of the rural poor population in Myanmar by achieving the following outcomes:

1. Increased incomes of rural households
2. Decreased vulnerability of poor rural households and communities to shocks, stresses, and adverse trends
3. Improved nutrition for women and children
4. Improved policies and effective public expenditure for pro-poor rural development

These refined programme outcomes are similar to the previous LIFT output objectives, with the addition of improved nutrition, sanitation, and hygiene practices and the generation of policy-relevant evidence to raise people out of poverty. The new LIFT strategy places greater emphasis on learning and accountability through its Monitoring and Evaluation for Accountability and Learning (MEAL) framework, which supports the generation of evidence and knowledge to inform decision making and policies. The LIFT household studies contribute to this learning.

The 2015 LIFT household study collected endline data on the 2010–2015 LIFT programmes and established baseline data for the 2015–2018 LIFT programmes. **This report focuses on the 2010 – 2015 LIFT programmes and presents the findings from 60 villages where LIFT was active and that were surveyed in the three rounds of data collection.** The baseline findings for the 2015-2018 LIFT programmes are not presented in this report.

1.2 Objectives of the data collection rounds

The three data collection rounds provided quantitative and qualitative information on livelihoods and food security in three of the LIFT agro-ecological zones: the Delta, the Dry Zone and the Uplands.

The 2013 and 2015 surveys collected additional information to gain an understanding of the living conditions of rural inhabitants in the programme areas, including nutritional information and anthropometry measurements for children under age 5.

The three surveys provide a partial basis to evaluate the effectiveness and outcomes of LIFT programme support to households and to highlight some of the successes of the programme from 2010 – 2015.

2. Methodology

This study aims to capture change in LIFT villages over time and across regions from 2010 - 2015. It also looks at changes between households depending on the sex of the head of household, their income group and land ownership.

2.1 Data collection methods and instruments

In the 2011 study, data collection methods included village profiles, household survey, and focus group discussions (FGDs). The second and third round of data collection used the first three methods, and also a nutrition and anthropometry survey.

An expenditure survey was also carried-out in 2013 and 2015. However the findings of the expenditure survey in 2015 were inconsistent with the findings from other surveys carried out by other institutions in Myanmar at the time. Thus, the results from the expenditure module have not been included in this report and are being investigated with further analysis.

The following paragraphs give details on these methods. Explanation on what is common over the three data rounds is provided first followed by the changes to the instruments in the 2013 and 2015 rounds.

2.1.1 The village profiles

Across all rounds the data collection process captured the characteristics of each village selected. Key informant interviews with representatives from the village authorities and leaders were conducted in Myanmar language using a set format. Interviewers were trained in collecting and recording the information. The English language version of the village profile format is provided in Annex 1.1.⁴ The following is a summary of the key topics covered in the village profiles:

- Number of households, males, and females in the village
- Average daily local wages
- Access and proximity to services
- Standard of road access to the village
- Availability of electricity
- Number of infrastructure and facilities
- Number of self-help groups and activity level
- Number of NGOs and their activities

⁴ The annex files are provided in a separate document and can be found on the LIFT website alongside this report.

- Extent of trainings offered
- Sources of credit
- Sources of water availability

The 2015 village profile added two sections:

- Village resource management
- Maternity and child cash transfers

2.1.2 Household questionnaire

The 2011 baseline household survey questionnaire was designed and developed by LIFT and the research firm, Myanmar Survey Research (MSR), with support from the Food and Agriculture Organisation of the United Nations (FAO). The questionnaire incorporates standard Food and Nutrition Technical Assistance (FANTA) food security questions used globally by international aid agencies. Other questions were designed for key expected outcomes and associated indicators in the LIFT programme. The questionnaire was developed in English, and then translated into Myanmar language. The household questionnaire was piloted in non-sampled rural communities to ensure that it was culturally appropriate and easily understood. The following paragraphs summarise the key questionnaire topics that are common in the three data collection rounds.

Demographic information

- Ethnicity
- Religion
- Dependency ratios
- Education attainment levels

Household income

This series of questions captured the changing nature of household income:

- Major sources of income for each agro-ecological zone and social group
- Changes in the main sources of household income over time
- Average household monthly income from all sources, using a simple scale
- Perception of the change in the level of household income from the previous year

Farming practices

This series of questions asked about household involvement in farming and the problems faced:

- Employment of farm labour
- Access to land for agriculture
- Constraints on crop production

Food security

This series of questions focused on food security and access to food supplies:

- Household Dietary Diversity (HDD)
- Months of Adequate Household Food Provisioning (MAHFP)
- Perceptions of changes in household food supply from the previous year

Financial services

This series of questions focused on access to financial services:

- Access to credit from low-interest microfinance groups, village savings and loan associations, and other formal and informal sources
- Use of loans for different purposes to indicate whether loans support sustainable livelihoods or are a coping strategy
- Access to credit, the source of the credit, and the use of loans by socioeconomic groups
- Current level of indebtedness
- Perceptions of the level of household indebtedness over time

Ownership of livestock, agricultural equipment, and other household assets

This series of questions collected information on household ownership of livestock, agricultural equipment, household assets, and the quality of housing:

- Type and number of livestock assets
- Number and type of agricultural equipment and machinery
- Other household assets as a proxy indicator of wealth
- Ownership of boats, nets, and aquaculture ponds
- Ownership of residence and quality of housing

LIFT, MSR, and ICF International reviewed the questionnaire before the second and third rounds of data collection. Some questions from the 2011 baseline survey were refined to avoid confusion by participants and data collectors. In the 2013 survey, two new sections were added on household involvement with LIFT partners and access to drinking water during the year. Before the start of the third data collection round, a number of questions were removed and several new questions were added for the 2015 baseline in LIFT's new programme areas and future data collection rounds.

Involvement with LIFT partners

Several questions were added in the second data collection round to capture information on household interaction with LIFT partners. These questions focused mainly on participation in a range of training.

Access to water

This section, added after the 2011 baseline survey, sought information on the lives of rural households and their access to water supply and usage:

- Main source of drinking water during the past rainy, winter, and summer seasons
- Water treatment before drinking

The third data collection round added a range of new questions on water access. The responses to these questions are analysed only for the baseline findings in LIFT's new programme areas and are not analysed in this report:

- Water source location
- Length of time required to get to the water source
- Availability of the water source year-round
- Toilet facility type and access, whether shared with other households
- Handwashing habits and access to a cleansing agent
- Toilet habits of young children and disposal of their waste

New sections of the 2015 questionnaire

The 2015 questionnaire added several new sections to the questionnaire, the results of which are not analysed in this report as this report focuses on changes across rounds. The data and findings from the new sections will be analysed in future household surveys which will look at the new programme areas and LIFT's 2015-2018 strategy. The English version of the third-round household questionnaire is provided in Annex 1.2.⁵ The new sections added the following topics:

- Migration
- New agricultural practices trials and adoption
- Marketing practices and producer groups
- Vulnerability and resilience
- Female decision making
- Village resource management

2.1.3 Nutrition and anthropometry survey

The nutrition and anthropometry survey of children under age 5 was added in the second and third data collection rounds. The questionnaire included some modules from the household survey questionnaire and two additional sections: (1) anthropometric measurements and (2) children's health and nutrition questions. Questions from these two sections were asked of the primary caregivers of all children under age 5 in a household. The English language version of the 2015

⁵ The annex files are provided in a separate document and can be found on the LIFT website alongside this report.

nutrition and anthropometry survey is provided in Annex 1.3.⁶ The anthropometric measurements included the age and sex of the child, weight, and height. The child health and nutrition questionnaire asked whether the child was being breastfed or fed any other liquids, whether the child ate a range of solid or semi-solid foods in the past 24 hours, and whether the child had diarrhoea in the past two weeks.

For anthropometry indicators, the World Health Organization (WHO) software flagged biologically implausible cases according to WHO criteria,⁷ and the analysis for stunting and wasting included only children with valid weight and height scores. The analyses used the SPSS statistical package to analyse the data.

The 2015 version of the nutrition and anthropometry survey added the following questions:

- Whether the child had other illnesses apart from diarrhoea in the past two weeks
- Mother's dietary diversity score
- Mid-upper arm circumference (MUAC) of the mother
- Mother and child health and nutrition (MCHN) knowledge

2.1.4 Expenditure survey

The second and third rounds of data collection included the household expenditure survey, which was administered to a subsample of the selected households. This survey was based on the World Bank Living Standards Measurement Study survey⁸ and was adapted to the Myanmar context. The English language version of the expenditure survey is provided in Annex 1.4.⁹ The household expenditure survey was divided into seven sections:

1. Food consumption expenditures in the past seven days for food consumed at home
2. Other food consumption expenditures in the past seven days
3. Food consumption expenditures in the past 30 days
4. Non-food consumption expenditures in the past 30 days
5. Non-food consumption expenditures in the past six months
6. Housing costs in the past six months
7. Value of household assets

As noted earlier, the findings of the expenditure survey in 2015 were inconsistent with the findings from other surveys carried out by other institutions in Myanmar at the time. Thus the results from

⁶ The annex files are provided in a separate document and can be found on the LIFT website alongside this report.

⁷ WHO Multicentre Growth Reference Study Group. WHO Child Growth Standards: Methods and development: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height, and body mass index-for-age. Geneva: World Health Organization, 2006 (312 pp.).

⁸ <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTLSMS/0,,contentMDK:21478196~menuPK:3359066~pagePK:64168445~piPK:64168309~theSitePK:3358997,00.html>

⁹ The annex files are provided in a separate document and can be found on the LIFT website alongside this report.

the expenditure module have not been included in this report and are being investigated with further analysis.

2.1.5 Focus group discussions (FGDs)

FGDs were used to collect qualitative information in the three data collection rounds. Participants were representatives of various community subgroups and were asked open-ended questions on specific themes. These are detailed below and in annex 1.5.¹⁰ For the 2011 round, three villages with LIFT projects were randomly selected from each of the Delta, the Dry Zone, Uplands Zones and the Rakhine Giri affected areas. Across the 12 villages a total of 48 focus groups took place. In the second round, 36 FGDs took place in nine LIFT villages across the Delta, Dry Zone and Uplands Zone. No FGDs took place in the Rakhine Giri-affected area in 2013 because the LIFT programme was not yet underway in Rakhine at the time of data collection. In the 2015 data round, 48 FGDs took place across the four zones in LIFT villages. This report analyses the FGDs that took place in the Delta, Dry, and Uplands Zones only.

The FGDs in the three surveys were conducted with four groups:

- Women and men agricultural producers
- Women and men involved in non-agricultural livelihoods and activities
- Representatives from the poorest and most vulnerable households, with separate groups for women and men

The FGD questions focused on the following themes:

- General overview
- Livelihoods and income
- Assets
- Food security—risks to household food security, factors in vulnerability, and changes and trends in food security
- Village development events
- Savings, credit, and revolving funds
- Community organisations

2.2 Sampling

The household study sampling framework for LIFT villages — for the household survey, the expenditure survey, the nutrition and anthropometry survey, and the FGDs — was drawn from the lists of LIFT villages provided by LIFT for the four geographic zones. For the 2015 data collection round, the sampling framework was divided into two parts: (1) all overlapping villages that were

¹⁰ The annex files are provided in a separate document and can be found on the LIFT website alongside this report.

sampled for the 2011 and 2013 surveys and (2) all villages to be included in the 2015–2018 LIFT programmes.

The 2011 and 2013 household studies used a multistage sampling approach in which 50 LIFT villages were sampled in each of the three zones—Delta, Dry, and Uplands Zones—and 17 villages were sampled for the control group in each zone. For each village selected, 16 households were then randomly selected and interviewed. Whilst control villages were selected and households interviewed these findings have not been used in this report. See section 2.8 for more information.

The same sampling approach was followed for the 2015 household survey, but with some modifications to adequately cover expanded LIFT areas and to cover sampling of existing LIFT villages from the 2011 and 2013 surveys. The total sample size for the household survey was 4,800 households, selected from 300 villages.

- All villages that were selected in 2011 and 2013 were sampled to determine trends in these villages from 2011 to 2015.
- A total of 50 villages were selected from all villages in the full 2015 LIFT project areas to produce point estimates for indicators for 2015 and to allow for trend analysis going forward in these villages. In each of these selected villages, 16 households were selected randomly for the household survey.
- For the nutrition survey, an additional 32 households in each village were screened for children under age 5. Based on the number of children found in the 2013 nutrition survey, it was expected that about one-third of the 48 households (16 households from the household survey + 32 additional households) would include a child under age 5, which would yield an overall sample size of about 4,800 children.
- For the expenditure survey, five of the 16 households selected for the household survey were sampled, which yielded an overall sample size of 1,500 households. However the results from this survey are not included in this report.

The sample size is designed for comparisons among the four zones. The sample allows for statistically robust data, with inference with 95 per cent confidence interval and ± 2.5 percentage points for LIFT overall and ± 5.0 percentage points for each regional zone. The sample size is based on the formula shown in Figure 1. This calculation gives a sample size of 385 households, which is doubled to allow for a design effect due to clustering in the sampling design and rounded up to 800 households per zone.

Figure 1: Sample size calculation

$$\text{Sample Size} = \frac{z^2 * p * (1 - p)}{e^2}$$

where:

z = 1.96, the critical z-score for the 95 per cent confidence interval of the normal distribution

p = estimated prevalence for a given indicator; by default, this is 0.5, the value yielding the largest possible margin of error

e = margin of error; by default, this is 0.05 (5 per cent)

The design for the household survey sample size, by region and LIFT and control villages, is shown in Table 1.

Table 1: The design for the household study sample size by zone for the 2015 surveys

Zone	Number of LIFT villages	Number of control villages	Number of HHs in LIFT villages	Number of control HHs	Total number of HHs
Delta	50 (including 29 overlap)	17 (including 12 overlap)	800	272	1,072
Dry	50 + 17 overlap	17 (including 11 overlap)	1,072	272	1,344
Uplands	50 + 18 overlap	16 (including 12 overlap)	1,088	256	1,344
Rakhine State	50	17	800	272	1,072
TOTAL	235	67	3,760	1,072	4,832

2.3 Sample used for the 2015 surveys relevant to this report

The security situation made it impossible for 2015 survey data collectors to visit a small number of villages; and not all villages where implementing partners had intended to work and that were selected as baseline villages in 2011 ended up having LIFT activities. Therefore the actual number of overlap villages surveyed in all there data collection rounds was 60. This report is based on the results from the LIFT villages that were surveyed in all three rounds of data collection. See table 2 for the breakdown.

Table 2: Number of villages surveyed across the three rounds and number of participant households in LIFT villages in the 2015 HH survey

Zone	Number of LIFT villages surveyed in all three data collection rounds	Number of participant households in LIFT villages in the 2015 HH survey ¹¹
Delta	28	448 (16 x 28)
Dry	17	272 (16 x 17)
Uplands	15	240 (16 x 15)
TOTAL	60	960

2.4 Training and piloting

For the 2015 survey, ICF oversaw and MSR conducted the training of the data collectors, with extensive input from LIFT staff. For the general household and expenditure questionnaires, the training comprised seven days of questionnaire review and practice for the interviewers and a separate one-day session for the supervisors. For the nutrition and anthropometry questionnaire, anthropometrists and anthropometric assistants underwent 10 days of training, including standardisation tests, led by an internationally renowned anthropometry trainer from Latin America.

Data collectors were divided into two groups, one for the household and expenditure survey trainings and a second group for the nutrition and anthropometry training. The household and expenditure interviewer training used manuals developed for interviewers. Training began with a detailed explanation of the survey objectives, sampling design, and method of selection of households and participants. Trainers emphasised proper interviewer deportment and participant confidentiality. The training provided a detailed explanation of the questionnaire, question by question, including routing and filtering, and a comprehensive discussion of directive and nondirective probing. Classroom discussion was followed by practice interviews among interviewers and a discussion of problems or participant queries.

The lead anthropometry trainer from ICF led the nutrition training, providing instructions on taking accurate measurements, types of measurement errors, and reading and recording systems. Trainees were also taught about anthropometry indices (i.e. stunting, wasting, and underweight) and presented with an explanation of the international growth reference, cut-off points, and classification systems. The practical sessions were held at childcare facilities in Yangon. Standardisation tests were carried out as part of the anthropometry training and repeated tests were undertaken for those who did not pass on their first attempt. In addition, an anthropometry trainer from Save the Children conducted a one-day training in MUAC. The nutrition and anthropometry training focused on the following areas:

- Basic concepts and a practical theory of anthropometry

¹¹ This includes only households that took part in the household survey and not the additional 32 households that took part in the nutrition survey.

- Rationale for weighing and measuring children
- Importance of taking accurate measurements
- Range of acceptable measurements for different ages of children
- Types of anthropometry measurement errors
- Reading and recording measurements and systems of quality control
- Use of the WHO International Growth Reference to evaluate acceptable measurements
- Use of an anthropometry supervisor checklist
- Training of assistants to the anthropometrists
- Understanding weighing and measuring instruments and troubleshooting
- Undertaking of a standardisation test
- Problem solving

The participants gained first-hand experience measuring the weight and height of children under age 5. The seca weighing scales and Height-Length ShorrBoards® were tested for consistency, and they proved to be in good condition with no errors during training.

All interviewers and supervisors participated in the piloting of the questionnaires to give interviewers practice and to identify potential problems, such as whether the questions were easily understood, whether the sequence of questions presented to participants was logical, whether questionnaires were clear in coding and interviewer instructions, and whether any questions were particularly difficult or sensitive.

After the training session, a pilot test was conducted in non-sampled villages in the Delta Zone. Feedback from interviewers was incorporated in the questionnaire.

A separate three-day training was provided to nine experienced qualitative data collectors to learn how to lead and record the FGDs. Although the two FGD teams comprised three members each, training was given to three extra persons in case any FGD team members needed to be replaced. The training reviewed the FGD guideline and included role-plays in which the participants played the moderator, assistant, and note taker, or a participant in the hypothetical FGD. Participants visited a village and undertook a series of FGDs with various groups of villagers. The final day of training was a review of the fieldwork to determine whether further changes were needed to the FGD guidelines.

2.5 Fieldwork resources and logistics

The household interview fieldwork for round one—the baseline survey—started in late September 2011 and was completed by the beginning of November, taking 42 days to complete. The second survey started in October 2013 and was completed by November, taking 30 days to complete. Both surveys were undertaken just after completion of the main monsoon harvest in most survey areas. The third survey started late December 2015 and was completed in February 2016, but it still occurred in the post-monsoon agricultural season.

In the 2011 baseline survey, the 14 household survey teams comprised 51 interviewers (22 males and 29 females). In the 2013 midterm survey, the 12 household survey teams comprised 96 members (44 males and 52 females), including supervisors and assistant supervisors who were assigned to conduct fieldwork for the household, expenditure, and nutrition and anthropometry surveys. In the third round, nine household survey teams comprised 81 interviewers (41 males and 40 females), including supervisors. In each round, all interviewers were carefully trained in administering the questionnaire and took part in the pilot test and associated debriefs.

To ensure accuracy and enhance quality, five members of the MSR management team went on field visits for quality control checks during the final survey. Team members visited 13 townships to observe the interviews and help solve any problems the interviewers encountered. An ICF staff member and two staff members from UNOPS visited a range of townships to observe the process and suggest improvements to the data collection process.

2.6 Data entry

For all three data rounds, supervisors checked all questionnaires in the field before leaving each village to ensure that they were completed and correct. Questionnaire data were double-entered in Yangon, using the Census and Survey Processing System (CSPro) data entry software application developed for the survey—a joint software product of the U.S. Census Bureau, ICF, and Serpro S.A. The double-data entry ensured identification and correction of data entry errors and the CSPro data entry application included built-in edit checks to identify and correct data inconsistencies. The final data were converted into SPSS for analyses.

2.7 Data analyses

The household questionnaire and expenditure survey data for the village profiles were analysed with the statistical package, SPSS. The WHO software, Anthro,¹² was used to analyse data from the nutrition and anthropometry survey. The software package, Dedoose, was used to analyse the qualitative data from the FGDs. Notes from the FGDs were transcribed in Myanmar language, and then translated into English. The English version was entered in Dedoose, and then organised into the household questionnaire key themes. Both direct quotations and summaries from the FGD transcripts were used to enhance the quantitative findings. The agro-ecological zone is given when information from an FGD is cited in this report.

The findings from 2015 were then analysed in comparison to the findings of the 2011 and 2013 household surveys for this report.

Furthermore throughout the report, binomial logistic regression tests were also done to determine whether there were differences between households that received either agriculture or livestock training in 2015 and those households that did not receive the training for selected outcomes.

¹² <http://www.who.int/childgrowth/software/en/>

2.8 Control villages

A number of issues were identified that questioned the appropriateness of using the control group in this report for understanding the changes taking place within LIFT villages. As a result the findings from the control villages have not been used in this report. The issues related to the control group are explained below.

2.8.1 The selection of control villages

Ideally, control villages should be similar to treatment villages—LIFT villages—in all major characteristics other than the intervention. However, in 2011, when the control villages were selected for the baseline, the only available information about the composition, and even the location of villages, was limited to anecdotal information provided by the LIFT implementing partners. At that time in Myanmar, no population data or locations for villages in most townships were available. Global positioning system codes existed for villages in the Delta Zone, but not for the Dry or Uplands Zones. This lack of information means that there was no sampling framework for the selection of the control villages. At the time, it was not possible to determine whether selected villages were urban or rural, or whether they had 1,500 or 15 households. The only feasible alternative was to use local knowledge from implementing partners to select control villages thought to be comparable in poverty, socioeconomic characteristics, and remoteness with the villages selected by IPs. As a result, the control villages selected were not always sufficiently comparable to LIFT villages.

For example the largest ethnic group in Myanmar, the Bamar, accounted for approximately 72 per cent of households in LIFT villages in 2013 and 2015 (no question about ethnicity was asked in 2011), compared with control households that had approximately 65 per cent from this ethnic group ($p < .01$) in both 2013 and 2015. The second largest ethnic group among control households, the Pa-O, accounted for almost 14 per cent of households, but less than 5 per cent ($p < .001$) of households in LIFT villages in 2013 and 2015. Furthermore a greater percentage of control households were Buddhist (approximately 93 per cent) in 2013 and 2015, compared with households in LIFT villages (approximately 83 per cent) in the same period ($p < .001$). These differences make analysing changes in LIFT villages in relation to those happening in control villages problematic.

Moreover there were marked differences between households in LIFT and control villages in 2011 relating to people's livelihoods and asset ownership. For example 18 per cent of households in LIFT villages sold beans, pulses or peanuts in 2011 compared to 27 per cent of control households; and approximately 11 per cent of respondents in LIFT villages owned a bicycle in 2011 compared to 23 per cent in control villages and 15 per cent of households in LIFT villages owned a motorcycle compared to 23 per cent in control villages in 2011. Furthermore 20 per cent of LIFT villages owned cattle in 2011 which was 10 percentage points lower than households in control villages.

These contrasts highlight key differences between LIFT and control households from the baseline year, making it difficult to use the control to understand the changes happening in households in LIFT villages over time.

2.8.2 Contamination within the control villages

A second problem associated with using the control villages to understand changes in LIFT villages is the high rate of both LIFT and non-LIFT supported NGO activities that took place in those villages. The 2011 control villages were selected from where no LIFT programmes were planned. However, by 2013 many of the control villages had received a range of NGO (distinct from LIFT) interventions. In 2013 and in 2015, approximately 60 per cent of the control villages indicated that they had an active NGO working in their community in the year before the survey. In addition, through the expansion of LIFT's financial inclusion programme, LIFT-supported microfinance institutions operated in nearly 70 per cent of the control villages in 2015.

2.8.3 Implications of the limitations associated with the control group

These limitations undermine the validity of the "control group" as a control group. It would therefore be misleading to use them to analyse LIFT programme effect or to understand the changes that have taken place in households in LIFT villages. After careful consideration it was therefore decided that the findings from the control group would not be included in this household survey report and would be eliminated from future data collection rounds.

2.9 Limitations of the research

This research study has a number of limitations. These are described below.

2.9.1 Sample selection and size

Nearly half of the villages where implementing partners had intended to work, selected as LIFT baseline villages in 2011, were not selected for programme work by the implementing partners; therefore, they could no longer be considered intervention villages. Furthermore the security situation made it impossible for 2015 survey data collectors to visit a small number of villages. The number of LIFT villages that overlap all three data collection rounds was thus reduced to 60. Twenty-eight were in the Delta Zone, 17 were in the Dry Zone, and 15 were in the Uplands Zone. This is a smaller sample size than planned across and within each agro-ecological region making it a less representative sample than originally planned.

2.9.2 Timing of the surveys

The first two data rounds were completed just as the main monsoon harvest was finishing in most areas. The 2015 data collection round began later but was still in the post-monsoon agricultural cycle. This timing difference could have affected the results, particularly for crop production, which made comparisons between seasons difficult. It is possible that other responses from the first, second, and third data collection rounds also have been affected.

2.9.3 Participant recall, perceptions, and bias

It is important to acknowledge that the data collected are influenced by participant knowledge of their own household livelihoods, food security, and expenditure patterns, and on the accuracy of their recall and various biases. Interviewer skills and approach are also important, particularly the extent of probing in questions that require multiple responses, such as sources of household income. These limitations are applicable to all of the survey tools used in this study.

2.9.4 Implications of the study limitations

With these limitations, particularly that the sample is not as representative as originally planned and that there is no counterfactual to compare with, caution is needed in inferring the causes of the changes that have taken place in households in LIFT villages over the five years of the study. Some of the changes reported are clearly the result of broader socioeconomic and political changes in the country; other changes are likely a result of LIFT-supported activities.

3. Village findings

The findings reported in this section are based on the 2013 and 2015 village profiles that were derived from key informant interviews with village leaders in the 60 overlap villages for these two data collection rounds. Information is also included from the 2015 FGD participants who talked about changes in their villages. This provides context for the changes that have taken place in rural Myanmar.

Please note the following when analysing the tables and results within this report:

Statistically significant and the P Value: Statistically significant relates to the likelihood that the observed relationship between two or more variables exists. The p value is the probability value, the lower the p value the more confidence there is that the relationship exists. The smaller the sample size the more difficult it is to yield statistically significant results.

Percentages and the N value: Most results are in percentages and relate to the percentage of respondents that responded yes or no to a particular question. The N value in the table is the total number of respondents for a given question. This will vary depending on if the table details all results by region or other variable. It will also vary as some questions were only asked if the respondent had provided a positive or a negative response to a previous question thus changing the total number of people that were asked a given question.

3.1 Socioeconomic background of the selected villages

The number of households in LIFT villages and the number of males and females per village between the 2013 and 2015 rounds increased slightly; however, this increase was not statistically significant.

The daily wage for males and females in LIFT villages increased between the 2013 and 2015 surveys. The average daily wage for males in LIFT villages increased from 2,361 MMK in 2013 to 3,934 MMK in 2015. The increase in the daily wage for females was not as great but it increased from less than 2,000 MMK in 2013 to more than 3,000 MMK in 2015. These increases were statistically significant ($p < .001$) (Table 3)

Placing this change in context, it should be noted that the MMK has depreciated in value in relation to the U.S. dollar. In 2011 the exchange rate was MMK 794.38 per \$1, in 2013 it was MMK 940.70 and in 2015 it was MMK 1,162.27.¹³ In this section of the report, the MMK figures have not been adjusted for inflation.

¹³ <https://treasury.un.org/operationalrates/OperationalRates.php>

Table 3: Socioeconomic background of LIFT villages

	LIFT	
	2013	2015
Mean number of households per village	202	212
Mean number of males per village	455	468
Mean number of females per village	493	499
Average daily wage (MMK) for males	2,361***	3,934***
Average daily wage (MMK) for females	1,961***	3,033***
N (villages)	60	60

* p<0.05, ** p<0.01, *** p<0.001

3.2 Civil society groups, NGOs, and government activities

Between 2013 and 2015 the number of LIFT villages with community-based organisations (CBOs) increased from just over half of the villages to 90 per cent. These findings were statistically significant (p<.001).

In 2013, 100 per cent of LIFT villages indicated that active NGOs (distinct from CBOs) had been working in their community over the previous 24 months. By 2015, the number of active NGOs had decreased to 92 per cent (p<.05). The reduction could be a result of NGOs leaving communities when the initial 2011 LIFT programmes ended.

The percentage of LIFT villages that had received training in the past 12 months declined from 56 per cent in 2013 to 51 per cent in 2015. This decrease was not statistically significant.

Table 4: LIFT villages with active civil society groups and activities

Groups and activities	2013	2015
Functioning community-based organisations (%)	50.8***	90.2***
Active NGOs in the past 24 months (%)	100*	91.8*
Training provided by any government or NGO in the past 12 months (%)	55.7	50.8
N (villages)	60	60

* p<0.05, ** p<0.01, *** p<0.001

3.3 Availability of credit in the village

Between 2013 and 2015, the availability of credit through farmers' associations and cooperatives increased from 8 per cent in 2013 to 57 per cent in 2015 ($p<.001$). Use of credit from government sources also increased from 56 per cent in 2013 to 74 per cent in 2015 and credit from village savings and loans associations almost doubled from 7 to 12 per cent between 2013 and 2015.

Perhaps reflecting these increases there were noticeable decreases in the accessing of credit from other previously dominant sources. The use of credit from family members and friends decreased from 43 per cent in 2013 to 7 per cent in 2015 ($p<.001$); the use of credit from moneylenders decreased from 59 per cent in 2013 to 25 per cent in 2015 ($p<.001$); and the use of product pre-sales as a form of credit followed a similar pattern decreasing from 20 per cent in 2013 to zero in 2015 ($p<.001$) (table 5).

Additional details on the changing patterns of access to credit at the household level are described in section 4.5.1.

Table 5: Credit sources in LIFT villages

Source of credit	LIFT 2013 (%)	LIFT 2015 (%)
Private bank	0.0	0.0
Micro-credit provider (low interest, 2.5% per month or less)	73.8	75.4
Village savings and loan association	6.6	11.5
Family, friend	42.6***	6.6***
Moneylender	59.0***	24.6***
Shopkeeper	3.3	4.9
Private company	0.0	1.6
Farmers' association or cooperative	8.2***	57.4***
Pre-sale of product to trader	19.7***	0.0***
Government	55.7*	73.8*
N (villages)	60	60

* p< 0.05, ** p<0.01, *** p<0.001

3.4 Overview of community-level changes since 2013

FGDs were carried out in LIFT villages and participants were asked about community-level changes since 2013. The following paragraphs describe their views and perceptions, divided into the three agro-ecological zones.

3.4.1 Uplands Zone

Overall, FGD participants in the Uplands Zone gave mixed responses as to whether households in their villages were better off or worse off in 2015 than they were two years previously in 2013. Participants mentioned overall improvements in their standards of living, which they attributed to the following factors:

- Government support for village development, such as road infrastructure improvements and access to electricity¹⁴
- Improved communication because mobile network coverage had increased and mobile phone prices had decreased, which had increased mobile phone use
- Higher market prices for agricultural crops
- Access to credit through large scale international programmes and from local NGOs

¹⁴ In conflict-affected areas, such as Kachin and Shan States, some participants assumed that infrastructure upgrades were made primarily to benefit army outposts or displaced persons' camps nearby.

Participants also observed improved infrastructure, increases in the transportation of commodities in and out of villages and easier access to the land that farmers cultivated.

FGD participants agreed that households with higher socioeconomic standing had benefited more from these improvements than poorer households had and, in turn, had seen greater increases to income and assets in over the previous years.

Despite the mention of community developments in Uplands Zone villages, participants also mentioned that shocks had hampered livelihoods, such as a landslide in Lai Zoe village in Chin State that resulted in income loss from disruptions to water supply systems, flooded plantations, damaged roads, and loss of livestock. Damage from this landslide had forced some villagers to relocate, causing these households to be worse off in 2015 than they were two years previously. Meanwhile participants in Kachin State attributed the lack of improvements between 2013 and 2015 to regional conflict and insecurity, noting that curfews and restrictions on movement were in place at the time of the FGDs.

Participants from several Uplands Zone villages also noted that job scarcity had intensified in their communities, which had triggered increased migration to other zones in Myanmar, to urban areas, and abroad to India and Malaysia. The number of individuals seeking casual work in the Uplands also increased.

3.4.2 Dry Zone

Most FGD participants in the Dry Zone said that their standards of living had more or less remained the same between 2013 and 2015. However, similar to those in the Uplands, the FGD participants in the Dry Zone that did report to be better off in 2015, compared with 2013, were also individuals who were already better off than their peers in 2013, or were individuals with household members who worked elsewhere. Participants from poorer households said that they are about the same or worse off in 2015 than they had been two years before because they struggled to cope with the rising prices of commodities and inflation.

Participants from households that experienced improvements reported that the following factors contributed to the improvement:

- Labour migration, both males and females, to other zones of Myanmar or abroad, such as to Thailand, Malaysia, Singapore, and Korea
- Improved road access to border areas for migration and trade
- Access to programmes that offered low-interest loans

When asked about community improvements between 2013 and 2015, participants described improvements in water supply with the addition of tube wells, rural electrification through solar panels, and increased ownership of mobile phones and televisions. Participants also said that the government had built health clinics, libraries, and additional schools that offered higher levels of education.

On the other hand, participants said that poor farming and weather conditions in the years prior to 2015 had contributed to a scarcity of jobs in the villages who had in turn contributed to a surge in the movement of young villagers and other casual labourers away from the villages to seek work. As a result, households with members engaged in casual labour were described to have been better off between 2013 and 2015 than households engaged in farming. Agricultural producers saw this difference as a result of loan programmes that favoured the participation of casual labourers. Many casual labourers, however, said that the loan programmes were more of a burden than a help, causing worsened conditions because of unfavourable repayment terms. Participants noted that the increases in wages in the years prior to the FGDs were generally the result of inflation—prices for goods had also increased—and therefore the wage increases did not contribute much to improvements in household well-being.

Poor farming conditions were reportedly the result of erratic weather patterns that had caused drought in some zones and heavy rain and flooding in others, making it difficult for farmers to cultivate crops effectively.

3.4.3 Delta Zone

Earnings for farmers and casual workers in the Delta Zone had improved moderately in the two years prior to the FGDs. Farmers could pay casual labourers higher wages than before, partly because rice prices had increased and the supply of casual labourers had decreased due to labour migration. Participants said that savings and lending groups in the village had also contributed to improvements in livelihoods.

In general, participants from villages in the Ayeyarwaddy area reported the following:

- Scarcity of labourers for agricultural work because of increased migration to urban areas
- Better road transportation, which had shortened the amount of time villagers spend in reaching the market
- School upgrades and ongoing development of village clinics
- Increased market prices for rice and fishery products (Participants also noted that these increased prices were likely related to inflation and extreme weather conditions that had caused a scarcity of fish and agricultural resources).

4. Household findings

This section expands on the household and nutrition survey findings. Information from the FGDs helps put the changes that have been taking place in context.

Tables in this section show overall trends over time with disaggregated results by zone, sex of household head, income level, and land ownership.¹⁵

4.1 Demographics of participants and household members

4.1.1 Ethnicity

The ethnicity of the respondents in the three zones shows marked differences that reflect the distribution of ethnic groups throughout the country (Table 6). In both 2013 and 2015 the Bamar accounted for more than 90 per cent of the participants in the Dry and Delta Zones; however, in the Uplands Zone, Bamar accounted for 5 per cent of the population. The Chin accounted for 47 per cent of the participants in the Uplands Zone, followed by the Pa-O (between 17 and 18 per cent) and the Shan (between 24 and 22 per cent). This highlights the greater ethnic diversity in LIFT villages in the Uplands compared to the Delta and Dry Zone regions.

¹⁵ Land ownership is considered broadly and includes: cases where land is formally titled and registered in one or more household member's name; land that has been purchased, transferred, or inherited but not formally titled (or if titled, not registered in the household's name); land leased from the government; and land where the household believes that it has an established right (formal or informal) to use the land, which is a right that is generally recognised by the community.

Table 6: Ethnicity of households in LIFT villages in three zones†

Ethnicity	2013 (%)				2015 (%)			
	Households	Zones			Households	Zones		
		LIFT	Uplands	Dry		Delta	LIFT	Uplands
Bamar	72.0	5.0	99.3	90.7	72.4	5.4	100.0	90.9
Kachin	1.3	4.6	0.7	0	0.9	0.4	0	1.7
Kayin	3.4	0	0	7.1	3.3	0	0	6.9
Chin	11.6	47.1	0	0	11.5	46.7	0	0
Rakhine	0.1	0	0	0.2	0.2	0	0	0.4
Shan	5.8	23.8	0	0	5.4	22.1	0	0
Indian	0.4	0	0	0.9	0	0	0	0
Mixed ethnicity	0.5	0	0	1.1	0	0	0	0
Pa-O	4.1	16.7	0	0	4.5	18.3	0	0
Palaung	0.1	0.4	0	0	0	0	0	0
Danu	0.0	0	0	0	0.1	0.4	0	0
Other	0.6	2.5	0	0	1.6	6.7	0	0
N (HHs)	976	240	272	464	976	240	272	464

†This question was not asked in the 2011 survey.

4.1.2 Religion

In 2013 and 2015 the vast majority of household members were Buddhist in the Delta Zone (between 92 and 94 per cent) and in the Dry Zone (between 100 and 99 per cent) (Table 7). In the Uplands Zone however the greatest percentage of households in LIFT villages was Christian: 54 per cent of households indicated that they were Christian and 46 that indicated they were Buddhists in both 2013 and 2015. There was only a small number of Islamic households in the Delta Zone in 2013. There were no Islamic households recorded in the Dry Zone or the Uplands Zone in either 2013 or 2015.

Table 7: Religion of participants in LIFT villages†

Religion	2013 (%)				2015 (%)			
	Households	Zones			Households	Zones		
	LIFT	Uplands	Dry	Delta	LIFT	Uplands	Dry	Delta
Buddhist	83.1	46.3	100.0	92.2	83.7	46.3	99.6	93.8
Christian	16.4	53.8	0	6.7	16.3	53.8	0.4	6.3
Islam	0.5	0	0	1.1	0	0	0	0
N (HHs)	976	240	272	464	976	240	272	464

†This question was not asked in the 2011 survey.

4.1.3 Education

In the household questionnaire in 2013 and 2015, participants were asked to give details about the highest level of education attained for each family member over the age of 14 (Table 8). In both 2013 and 2015, over 25 per cent of LIFT household members had no education, approximately 42 per cent had a primary school education, and approximately 19 per cent had a middle school education. Vocational training was the least common level of education attained across regions and rounds at under 1 per cent. When analysing households in LIFT villages across all regions there were very little changes between 2013 and 2015 in the percentage of people who attained the different levels of education.

Table 8: Highest level of education attained in households in LIFT villages for those age 14 and older†

Education	2013 (%)				2015 (%)			
	Households	Zones			Households	Zones		
	LIFT	Uplands	Dry	Delta	LIFT	Uplands	Dry	Delta
No formal education	25.6	25.3	27.7	24.3	25.4	24.7	31.0	22.1
Primary school (grades 1–5)	42.6	39.7	43.0	43.9	41.9	40.2	39.8	44.3
Middle school (grades 6–9)	19.9	21.8	16.6	21.1	19.4	21.7	16.0	20.3
High school (grades 10–11)	8.0	11.1	7.0	6.9	9.3	11.4	7.4	9.3
Vocational education	0.4	0.1	1.1	0.1	0.4	0	1.0	0.2
Tertiary education	3.3	1.7	4.3	3.6	3.4	2.1	4.6	3.4

	2013 (%)				2015 (%)			
Education	Households	Zones			Households	Zones		
	LIFT	Uplands	Dry	Delta	LIFT	Uplands	Dry	Delta
(university)								
Don't know	0.2	0.3	0.3	0	0.3	0	0.2	0.4
N (HHs)	3082	775	964	1343	2797	729	826	1242

†This question was not asked in the 2011 survey.

4.2 Exposure to LIFT-supported activities

In the 2013 and 2015 survey households were asked whether they had attended NGO trainings or had received inputs from such groups. Table 9 lists the changes between the two rounds of data collection.

The 2013 and 2015 surveys measured four types of training, all of which increased: (1) agriculture, (2) livestock, (3) fisheries, and (4) natural resource management. All of these increases were statistically significant, except for the fisheries training, which was the least attended form of training. Agriculture training increased the most, from 13 per cent in 2011 to 18 per cent in 2015.

The surveys also measured four forms of inputs that villagers received: (1) livestock and (2) natural resource management, which increased; and (3) strengthening from a CBO, and (4) cash for work in non-agricultural employment, which decreased. These changes were all statistically significant ($p < .001$). Livestock inputs increased from 1 to 10 per cent and natural resource management inputs increased from 1 to 3 per cent; CBO strengthening decreased from 8 to 1 per cent and cash for work decreased from 14 to 6 per cent.

Table 9: Households in LIFT villages that were aware of the availability of trainings and inputs over the past five years

	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)
Agricultural training	12.7**	17.5**
Livestock training	5.8*	8.9*
Fisheries training	0.1	0.6
Natural resource management training	2.8**	5.3**
Livestock inputs	1.3***	9.7***
Natural resource management inputs	0.6***	2.6***
CBO strengthening inputs	8.4***	1.1***

	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)
Cash for work in non-agricultural employment inputs	14.4***	6.0***
N (HHs)	907	976

* p<0.05, ** p<0.01, *** p<0.001

4.3 Income

Increased income is a major expected outcome of LIFT's programmes. Thus, LIFT's household surveys explore the different sources of income, income distribution and perceptions of changes in income across the three zones, and by sex of head of household, income levels, and land ownership.

4.3.1 Sources of income

From 2011 – 2015, there were marked changes in the frequency of income sources reported by households in LIFT villages. The most commonly reported income sources — the sale of paddy, the sale of other cereals, the sale of livestock and livestock products, and remittances — increased significantly from 2011 to 2015 (Table 10). Income from the sale of paddy among households in LIFT villages increased from more than 16 per cent in 2011 to 22 per cent in 2013, and then to 26 per cent in 2015. The change of more than 9 percentage points from 2011 to 2015 was significant (p<.001). There was a marked increase in the percentage of households in LIFT villages in the Uplands Zone that sold paddy, an increase from 5 per cent in 2011 to 28 per cent in 2015 (p<0.001) (Table 11).

The sale of other cereals—maize, barley, oats, and sorghum—increased from 16 per cent in 2011 to 17 per cent in 2013, and then to 24 per cent in 2015 (Table 10). This increase of nearly 8 percentage points was significant (p<.001).

Households in LIFT villages had a significant increase in the sales of livestock and livestock products, such as whole animals, meat, milk, and eggs (p<.001) (Table 10). The percentage of households in LIFT villages that sold these products increased from less than 13 per cent in 2011, to 20 per cent in 2013, and then to 33 per cent in 2015.

Although not reported as often, remittances also increased significantly in LIFT villages as a source of income: five per cent in 2011, nine per cent in 2013, and 15 per cent in 2015 (p<0.001)(Table 10).

Meanwhile casual labour in agriculture saw a significant decline from 45 per cent to 28 per cent from 2011 to 2015 (p<0.001); and casual labour in fishery declined significantly from 22 per cent to 6 per cent over the five years (p<0.001) (Table 10).

Table 10: Sources of income in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Sale of rice	1.0	0.6	0.6	-0.4
Sale of paddy	16.4	21.9	25.8	9.4***
Sale of other cereals	15.6	17.1	23.5	7.9***
Sale of beans, pulses, and peanuts	18.2	17.7	19.7	1.5
Sale of vegetables, fresh and dried	10.1	11.3	7.9	-2.2
Sale of fruits, fresh and dried	1.6	2.0	1.7	0.1
Sale of fresh wild-catch fish, prawns, crabs, and shellfish	8.1	25.7	12.1	4.0**
Sale of fresh farmed fish, prawns, crabs, and shellfish	0.4	1.0	0.8	0.4
Sale of processed fish, prawns, crabs, and shellfish (dried, salted, paste)	2.0	1.0	0.4	-1.6**
Sale of livestock or livestock products (whole animals, meat, milk, eggs)	12.6	20.1	32.5	19.9***
Small business, small-scale production, not agricultural products	6.7	4.1	3.7	-3.0**
Small business, trading, buying, and selling	8.2	13.7	9.7	1.5
Small business, services, including transport services, repair, mechanical, postharvest processing	4.2	6.8	4.9	0.7
Casual labour, agriculture	44.7	42.9	27.8	-16.9***
Casual labour, fishery	22.4	2.8	6.4	-16.0***
Casual labour, forestry or forest products	5.5	1.8	0.7	-4.8***
Cash for work	0.0	2.7	0.7	0.7**
Remittances	4.9	8.8	14.9	10.0***
N (HHs)	976	976	976	-

* p<0.05, ** p<0.01, *** p<0.001

When looking at the source of income by zone, sex of head of household, income group, and land ownership there are some differences (Table 11). The sale of paddy increased in the lowest income bracket (from 9 per cent to 11 per cent) but decreased in the middle income bracket (from 19 to 17 per cent) and the high income bracket (from 48 per cent to 34 per cent) between 2013 and 2015.

Meanwhile the sale of livestock increased across all three income brackets but the increase was greatest for the middle income bracket, households earning between 50,000 to 100,000 MMK per month on average. This difference was statistically significant ($p < .001$).

In the Uplands Zone, the percentage of households in LIFT villages selling “other cereals” increased from 36 per cent in 2011 to 60 per cent in 2015 ($p < .001$). This was a steeper increase than in the Dry Zone which increased from 24 to 32 per cent ($p < .05$). No households in the Delta were reported to sell “other cereals”.

Table 11: Major sources of income, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership ¹⁶	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Sale of paddy (% “yes”)										
Baseline 2011	4.6	7.4	27.8	16.7	16.3	8.6	18.6	47.7	28.5	4.3
Endline 2015	28.3	2.9	37.9	20.0	26.9	11.3	16.8	34.1	41.1	6.3
Simple difference	23.7***	-4.5*	10.1**	3.3	10.6	2.7	-1.8	-13.6	12.6	2.0
Sale of other cereals (% “yes”)										
Baseline 2011	36.3	23.9	0.0	17.3	15.2	12.7	17.0	25.2	30.0	1.2
Endline 2015	59.6	31.6	0.0	21.9	23.8	27.7	15.7	26.3	40.8	1.4
Simple difference	23.3***	7.7*	0.0	4.6	8.6***	15.0***	-1.3	1.1	10.8***	0.2
Sale of livestock (% “yes”)										
Baseline 2011	13.3	11.4	12.9	11.5	12.8	10.3	16.4	13.5	11.3	13.9
Endline 2015	26.7	17.6	44.2	23.2	34.2	20.6	37.9	32.8	31.6	33.6
Simple difference	13.4	6.2	31.3	11.7*	21.4***	10.3**	21.5***	19.3***	20.3***	19.7***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.3.2 Most important source of income

When asked their most important source of income, the three most frequent responses by households in LIFT villages in each round of the study were casual labour in agriculture, the sale of

¹⁶ Land ownership is considered broadly and includes: cases where land is formally titled and registered in one or more household member’s name; land that has been purchased, transferred, or inherited but not formally titled (or if titled, not registered in the household’s name); land leased from the government; and land where the household believes that it has an established right (formal or informal) to use the land, which is a right that is generally recognised by the community.

paddy, and the sale of other cereals (Table 12). Casual labour in agriculture decreased as the most important source of income from 22 per cent in 2011 to just under 15 per cent in 2015 ($p < .001$). The sale of paddy as the most important source of income for households in LIFT villages increased from 12 per cent in 2011 to 17 per cent in 2015 ($p < .01$).

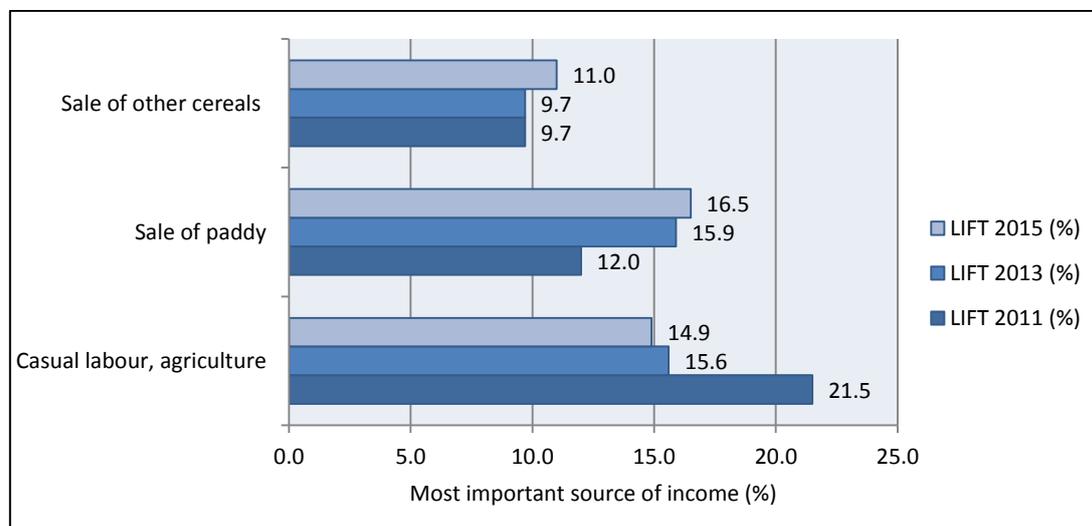
Table 12: Most important sources of income for households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHS in LIFT villages 2013 (%)	HHS in LIFT villages 2015 (%)	LIFT change 2011–2015
Most important income source: Casual labour, agriculture	21.5	15.6	14.9	-6.6***
Most important income source: Sale of paddy	12.0	15.9	16.5	4.5**
Most important income source: Sale of other cereals	9.7	9.7	11.0	1.3
N (HHs)	976	976	976	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2 details the most important source of income for households in LIFT villages from 2011 until 2015.

Figure 2: Most important source of income for households in LIFT villages



4.3.3 Mean income diversity score

The mean income diversity score, which is the mean number of different sources of income among the households in LIFT villages, in each round of the study was just over 2 (Table 13). The mean number of different sources of income increased among households in LIFT villages by 0.2 sources in 2011 and 2013, but stayed relatively steady between 2013 and 2015.

Table 13: The mean income diversity score for households in LIFT villages

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
	2.1	2.3	2.3	0.2
N (HHs)	976	976	976	–

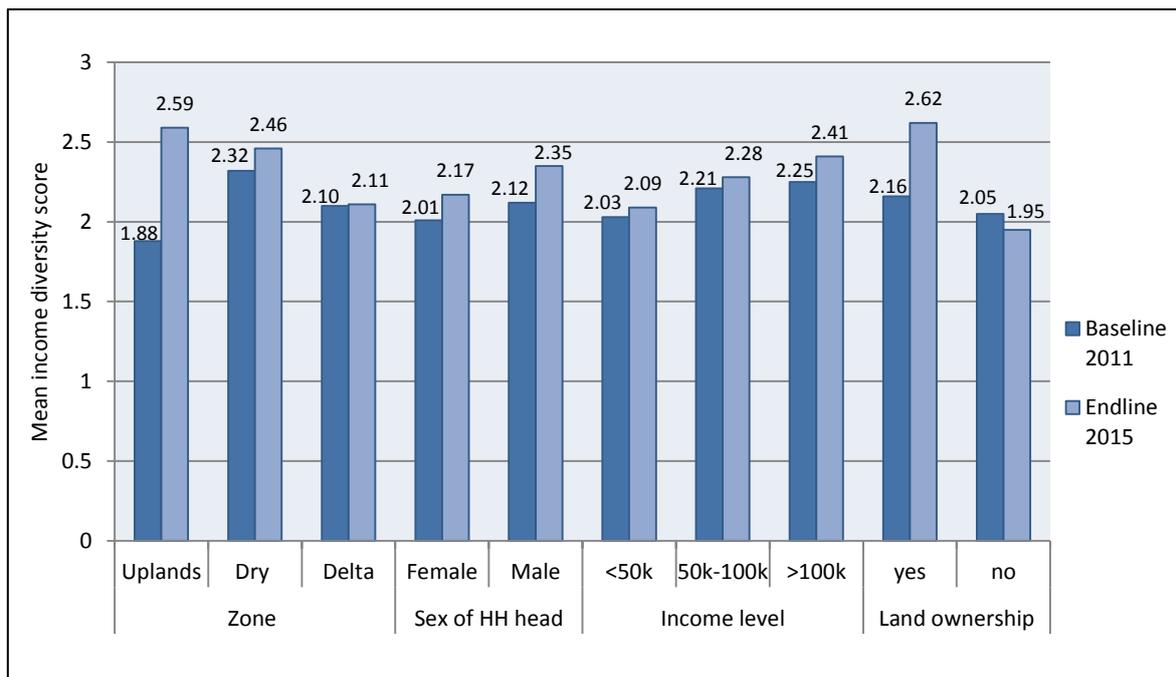
* p<0.05, ** p<0.01, *** p<0.001

The biggest change in the mean income diversity score was in the Uplands where it went from 1.9 to 2.6 between 2011 and 2015 (Table 14 and Figure 3). However this change was not statistically significant.

Table 14: Mean income diversity score, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Mean income diversity score										
Baseline 2011	1.88	2.32	2.10	2.01	2.12	2.03	2.21	2.25	2.16	2.05
Endline 2015	2.59	2.46	2.11	2.17	2.35	2.09	2.28	2.41	2.62	1.95
Simple difference	0.71	0.14	0.01	0.16	0.23	0.06	0.07	0.16	0.46	-0.1

Figure 3: Mean income diversity score, by zone, sex of head of household, income group, and land ownership



4.3.4 Income distribution¹⁷

The distribution of average income in households in LIFT villages shifted markedly from 2011 to 2013, and then again between 2013 and 2015 (Figure 4). In 2011 more than 50 per cent of households in LIFT villages earned an average monthly income of less than 50,000 MMK and 12 per cent earned an average monthly income of more than 100,000 MMK per month (Table 15). By 2015, less than 15 per cent of households in LIFT villages earned less than 50,000 MMK per month and 57 per cent of the households were earning more than 100,000 MMK per month.

The changes could reflect increasing wealth throughout the surveyed villages and/or rising inflation. However the increases were not experienced at the same rates across all income groups. This suggests that whilst inflation influenced results these observed changes also indicate increasing wealth in LIFT villages. Furthermore an increase in wealth is consistent with the findings related to perceptions of household wealth in the next section.

Figure 4: Average monthly income distribution in households in LIFT villages

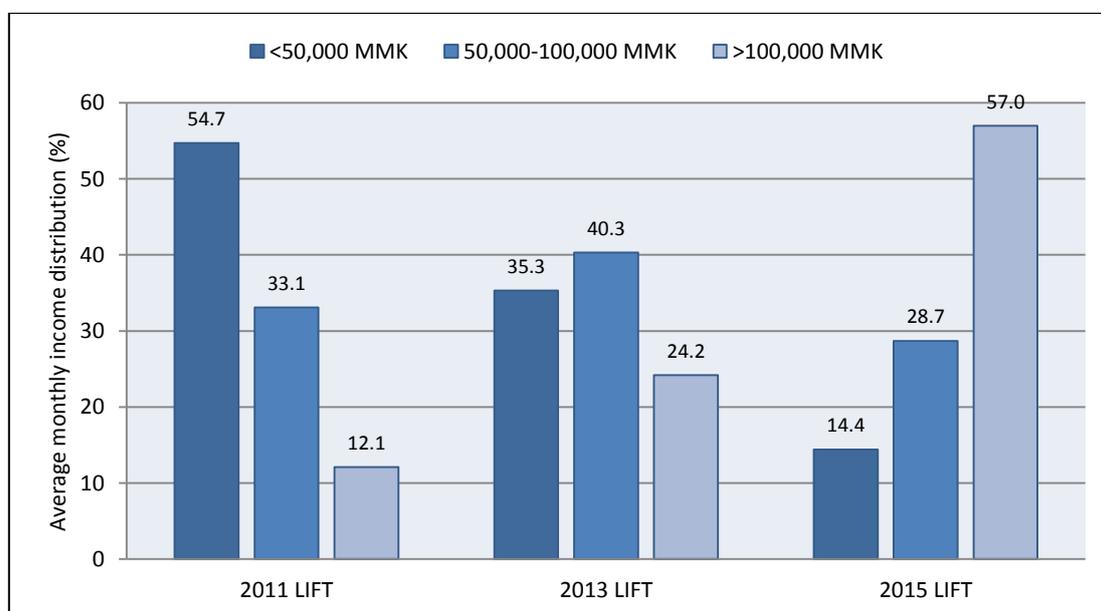


Table 15: Normal monthly income distribution for households in LIFT villages

Income bracket (in MMK)	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Less than 25,000	12.4	9.7	4.9	-7.5***
25,001–50,000	42.3	25.6	9.5	-32.8***
50,001–75,000	20.5	23.4	12.2	-8.3***
75,001–100,000	12.6	16.9	16.5	3.9*

¹⁷ The figures in this section on income distribution have not been adjusted for inflation.

Income bracket (in MMK)	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
100,001–150,000	5.0	12.5	19.3	14.3***
150,001–200,000	3.0	5.1	13.0	10.0***
200,001–250,000	1.4	2.0	7.2	5.8***
250,001–300,000	0.7	1.4	6.4	5.7***
300,001–350,000	1.2	0.7	3.0	1.8*
350,001–400,000	0.0	0.7	2.2	2.2***
>400,000	0.8	1.8	5.9	5.1
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

4.3.5 Perceptions of household income

The percentage of households in LIFT villages that indicated that their income had improved compared to the year before increased from less than 19 per cent in 2011 to about 25 per cent in 2013 and to 35 per cent in 2015 (p<0.001)(Table 16). Meanwhile the percentage of households in LIFT villages that indicated that their income had gone down decreased significantly from 41 per cent in 2011 to 26 per cent in 2015 (p<0.001).

Table 16: The perception of LIFT household income in the past 12 months, compared with the previous year

Perception of monthly income	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Increased	18.6	25.0	35.2	16.6***
Same	40.3	45.3	38.9	–1.4
Decreased	40.7	29.4	25.5	–15.2***
N (HHs)	976	976	976	–

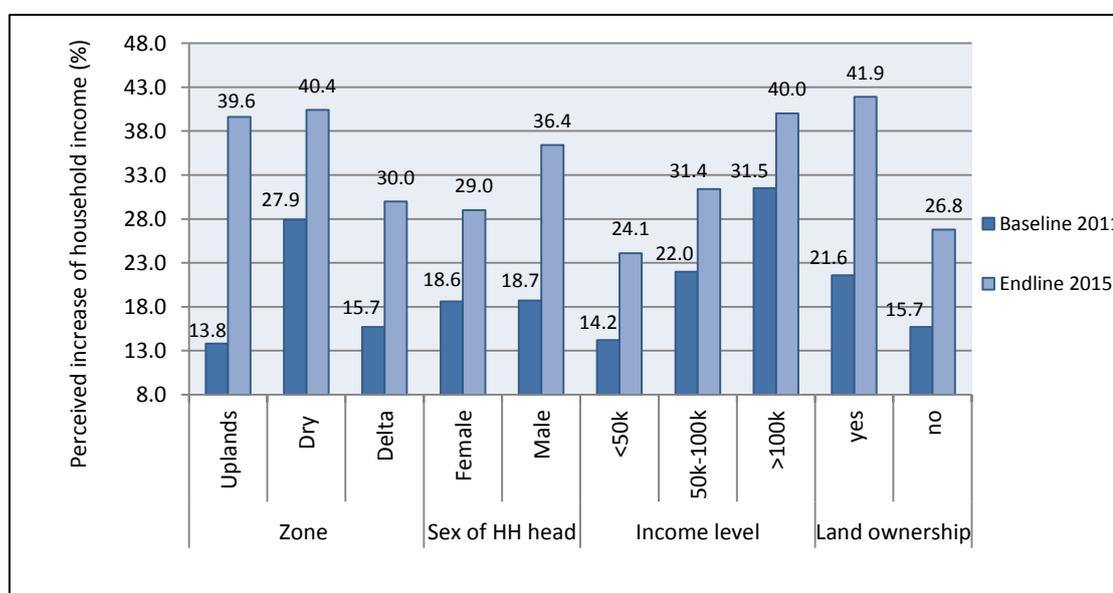
* p<0.05, ** p<0.01, *** p<0.001

The perceived increase in income compared to the year before was experienced across all income groups and across all zones (Table 17). The greatest increase in perceived increased income was in the Uplands with an increase of 26 percentage points (p<0.001). However they had the lowest baseline in 2011 at 14 per cent).

Table 17: Perceptions of household income, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Perceived increased income during the past 12 months compared with a year earlier (% "Yes")										
Baseline 2011	13.8	27.9	15.7	18.6	18.7	14.2	22.0	31.5	21.6	15.7
Endline 2015	39.6	40.4	30.0	29.0	36.4	24.1	31.4	40.0	41.9	26.8
Simple difference	25.8***	12.5**	14.3***	10.4	17.7	9.9*	9.4*	8.5	20.3	11.1

Figure 5: Perceived increase of household income, by zone, sex of head of household, income group, and land ownership



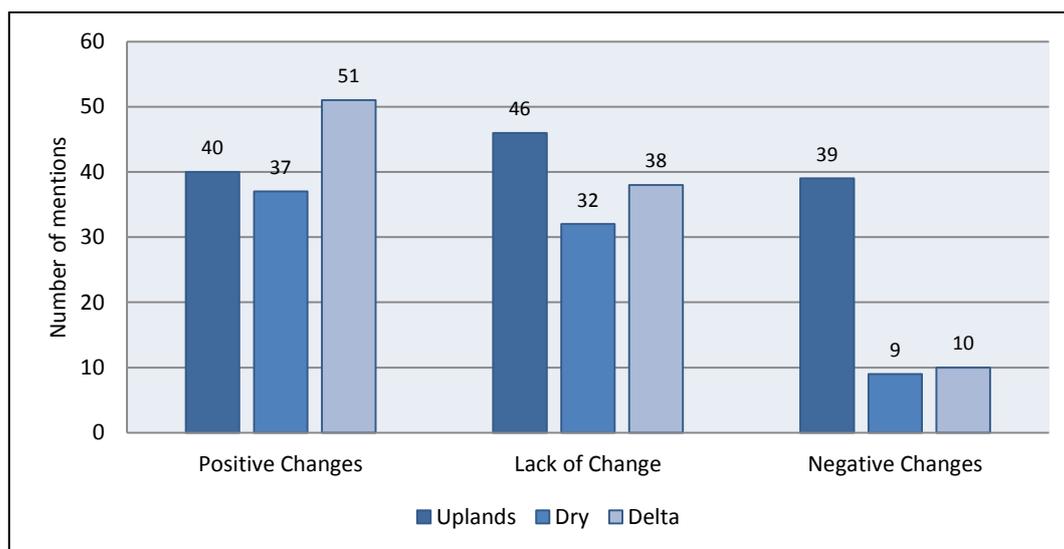
Binomial logistic regression tests comparing households in LIFT villages that received agriculture and livestock training in 2015 with households that did not, found that households in LIFT villages that received training in agriculture were 2.1 times more likely to indicate an income increase compared with households that did not receive training. Households in LIFT villages that received livestock training were 2.5 times more likely to indicate that their income had increased compared with households in LIFT villages that did not receive livestock training. These differences were statistically significant ($p < .001$).

4.3.6 Changing well-being

FGDs explored perceptions of changing well-being in greater depth. FGD participants were asked about changes in household livelihood and income over the past two years. Figure 6 shows the frequency of positive, negative, or lack of change to livelihoods or income mentions in FGDs.

Participants in all three zones discussed the reasons for positive livelihood changes. A much smaller number of participants believed that their lives were worse off in 2015 than two years previously, particularly among participants in the Delta and Dry Zones. Contextual analysis shows that the relatively high frequency of mentions of negative changes in the Uplands Zone may be related to a landslide that occurred in Chin State. Sixty per cent of the mentions of negative change in this zone referred to the landslide.

Figure 6: Number of mentions regarding positive, none or negative changes in livelihoods during FGDs broken down by zone



4.3.7 FGD perceptions of positive changes in livelihood and income

4.3.7.1 Uplands Zone

FGD participants who were not land owners said that they saw few changes in earnings. Farmers said that their yields had been good, but with no significant changes. Instead, they said that market prices had increased, allowing farmers to sell goods for more money. FGD participants also said that people who own their own businesses were a little better off with increases in income of approximately 500,000 MMK over the previous year or two. Casual labourers said that their incomes had remained about the same, and any increases over the previous year or two were of small increments, about 1,000 MMK per day.

Participants in the Uplands Zone gave the following reasons for the positive changes in income and livelihoods:

- Access to loans
- Improvements in infrastructure, such as roads, mobile network coverage, and electricity, which gave agricultural producers easier, quicker access to markets
- Motorcycle ownership
- Knowledge that farmers had gained through training on cultivation methods and marketing

4.3.7.2 Dry Zone

FGD participants in the Dry Zone indicated no major income changes, but they acknowledged that villagers had enough to live on and enjoyed a higher standard of living. Overwhelmingly, they mentioned labour migration as the main reason that some households were better off, as captured in the following two comments:

“There are improvements for the people who are working elsewhere because their three-month salary would be the same as working one year in this village.” (Male, Dry Zone, agricultural FGD)

“They earn 2,000 MMK per day but they earn 5,000 MMK a day when they work outside of the village. They do not spend money and they save. That is why they can send money back to their families.... So some households who have migrant workers can buy mobile phones and upgrade houses.” (Male, Dry Zone, Vulnerable Men FGD)

Participants also mentioned that households were diversifying their sources of livelihood, such as by combining agriculture with livestock breeding.

4.3.7.3 Delta Zone

FGD participants in the Delta Zone reported no major changes in wealth in the past two years; however, they said that their standard of living had improved with for example improvements in housing materials and increased assets. They also said that employment and livelihood options had increased.

Participants throughout the Delta Zone said that incremental increases in income allowed households to make investments in farming equipment and businesses. More people were operating motorcycle taxis, for example, which helped households make money between seasons or during spare times of the day. Daily wages for casual labourers had doubled over the previous two years, from 2,000 to 3,000 MMK per day to 4,000 to 5,000 MMK per day, and more individuals were engaged as vendors than in the past. Participants said that the number of shops and food stalls in villages had increased, which was especially affecting women. More women were selling food and goods.

Participants gave the following reasons for positive changes in Delta Zone livelihoods and income:

- Better road conditions
- Credit opportunities
- Scarcity of casual labourers, which led to increased demand and higher wages
- Government construction projects, such as schools and health clinics, which created jobs for labourers
- Higher rice output and increased prices, with higher profit margins for farmers

4.3.8 FGD perceptions of negative changes in livelihood and income

4.3.8.1 Uplands Zone

FGD participants in the Uplands Zone said that they perceived no major changes in income and wealth, although overall living conditions had improved, with for example improvements in housing materials and increased assets.

Reasons that participants gave for the negative change were poor health and aging, irregular weather causing rain and flooding, regional insecurity in Kachin State due to military operations nearby, and decreased paddy output. Participants mentioned also the landslide in Chin State that destroyed crops and infrastructure, including irrigation systems and roads. This event accounted for 60 per cent of mentions of causes of negative change in the Uplands Zone.

4.3.8.2 Dry Zone

FGD participants said that a reason for a stated lack of change or negative change was the scarcity of jobs in the zone and poor business opportunities. Agricultural producers and livestock herders indicated that they had experienced little change, and some struggled to make enough income due to droughts in recent years.

4.3.8.3 Delta Zone

Many FGD participants in the Delta Zone agreed that income had increased for most households in the zone; however, these increases had been offset by higher prices for food and other commodities. Participants said that households generally could make enough income to cover living expenses and pay back debts, but this did not allow them to save money and invest in larger assets.

Fish stocks had decreased in the years prior to the FGDs. This was attributed to changes in climate and, in some cases, the presence of chemicals in the water that killed fish and shrimp. One participant said, "The water is not quite regular anymore...." (Female, Delta Zone, Vulnerable Women FGD). Most of the participants who talked about a decrease in income in the Delta Zone said that the changes were related to fishing. Fishers said that their catch size had decreased, and traders and buyers said that they had given fishers loans and were then unable to recover these investments.

Several participants also mentioned that crop failures had been caused by rats or droughts in recent years. They said that they had struggled to pay off debts after selling their harvests. Some say that loans from savings cooperatives and loan services had been helpful in covering these gaps.

Improvements in village development, such as roads, had led to a decrease in livelihood opportunities for some households because the improvements had led to less reliance on the use of ferries, a negative for ferry operators. FGD participants also mentioned that some households had acquired solar panels, which reduced the use of battery recharging services. Some farmers had purchased harvesters, which reduced their need for casual labourers during the harvest.

4.4 Ownership of assets

This section of the report looks at the findings from the questions relating to the ownership of agricultural equipment and machinery, sources of lighting, source of fuel for cooking, household assets, housing stock, livestock, and perceptions of change.

4.4.1 Household ownership of agricultural equipment and machinery

The percentage of households in LIFT villages overall that owned ploughs or tillage equipment for use with draft animals increased from 28 per cent to 34 per cent between 2011 and 2013 but then decreased to 27 per cent in 2015. However this change was not found to be statistically significant (Table 18).

The ownership of power tillers, tractors and power threshers all increased from 2011 to 2015 with power tillers increasing the most from 4 to 9 per cent ($p < 0.001$).

Table 18: Ownership of agricultural equipment in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Ploughs/tillage equipment for use with draught animals	27.7	33.8	26.6	-1.1
Power tiller	4.3	6.9	9.3	5.0***
Tractor	1.1	0.9	1.8	0.7
Power thresher	1.4	1.8	3.0	1.6*
Backpack sprayer	6.6	8.8	8.1	1.5
Improved crop storage bin or silo	6.0	12.0	5.7	-0.3
Tarpaulin or seed drying net	24.0	21.8	27.8	3.8
Irrigation pump	2.9	3.4	4.3	1.4
Animal drawn cart	11.6	13.3	11.4	-0.2
Trailer (drawn by vehicle)	0.5	1.1	0.3	-0.2
Seeder	0.1	0.2	0.1	0.0
N (HHs)	976	976	976	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

There were differences by agro ecological zone and these are broken down in the table 19.

Table 19: Household ownership of agricultural equipment and machinery, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Owning ploughs/tillage equipment for use with draught animals (% "Yes")										
Baseline 2011	27.5	41.5	19.6	27.6	27.7	18.4	27.9	73.0	51.1	4.3
Endline 2015	24.2	41.9	19.0	25.8	26.8	19.9	19.3	32.1	45.7	2.3
Simple difference	-3.3	0.4	-0.6	-1.8	-0.9	1.5	-8.6*	-40.9***	-5.4	-2.0
Owning animal drawn cart (% "Yes")										
Baseline 2011	6.7	33.1	1.5	13.5	11.2	6.4	11.1	38.7	21.4	1.8
Endline 2015	3.8	36.0	0.9	14.8	10.7	11.3	7.9	13.2	19.7	0.7
Simple difference	-2.9	2.9	-0.6	1.3	-0.5	0.3	-0.9	0.4	-1.7	-1.1
Owning power tiller (% "Yes")										
Baseline 2011	3.8	1.5	6.3	4.5	4.3	1.3	4.3	18.9	8.4	0.2
Endline 2015	12.9	1.8	11.9	10.3	9.1	0.0	1.8	15.5	15.9	0.9
Simple difference	9.1	0.3	5.6	5.8	4.8	-1.3	-2.5	-3.4	7.5	0.7
Owning tractor (% "Yes")										
Baseline 2011	0.4	0.0	2.2	0.6	1.2	0.6	1.5	2.7	2.3	0.0
Endline 2015	1.3	1.1	2.6	0.6	2.1	0.7	0.4	2.9	3.1	0.2
Simple difference	0.9	1.1	0.4	0	0.9	0.1	-1.1	0.2	0.8	0.2
Owning power thresher (% "Yes")										
Baseline 2011	0.8	0.4	2.4	0.0	1.7	0.4	0.3	9.0	2.7	0.2
Endline 2015	1.7	0.7	5.0	2.6	3.0	0.0	0.4	5.0	5.1	0.2
Simple difference	0.9	0.3	2.6	2.6	1.3	-0.4	0.1	-4.0	2.4	0

It is important to note that the findings in Tables 18 and 19 relate to the ownership of agricultural equipment but not to the renting or use of such equipment. As such these numbers only tell part of the story. Questions on the use and uptake, as opposed to ownership, were only included in the household survey questionnaire for 2015. This might also help to explain why the FGD recorded higher levels of mechanisation in the Dry Zone than the numbers suggest. That the FDGs refer to the availability of tractors and not the ownership of these tractors is also indicative of this.

FGD participants in the Dry Zone explained that, in many areas, cows have been replaced by tractors in agricultural production. They attributed this shift to cheaper labour costs for operating farm machinery and the elimination of costs associated with raising cows:

“There are losses of cows for use because of financial difficulties and they have to be sold. The weather is also not good and it is also difficult to feed the cows. There are not many meadows.” (Males, Dry Zone, Agricultural FGD)

“The main thing is that the income also doesn’t increase. If I were to hire a person ... for one morning, a pair of cows and a person would cost 5,000 MMK. If it is only the person, then it is only 2,500 MMK. So, it is not worth paying for the person as well as for the cows. The tractors are also available, so interest in using with cows has decreased.” (Males, Dry Zone, Agricultural FGD)

“Three or four machines were purchased [for farming] and some rent harvesters. We can afford to buy them because of some external support. This is also because of cow food scarcity. We sold cows and purchased machines.” (Female, Dry Zone, Non-Agricultural FGD)

FGD participants also confirmed other shifts to machinery in the agricultural sector:

“There are power tillers and water pumps in the village. Organisations provided them to the community.” (Male, Dry Zone, Vulnerable Men FGD)

Some FGD participants also associated increased use of farm machinery with labour shortage. For example:

“Well, it’s because farmers with money have solved the labour shortage problem with agricultural equipment.... A one-month job is now done in 15 days.” (Male, Delta Zone, Vulnerable Male FGD)

4.4.2 Source of power for lighting

In 2011, the most common source of lighting was kerosene or oil lamps, with 40 per cent of households in LIFT villages using this source (Table 20). By 2015, the percentage of households using this method of lighting decreased to only 4 per cent ($p < 0.001$).

Table 20: Major source of lighting in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Electricity from the grid	2.5	5.1	6.7	4.2***
Village generator	10.1	3.8	2.6	-7.5***
Own generator	2.5	3.1	1.5	-1.0
Shared generator with	5.8	2.5	0.6	-5.2***

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
other household(s)				
Lamp (kerosene/oil)	39.5	17.6	4.0	-35.5***
Candle	13.7	11.7	5.5	-8.2***
Solar power with a battery	14.4	30.7	51.4	37.0***
Table lamp with dry battery	4.0	15.4	19.9	15.9***
Hydro generator	0.0	8.0	7.2	7.2***
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

The biggest decrease in the use of lamp (kerosene/oil) was in the Delta with a decline from 69 to 8 per cent between 2011 and 2015 (p<0.001). However the Delta had the highest baseline use of kerosene/oil lamp, in 2011 the percentage of people using such lamps in the Uplands and the Dry Zone were far fewer at 24 and 4 per cent respectively (Table 21).

Table 21: Source of power for lighting, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Use a lamp (kerosene/oil) (% “Yes”)										
Baseline 2011	23.8	4.0	68.5	36.5	40.1	45.3	35.0	26.1	25.9	53.2
Endline 2015	0.4	0.4	8.0	5.8	3.7	6.4	5.4	2.7	2.0	6.5
Simple difference	-23.4***	-3.6**	-60.5***	-30.7	-36.4	-38.9***	-29.6***	-23.4***	-23.9	-45.6
Use solar power with a battery (% “Yes”)										
Baseline 2011	4.6	37.9	5.8	17.9	13.8	13.7	16.1	14.4	16.0	12.9
Endline 2015	56.3	57.4	45.5	49.0	51.9	46.1	47.5	54.8	61.1	39.2
Simple difference	51.7***	19.5***	39.7***	31.1***	38.1***	32.4***	31.4***	40.4***	45.1***	26.3***
Use electricity from the grid (% “Yes”)										
Baseline 2011	5.0	3.3	0.6	3.8	2.2	0.6	5.0	4.5	1.4	3.5
Endline 2015	9.2	15.8	0.0	10.3	6.0	3.5	1.8	9.9	6.9	6.3

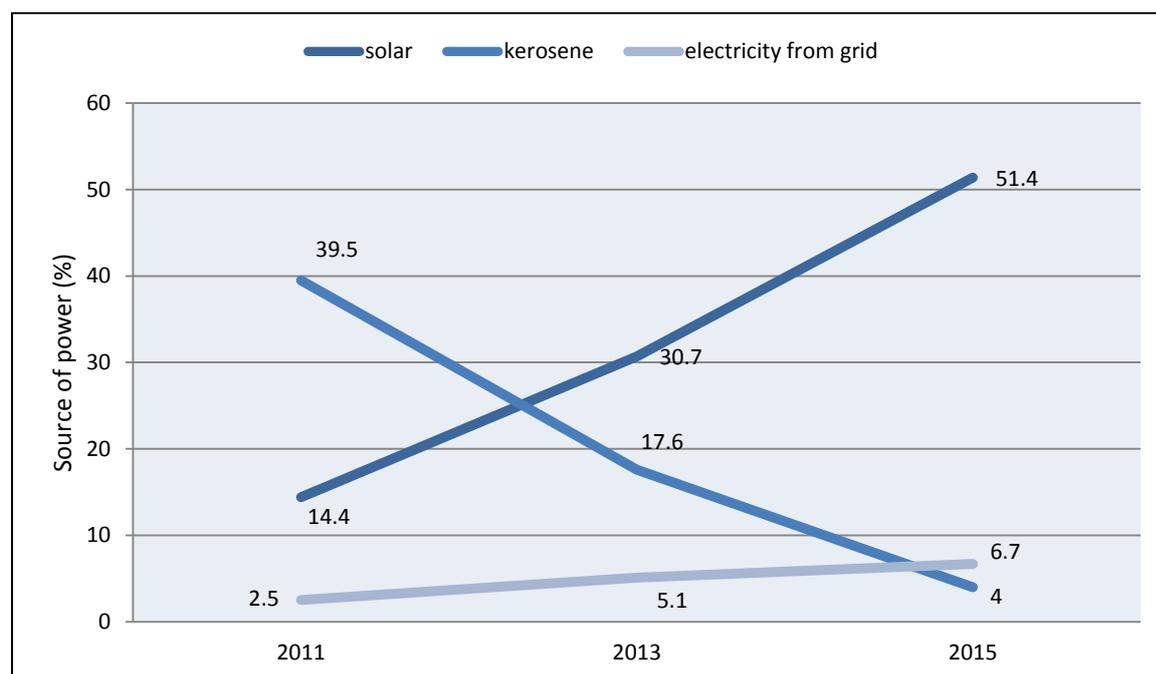
	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Simple difference	4.2	12.5***	-0.6	6.5*	3.8***	2.9**	-3.2*	5.4	5.5***	2.8*

* p<0.05, ** p<0.01, *** p<0.001

The use of solar power with battery increased significantly across all zones and income groups (Table 21). The biggest increase occurred in the Uplands and the Delta where use of solar power increased by 52 percentage points and 30 percentage points respectively (p<0.001). However again this could reflect a “catch-up” as the Dry Zone increased only by 20 percentage points but had a much higher baseline in 2011 at 38 per cent compared to 5 and 6 per cent.

As households stopped using kerosene lamps, solar power with a battery became the main source of lighting (Figure 8). In 2011, around 14 per cent of households in LIFT villages were using solar power; however, by 2015, more than half of the households in LIFT villages were doing so.

Figure 7: Changing percentage of households in LIFT villages using kerosene/oil lamps and solar power by round



The richest income group – those earning more than 100,000 MMK per month - experienced the greatest increase in both the use of solar power with a battery and the use of electricity, climbing by 40 percentage points and 5 percentage points respectively. This change also was reflected within the FGDs.

The majority of FGD participants said that one of the most significant changes in their village in the previous years was gaining access to electricity. Participants mentioned that well-off households, in

particular, had gained access to various forms of electricity, ranging from shared generators, to solar power with batteries, to solar panels.

A number of participants mentioned using loans to pay the fee required to connect their houses to electricity or to contribute to village lampposts:

“Those households that did not have 350,000 MMK in hand were not provided with electric power. If such a household wanted to get electricity, it had no choice but to borrow money to pay the fee.” (Uplands Zone, Non-Agricultural FGD)

Participants mentioned various benefits from having access to electricity:

- Children were able to study at night
- Money was saved by not needing to spend for candles
- TV provided a way to learn about the news and agricultural techniques
- Time was saved by fetching well water with a compressor
- Cooking with electricity saved time and resources

Here is a typical comment:

“People who can afford it buy solar, people who can’t afford solar buy dry batteries, which are charged with solar. A florescent light bulb powered with a dry battery costs between 3,000 MMK and 4,000 MMK. You can charge it for only 100 MMK for a night.... There are impacts. Using candles, I had to worry about kids. Using solar light is better. The whole house is lit and there’s no need to worry about wind.” (Female, Delta Zone, Vulnerable Women FGD)

Another participant summarised the benefits of electricity:

“I don’t have to chop firewood. I only use electricity. Everything is convenient when there is electricity, even in constructing homes, pumping water, charging power, and cooking. We can do many things.” (Male, Uplands Zone, Agricultural FGD)

4.4.3 Source of fuel for cooking

Wood remained the main source of fuel for cooking throughout the study period (Table 22). In 2011, more than 95 per cent of households in LIFT villages used wood to cook their meals. This decreased significantly to 92 per cent by 2015 ($p < 0.05$).

Meanwhile the use of electricity increased from under 1 per cent of households in LIFT villages using electricity to cook in 2011 to 4 per cent by 2015.

Table 22: Sources of fuel for cooking in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Electricity	0.3	1.5	4.2	3.9***
Charcoal	0.9	0.7	1.2	0.3
Wood	95.1	93.3	92.1	-3.0*
Stove using paddy husk for fuel	0.2	3.7	1.9	1.7***
N	976	976	976	–

* p<0.05, ** p-value <0.01, *** p-value <0.001

Across households in LIFT villages those in the highest income bracket - over 100,000 MMK per month - experienced the greatest increase in the use of electricity for cooking; those who owned land also experienced a greater increase than those that did not (Table 23).

By zone there were noticeable differences in the use of electricity with the Delta experiencing a decline from 0.2 to 0 per cent over the study period, whilst the Uplands and the Dry Zones experienced significant increases of 6 and 9 percentage points respectively (p<0.001) (Table 23).

Table 23: Source of fuel for cooking, by zone, sex of the head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Use electricity as the main source of cooking fuel (% "Yes")										
Baseline 2011	0.4	0.4	0.2	0.6	0.2	0.2	0.6	0.0	0.4	0.2
Endline 2015	6.3	9.6	0.0	5.2	4.0	2.1	0.7	6.5	4.6	3.7
Simple difference	5.9***	9.2***	-0.2	4.6*	3.8***	1.9	0.1	6.5*	4.2***	3.5***

4.4.4 Ownership of household assets¹⁸

The mean number of assets a household owned increased in households in LIFT villages from 3.5 assets in 2011 to 5 assets in 2015. See Table 24 for a breakdown of asset ownership.

¹⁸ The breakdown of what is considered to be an asset can be found in table 25.

Table 24: LIFT household asset ownership

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
0 assets	8.4	1.7	4.2	-4.2***
1 asset	14.9	7.9	7.5	-7.4***
2 assets	15.8	11.7	14	-1.8
3 assets	17.9	12.7	12.1	-5.8***
4 assets	15.1	13.8	11.8	-3.3*
5 assets	8.6	11.1	10.7	2.1
6 assets	7.0	11.4	9.3	2.3
7 assets	4.2	8.4	9.4	5.2***
8 assets	2.9	5.9	6.6	3.7***
9 assets	2.2	4.4	4.7	2.5**
10 assets	1.0	3.9	3.8	2.8***
11 assets	1.2	3.2	3.1	1.9*
12 assets	0.5	1.6	1.8	1.3*
13 assets	0.2	0.6	0.6	0.4
14 assets	0.1	0.9	0.1	0.0
15 assets	0.0	0.3	0.2	0.2
16 assets	0.1	0.2	0.0	-0.1
17 assets	0.0	0.1	0.1	0.1
18 assets	0.0	0.1	0.0	0.0
Mean asset score	3.5	5.2	5.0	1.5
N	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

There were a number of interesting changes between 2011 and 2015 in the types of assets owned by households in LIFT villages (Table 25 and Figure 9). The greatest increase was in the ownership of mobile phones by 52 percentage points (p<0.001). This was followed by solar panels which increased by 42 percentage points (p<0.001), then gold and jewelry experiencing an increase of 24 percentage points (p<0.001). TVs, DVD players and motor cycles all also increased significantly by more than 10 percentage points (p<0.001).

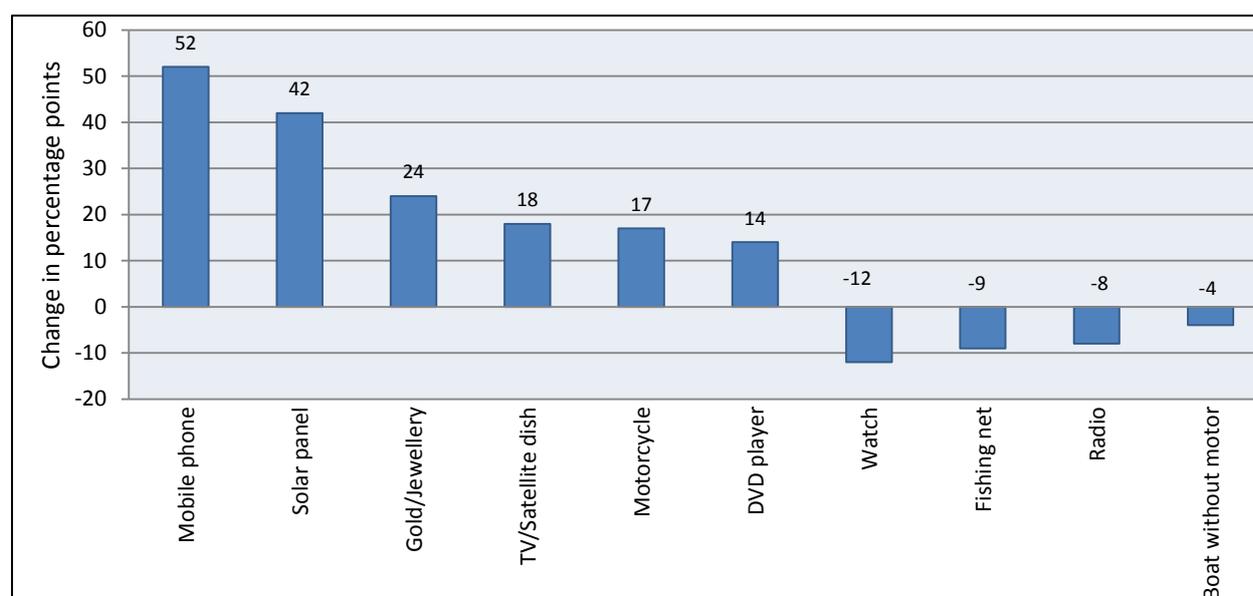
Meanwhile ownership of watches, radio/cassettes, fishing nets, boats without motors and fuel-efficient wood stoves all decreased significantly ($p < 0.001$). The decrease in ownership of boats without motors correlates with an increase in ownership of motorboats.

Table 25: LIFT household ownership of household assets

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Bicycle	11.5	13.1	16.5	5.0**
Motorcycle	14.9	22.7	32.3	17.4***
Trishaw	0.1	0.0	0.0	-0.1
Trowlarjee	1.0	2.0	1.4	0.4
Car	0.1	0.3	0.2	0.1
Truck	0.2	0.4	1.1	0.9*
Bed (wooden or steel)	25.1	30.7	27.2	2.1
Mattress	9.8	12.5	9.5	-0.3
Stove (gas or electric)	0.7	1.7	3.0	2.3***
Fuel-efficient wood stove	9.7	44.3	3.1	-6.6***
Chair	35.3	43.1	38.9	3.6
Table	57.0	63.9	55.1	-1.9
Gold/Jewellery	32.3	47.3	56.1	23.8***
Radio/Cassette	36.9	49.4	28.8	-8.1***
TV/Satellite dish	12.9	23.5	30.6	17.7***
DVD player	11.7	23.3	26.0	14.3***
Sewing machine	4.2	9.1	6.3	2.1*
Mobile phone	2.2	13.0	53.8	51.6***
Watch	43.6	48.3	32.1	-11.5***
Solar panel	2.9	17.4	44.5	41.6***
Boat without motor	15.0	17.7	10.8	-4.2*
Boat with motor	3.7	7.0	9.5	5.8***
Fishing net	17.3	19.9	8.1	-9.2***
Fish/Aquaculture pond	0.3	0.6	0.0	-0.3

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Household savings	4.3	8.8	2.3	-2.0*
N (HHs)	976	976	976	–

Figure 8: Change in percentage of households in LIFT villages owning a particular asset from 2011 - 2015



Many of the changes highlighted through the household survey and within these tables also were reflected in the FGDs. FGD participants in each of the three zones spoke of significant increases in household assets in their villages, especially of TVs, motorbikes, and mobile phones. Here is a typical comment:

“Every household has a TV. It’s a sign of improved living standards.” (Female, Delta Zone, Non-Agricultural FGD)

FGD participants described mobile phones as being indispensable and a visible sign of progress. Several participants mentioned that households with migrant workers were particularly well-off and could afford to buy motorcycles and mobile phones. For example:

“There are some people who have mobile phones. The price of a mobile handset is around 15,000 or 20,000 MMK, so many people can afford it. People who went to another country for a job bring mobile phones back even if they don’t have any money to bring back.” (Male, Delta Zone, Vulnerable Men FGD)

“Owning a motorbike doesn’t mean they’re rich. Have to sell a cow to buy a motorbike. Now, children become teenagers and they want to have a motorbike. Even though we are

not rich, we bought one for them. We are worried that they won't work because they can't have a motorbike." (Male, Dry Zone, Vulnerable Men FGD)

In the Delta Zone, FGD participants said that motorboat ownership had increased, and several said that the increase was because motorboats were useful not only for general transportation, but they could also be used to farm difficult-to-reach areas and to run a ferrying business:

"As for boats, compared to before, there are now more. There would be Honda mechanised boats ... these would be used mostly for businesses. It is easy to go to town with boats. It can also be requested for the help of health issues." (Delta, Non-Agricultural FGD)

"The only asset more people have come to use is a motorboat ... Motorboats are necessary; this is the only means of transport. When a family member has a health problem, it is necessary. We can travel only by boat as far as Labutta." (Male, Delta, Agricultural FGD)

4.4.5 Housing

The percentage of households in LIFT villages that owned their homes increased significantly from 89 per cent in 2011 to 94 per cent by 2015 ($p < 0.001$) (Table 26).

Table 26: Home ownership in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Owning house where living	89.3	94.2	94.0	4.7***
N (HHs)	976	976	976	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Male-headed households in LIFT villages had the lowest home ownership in 2011 (89 per cent), compared with female-headed households in LIFT villages (92 per cent). By 2015, 94 per cent of male-headed households in LIFT villages owned their homes, an increase of 5 percentage points (Table 27).

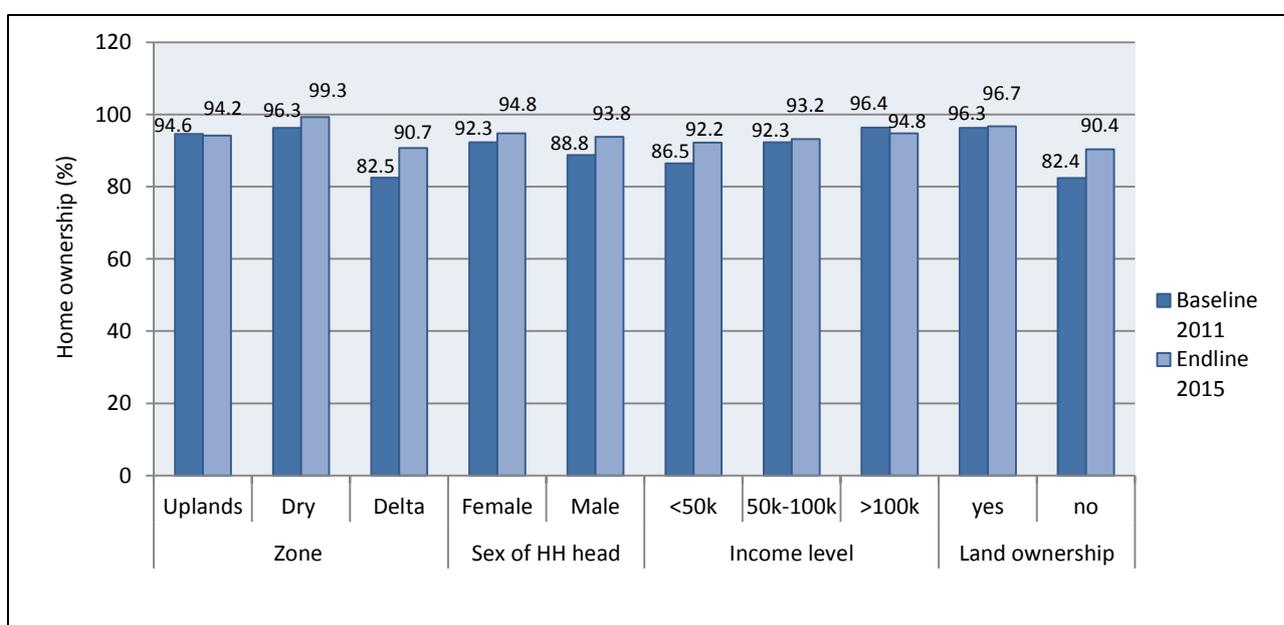
The poorest households – those earning less than 50,000 MMK per month – experienced the greatest increase in home ownership reaching 92 per cent by 2015 and almost catching up with those in higher income groups.

Those without land ownership also increased home ownership by 8 percentage points reaching 90 per cent in 2015 whilst those with land ownership stayed steady at approximately 96 per cent (Table 27 and Figure 10).

Table 27: Home ownership by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Own the house they are living in (% "Yes")										
Baseline 2011	94.6	96.3	82.5	92.3	88.8	86.5	92.3	96.4	96.3	82.4
Endline 2015	94.2	99.3	90.7	94.8	93.8	92.2	93.2	94.8	96.7	90.4
Simple difference	-0.4	3.0*	8.2***	2.5	5.0***	5.7	0.9	-1.6	0.4	8.0

Figure 9: Home ownership by zone, sex of head of household, income group, and land ownership



Between 2011 and 2015, roofing material shifted away from palm or thatch roofs to zinc sheets or corrugated iron roofs (Table 28). Nearly 60 per cent of the roofs of households in LIFT villages were made from palm or thatch in 2011; however, by 2015, the major roofing material shifted to more substantial material. The percentage of households in LIFT villages that used zinc sheets or corrugated iron roofing material increased significantly from 38 per cent to 50 per cent ($p < 0.001$).

In nearly all the FGDs, participants mentioned changes in the housing in their villages, from palm or thatched roofs to roofs made of zinc sheets or corrugated iron. Participants emphasised that this change did not necessarily indicate increased wealth, but rather it was because the stronger materials lasted longer and were relatively similar in price. For example::

“If a building costs 500,000 MMK, then the tin roof would also cost that much, but it can be used for 20 or 30 years. As for bamboo strips, these are damaged after five years.” (Male, Dry Zone, Agricultural FGD)

“The thatch roof only lasts about a year so; nowadays, people use corrugates iron sheets for the roofing.” (Male, Delta Zone, Vulnerable Men FGD)

Throughout the period of the three surveys, bamboo, palm, or thatch remained as the main wall materials used. The percentage of households in LIFT villages that used these materials stayed steady (nearly 75 per cent), as observed by the data collectors.

Only 3 per cent of households in LIFT villages used bricks, cement, cement blocks, or cement and stone for wall construction in 2011; by 2015, it was 7 per cent ($p<0.01$) (Table 28). The main sources of materials for household floors were timber, bamboo, earth, and cement, in that order. The use of cement in households in LIFT villages also increased significantly ($p<0.05$).

Table 28: Roof, wall, and floor materials in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Zinc sheets or corrugated iron	38.2	45.5	50.2	12.0***
Palm frond or thatch	58.6	51.3	48.3	-10.3***
Zinc sheets or corrugated iron	1.5	1.5	2.0	0.5
Tarpaulin or plastic sheet	2.6	1.9	0.3	-2.3***
Bamboo, palm frond, or thatch	74.2	72.7	74.1	-0.1
Timber	18.3	18.3	16.1	-2.2
Bricks, cement, cement block, or cement and stone	3.4	4.7	6.7	3.3**
Mud bricks/mud	0.0	0.1	0.8	0.8*
Timber	58.8	55.6	60.1	1.3
Bamboo	27.0	32.2	26.3	-0.7
Earth	9.0	7.6	7.1	-1.9
Cement	3.9	4.0	6.0	2.1*
N	976	976	976	–

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

4.4.6 Livestock

Livestock are among the most important assets for rural households in the survey and represented a form of savings, as well productive assets in their own right. Livestock were an integral component of the agricultural systems for farming households and could play important roles in tillage, threshing, transport, soil fertilisation through manure, and even pest control with ducks. Livestock also could make valuable use of crop residue.

Table 29: Livestock ownership for households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Cattle	20.3	21.4	19.3	-1.0
Horses	2.0	1.3	0.6	-1.4*
Goats and/or sheep	6.1	4.7	5.4	-0.7
Buffalo	13.0	13.6	10.5	-2.5
Pigs	35.5	40.9	41.3	5.8*
Chickens	58.0	53.3	49.7	-8.3***
Ducks	15.5	12.3	9.5	-6.0***
N	976	976	976	–

In the 2015 survey, the most common livestock owned was chickens (50 per cent), followed by pigs (41 per cent) and cattle (19 per cent).

FGD participants in the Delta and Dry Zones reported that many households were breeding pigs, but fewer cows and buffalos. They said that cows for agricultural use were expensive to feed, and they were being replaced by machines for sowing and harvesting. Here is a typical comment:

“There are no more buffalos or cows, and there is only chicken, duck, and pig breeding. . . . The recent PACT loan includes breeding ducks. People make the repayments with the sale of duck eggs.” (Female, Delta Zone, Vulnerable Women FGD)

Agricultural FGD participants in one Dry Zone community said:

“Recently, there are increasing numbers of livestock breeders. There was no livestock breeding before. There are improvements within these two years. There are many sheep and goats in this village.”

“This year, many people are combining agriculture and livestock breeding.”

[Moderator] “Why is that? Isn’t it enough with just agriculture?”

“It is not enough with just farming; one has to do livestock breeding also.”

A number of participants mentioned receiving livestock as a part of savings and lending programmes run by NGOs. For example:

“Before, I wanted to breed cows but I didn’t have any capital. Now, [World Vision] has given cows. So it is quite convenient. I wanted to breed before but I didn’t have any money, so I

didn't have the ability. Now, the organisation gives cows to whoever wants them." (Female, Dry Zone, Vulnerable Women FGD)

In contrast with the other two zones, FGD participants in the Uplands Zone referred to decreases in the number of cows, pigs, and goats. In Kachin State, several participants attributed this decrease to the military presence, saying that the meadows were disappearing. Elsewhere in the zone, participants said that they sold their livestock because feed was expensive, there was no space for grazing, or they needed the money to purchase other assets or service debts. This is reflected in the findings from the household survey when livestock ownership is broken down by zone. See Table 30:

Table 30: Livestock ownership, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Owning cattle (% "Yes")										
Baseline 2011	17.9	53.3	2.2	23.1	19.8	16.3	21.4	36.9	32.4	8.2
Endline 2015	20.0	50.4	0.6	23.2	18.5	24.8	16.8	19.1	31.3	4.0
Simple difference	2.1	-2.9	-1.6	0.1	-1.3	8.5	-4.6	-17.8	-1.1	-4.2
Owning pigs (% "Yes")										
Baseline 2011	44.2	25.0	37.1	26.9	37.1	35.8	35.6	34.2	35.3	35.6
Endline 2015	47.9	22.8	48.7	26.5	44.1	36.9	48.6	38.7	39.7	43.4
Simple difference	3.7	-2.2	11.6***	-0.4	7**	1.1	13.0**	4.5	4.4	7.8*

4.4.7 Perceptions of total assets

In 2011, 2013 and 2015 the majority of LIFT household survey participants indicated that they believed that compared to the two previous years their total assets and wealth had stayed the same (Table 31). Nevertheless, 34 per cent more households indicated their assets and wealth had increased between 2011 and 2015. In addition, the number of households that indicated that their total assets and wealth had decreased was 57 per cent lower in 2015 than in 2011 ($p < 0.001$).

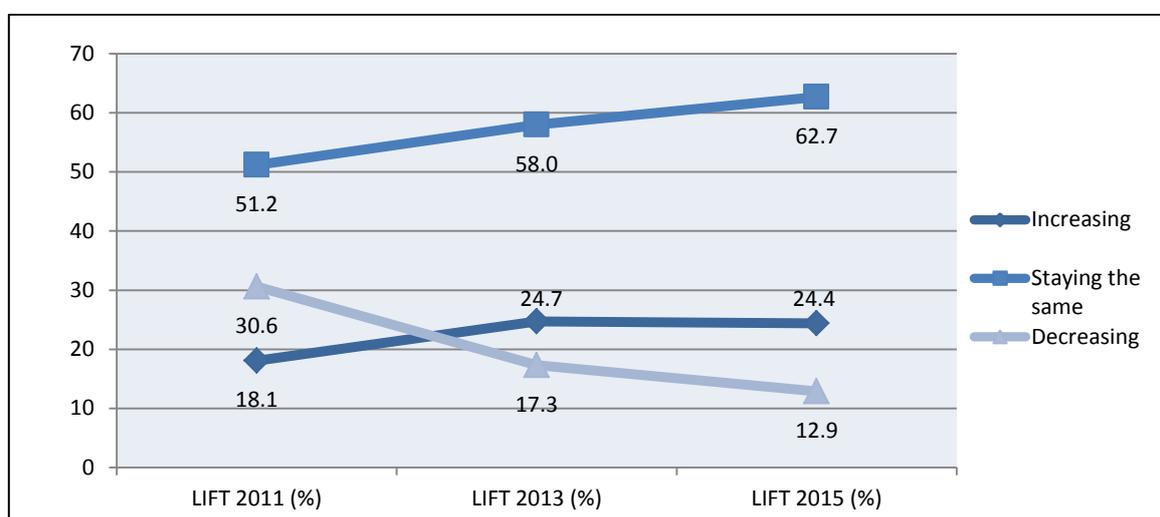
Table 31: The perception that total assets and wealth have increased in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Increasing	18.1	24.7	24.4	6.3**
Staying the same	51.2	58.0	62.7	11.5***
Decreasing	30.6	17.3	12.9	-17.7***
N	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

Figure 11 shows how the perception of total assets and wealth increased over the last five years.

Figure 10: The perception that total assets and wealth have increased in households in LIFT villages



Binomial logistic regression tests compared households in LIFT villages that received agriculture and livestock training in 2015 with households that did not. Findings indicate that households that received training in agricultural and livestock practices were 2.1 times and 2.5 times more likely, respectively, to indicate that their total assets and wealth had increased over the past two years, compared with households in LIFT villages that did not receive training (p<.001).

4.5 Financial services

This section of the report provides details on the sources of credit used by households, their concerns about debt repayment, the most important use of loans, levels of household debt, and perceptions of these debts. The results were analysed by zone, by sex of head of household, by income group, and by land ownership.

4.5.1 Sources of credit

Survey participants were asked a series of questions on their use of credit and their level of household indebtedness. FGD participants also were asked about their use of credit, source of credit, and the disadvantages and advantages of these sources.

Between 2011 and 2015 credit-seeking behaviour had changed in several important ways, including households' sources of credit (Table 35). In 2011, the two most important sources of credit for LIFT households were (1) family and friends and (2) moneylenders, in that order. By 2015, micro-credit institutions had become the most important source of credit for households in LIFT villages.

The percentage of households using family and friends as a source of credit decreased from 44 per cent in households in LIFT villages in 2011 to less than 28 per cent in 2015 ($p < .001$). The use of moneylenders as a source decreased slightly but remained the second most important source of credit for households in LIFT villages in 2015.

Micro-credit providers were the most important source of credit for households in LIFT villages in 2015. Households in LIFT villages use of micro-credit providers with a low interest of 2.5 per cent or less increased from 22 per cent in 2011 to 41 per cent in 2015 ($p < .001$). The percentage of households obtaining loans from the government also increased significantly from around 15 per cent in households in LIFT villages in 2011 to more than 30 per cent ($p < .001$).

Over the five years of this study, farmer associations and cooperatives became an important source of credit, increasing from 2 per cent or less in 2011 to more than 14 per cent in 2015 ($p < .001$) in households in LIFT villages.

Meanwhile the percentage of households that used shopkeepers for credit decreased from nearly 25 per cent in 2011 in households in LIFT villages to about 10 per cent by 2015 ($p < .001$). Furthermore the use of pre-sale of products to traders as a source of credit decreased from just over 10 per cent in 2011 to under 2 per cent in households in LIFT villages ($p < .001$).

Table 32: Sources of credit for credit seeking households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Private bank	0.5	0.2	0.8	0.3
Micro-credit provider (low interest, 2.5% or less)	22.3	34.7	41.2	18.9***
Village savings and loan association	8.8	3.5	4.5	-4.3**
Family/Friend	44.4	46.9	27.6	-16.8***
Moneylender	40.3	33.7	36.1	-4.2
Shopkeeper	24.4	22.6	9.2	-15.2***
Private company	0.6	0.4	2.7	2.1**
Farmers association/ cooperative	1.7	2.8	14.4	12.7***
Pre-sale of product to trader	11.0	8.1	1.9	-9.1***
Government	14.6	26.7	31.7	17.1***
N (HHs)	833	828	731	–

* p<0.05, ** p<0.01, *** p<0.001

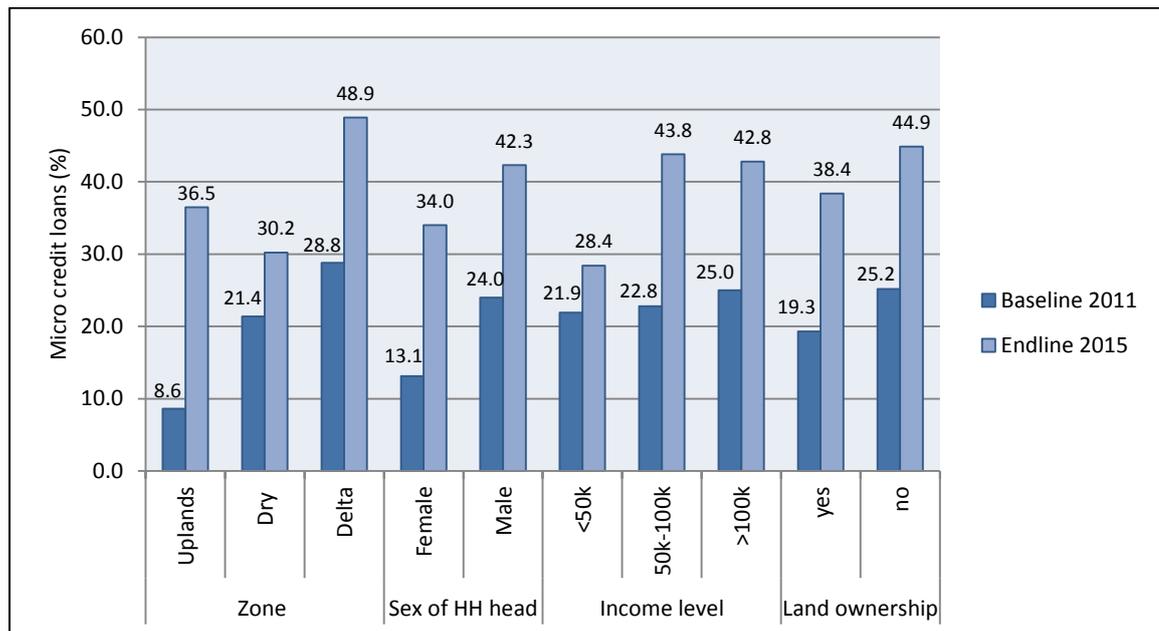
For the breakdown by region, sex of head of household, income group and land ownership, see Table 33.

Table 33: Sources of credit, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Obtained a loan from a micro-credit provider (low interest, 2.5 or less) (% “Yes”)										
Baseline 2011	8.6	21.4	28.8	13.1	24.0	21.9	22.8	25.0	19.3	25.2
Endline 2015	36.5	30.2	48.9	34.0	42.3	28.4	43.8	42.8	38.4	44.9
Simple difference	27.9***	8.8*	20.1***	20.9	18.3	6.5	21.0	17.8	19.1	19.7
Obtained a loan from a village savings and loan association (% “Yes”)										
Baseline 2011	29.2	0.4	4.2	6.2	9.2	12.2	5.1	2.3	13.1	4.7
Endline 2015	3.8	2.0	6.1	7.0	4.1	3.2	5.0	4.6	4.1	5.1
Simple difference	-25.4***	1.6	1.9	0.8	-5.1***	-9.0	-0.1	2.3	-9.0***	0.4

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Obtained a loan from a family member or friend (% "Yes")										
Baseline 2011	37.3	52.7	43.2	51.5	43.1	50.9	38.6	26.1	38.1	50.3
Endline 2015	28.8	31.7	25.0	29.0	27.4	32.6	32.8	24.1	24.9	31.2
Simple difference	-8.5	-21.0***	-18.2***	-22.5	-15.7	-18.3	-5.8	-2.0	-13.2***	-19.1***
Obtained a loan from the government (% "Yes")										
Baseline 2011	4.9	20.5	15.8	16.2	14.4	7.1	17.6	46.6	28.2	1.9
Endline 2015	21.8	35.2	34.0	29.0	32.2	11.6	24.9	39.3	49.9	7.6
Simple difference	16.9***	14.7**	18.2***	12.8	17.8	4.5	7.3	-7.3	21.7	5.7
Obtained a loan from a private bank (% "Yes")										
Baseline 2011	0.0	0.4	0.7	1.5	0.3	0.6	0.4	0.0	0.7	0.2
Endline 2015	0.0	0.0	1.6	0.0	1.0	0.0	0.0	1.4	1.0	0.6
Simple difference	0.0	-0.4	0.9	-1.5	0.7	-0.6	-0.4	1.4	0.3	0.4
Obtained a loan from a farmers' association/cooperative (% "Yes")										
Baseline 2011	0.0	2.7	1.9	0.8	1.8	1.1	2.2	3.4	3.5	0.0
Endline 2015	10.3	18.6	13.8	15.0	14.3	7.4	13.9	16.1	20.4	6.4
Simple difference	10.3	15.9	11.9	14.2	12.5	6.3***	11.7***	12.7**	16.9***	6.4***

Figure 11: Obtained a loan from a micro-credit provider, by zone, sex of head of household, income group, and land ownership



FGD participants said that savings and credit programmes were beneficial to households and communities in general, but they were careful about attributing improvements to these programmes because many had just started. Some participants mentioned immediate livelihood improvements as a result of participating in loan programmes, mainly referring to increases in income for households that own motorcycles and earn money as taxi drivers. For example, one woman in the Delta Zone said:

“Yes, I borrowed 500,000 MMK and bought a motorcycle. Now, I do a taxi business with a normal income of around 5,000 to 6,000 MMK daily. We can only pay back in this kind of investment. For duck breeding, we cannot pay back if the ducks do not lay eggs.” (Female, Delta Zone, Vulnerable Women FGD)

Immediate benefits of participating in savings and loan programmes also included access to funds to smooth business expenses without needing to borrow money from moneylenders.

FGD participants in all three zones perceived low-interest rates to be the greatest benefit of the savings and loan programme. Participants said that they no longer relied on high-interest loans from moneylenders, who had rates of about 15 per cent to 20 per cent, shorter loan periods, and depended on trust between the two parties. Participants also mentioned the benefits for their villages, such as accruing funds that can be loaned for medical care, providing benefits for pregnant women, and improving financial savings habits. For example:

“They gain more knowledge. They may not be members in the group but they have learnt to save money as is done in the community. . . . They are able to copy what the group is doing.” (Female, Dry Zone, Agricultural FGD)

4.5.2 Concerns about loan repayments

FGD participants in all three zones expressed dissatisfaction with the repayment periods. This was especially the case in the Dry Zone, where approximately half of the identified challenges associated with savings and credit programmes were related to repayment terms. The following quotes are examples of the FGD comments:

“The loan has to be returned once every 14 days so most of the people who do not have regular incomes would not borrow. There are only a few people taking the loan. It is not aligned with the business of trading, where the money is tied up in the investments. People might have difficulties when returning the loans so they don’t borrow.” (Female, Dry Zone, Agricultural FGD)

One participant in a Vulnerable Men FGD in the Delta Zone explained it this way:

“The principal and interest payment for current loans of 500,000 MMK is more than 20,000 MMK per 15 days. How are we supposed to find such an amount of money in 15 days? Thus, I just told my wife not to take any loan this time.” (Male, Delta Zone, Vulnerable Men FGD)

Several participants said that they had to borrow money from moneylenders at high interest rates or sell livestock to meet repayment deadlines:

“If we borrow more than one *lakh*¹⁹, they have a savings process. When we give back the money, we have to borrow money from someone with interest by telling them that ‘I will give you back the money after I have borrowed money from the cooperative’. When the cooperative lends money, they deduct the savings and I cannot give back the total amount, including interest. It is difficult.” (Female, Dry Zone, Vulnerable Women FGD)

Despite these challenges, a few participants said that they preferred repaying in intervals. For example:

“I have to say, *X programme* is the most relevant as we don’t need to worry about a big amount. We can pay back the loan in small amounts. After paying 25 times, both the interest and capital rate will be paid. And we will still have the savings.” (Female, Delta Zone, Vulnerable Women FGD)

4.5.3 Concerns about gender and inclusion in access to credit

In the FGDs, several individuals mentioned savings and loan group criteria that prevented them from participating in the group and accessing credit. These included some farmers, older individuals, and households where members were too busy to attend the required meetings. Most salient in these discussions, however, was the exclusion of men in many savings and loan groups. Notably, this

¹⁹ Lakh is a Hindi term used throughout southern Asia, as well as Myanmar, to describe 100,000 of something.

exclusion was mentioned most frequently in Dry Zone FGDs. For example, the following remark was made in an FGD with agricultural producers in Mandalay:

“Yes, there is one thing I want to suggest. We want them to give loans to men, too. Even though they lend money to women, we are breadwinners. So women dare not lend money without first discussing with their husbands. So, it will be better if men can borrow money.” (Male, Dry Zone, Agricultural FGD)

In an FGD in the same village with men only, the same concern was raised about inclusion:

“In a household, men are household heads. They lead the family. Now *X Programme* lends money to women only. I think it is not good. I do not like it.” (Male, Dry Zone, Vulnerable Men FGD)

4.5.4 Concerns about the size of loans

FGD participants in the Delta and Uplands Zones said that the loan maximums were too low to have any true impact on their livelihoods:

“The loan is small, so we cannot extend our small businesses with it. The interest rate is 1.15 per cent. We cannot make any type of investment with it. It will be all right if we keep farm animals with it. Keeping farm animals is a long-term investment, so we cannot make a big profit from it.” (Male, Delta Zone, Agricultural FGD)

“On the whole, the loan programme is good, but a weak point is that the amount is too low to do a small business.” (Male and Female, Uplands Zone, Non-Agricultural FGD)

4.5.5 Concerns about the use of loans

Participants also raised concerns that some villagers took on too much debt and did not invest the money properly and that many people did not know how to plan a business or ended up spending the money on daily consumption:

“The group’s objective is to have a longer term impact, but if the people who take out the loan don’t know how to utilise the loan, then it will not have a lasting impact.” (Female, Delta Zone, Non-Agricultural FGD)

One man in the Uplands Zone said that he believed lending cooperatives had had a negative impact on his village because people tended to spend portions of the loan on daily consumption and later struggled to pay it back:

“I will start with the programme that has no benefit to the village. It’s a microfinance programme to reduce poverty. They borrowed one lakh for about six months or so. Then people breed pigs and it’s good. A 15-day-old baby pig costs 60,000 MMK. So they would have another 40,000 MMK left. They would then spend the 40,000 MMK on other things. When it’s time to pay back the original loan, we would have to borrow more money with a

20 per cent interest rate. So it's one of the reasons why things are getting worse.” (Male, Uplands Zone, Vulnerable Men FGD)

A few FGD participants mentioned having participated in lending groups in which one member defaulted on a loan, leaving the rest of the group members to repay on his or her behalf.

4.5.6 Most important use of loan taken out in the past 12 months

The percentage of households in LIFT villages that used the credit they borrowed to purchase food decreased significantly from 44 per cent in 2011 to 22 per cent by 2015 ($p < .001$). This result suggests that food security in households in LIFT villages improved from 2011 to 2015 and reflects the development changes that were taking place across Myanmar. This is also reflected in section 4.7 on food security.

The percentage of households in LIFT villages that used the loan to purchase agricultural inputs increased significantly from 18 per cent in 2011 to 31 per cent in 2015 ($p < .001$). It would seem that households in LIFT villages were increasingly taking out loans to expand their agricultural production and, thus, to make further and more sustainable improvements in food security.

The change in borrowing for business investments increased from 16 per cent in 2011 to 26 per cent in 2013 and then decreased to 20 per cent in 2015 ($p < 0.05$).

Table 34: Loan uses in the past 12 months in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Home improvement, including water supply	0.4	1.1	0.1	-0.3
House purchase or construction	0.2	1.0	1.9	1.7**
Construction other than house	0.0	0.0	0.1	0.1
Land purchase or rent	0.6	0.1	0.4	-0.2
Purchase of working tools or equipment	1.8	1.7	3.1	1.3
Food purchases	44.3	30.4	22.0	-22.3***
Purchase of agricultural inputs	17.6	26.2	31.3	13.7***
Purchase of animals or medicine for animals	4.3	2.5	4.7	0.4
Purchase of other assets	0.4	0.7	0.8	0.4
Bride price or wedding	0.1	0.2	0.4	0.3
Health emergency	10.8	7.2	11.2	0.4
Funeral	0.6	0.0	0.1	-0.5
Business investment	15.8	25.5	19.8	4.0*

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Repayment of loans	0.7	0.6	0.8	0.1
School and education fees and costs	2.2	2.5	3.0	0.8
N (HHs)	833	828	731	–

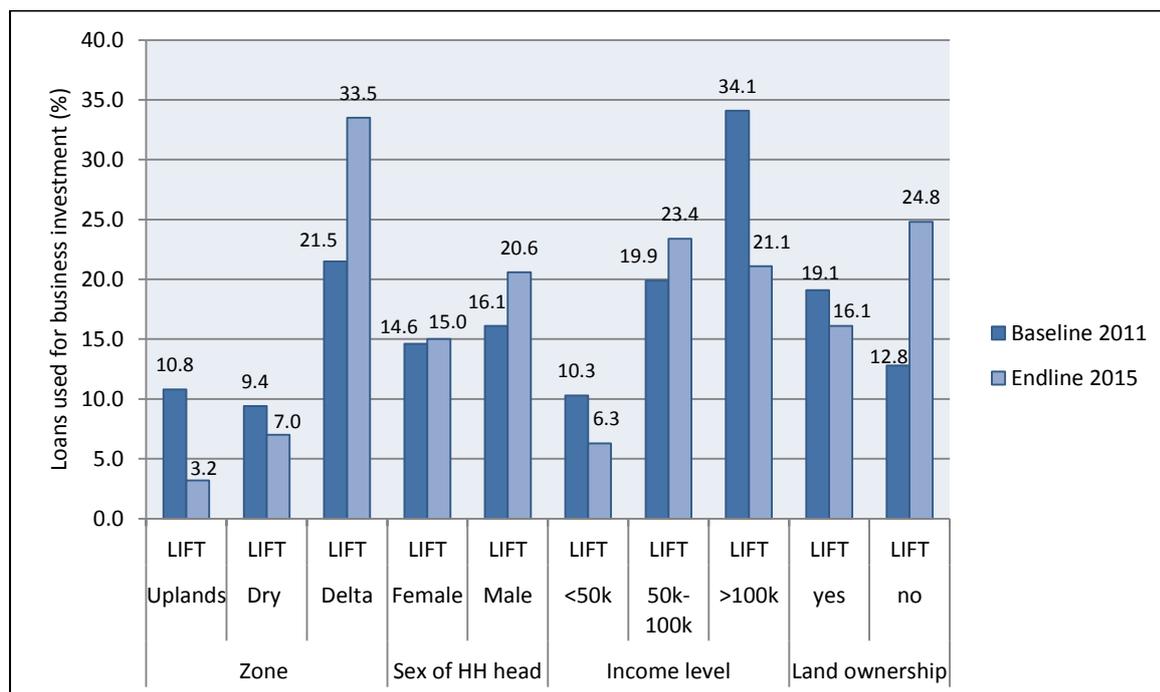
* p<0.05, ** p<0.01, *** p<0.001

The percentage of households in LIFT villages in the Delta Zone indicating that their most important use of their loan was for a business investment increased from 22 per cent in 2011 to 34 per cent in 2015 (p<.001); meanwhile it decreased in the Uplands from 11 per cent to 3 per cent (p<0.05) and in the Dry Zone from 9 per cent to 7 per cent, although this later change was not statistically significant (Table 35 and Figure 13).

Table 35: Most important use of loan taken out in the past 12 months, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Used loan for business investment (% “Yes”)										
Baseline 2011	10.8	9.4	21.5	14.6	16.1	10.3	19.9	34.1	19.1	12.8
Endline 2015	3.2	7.0	33.5	15.0	20.6	6.3	23.4	21.1	16.1	24.8
Simple difference	-7.6*	-2.4	12.0***	0.4	4.5	-4.0	3.5	-13.0	-3.0	12.0

Figure 12: Loans used for business investment, by zone, sex of head of household, income group, and land ownership



The FGDs also highlighted differences between how households used their loans across regions.

4.5.6.1 Uplands Zone

The majority of FGD participants in the Uplands Zone took loans to support agricultural production, such as to purchase seeds, fertiliser, water pipes for irrigation, tractors, and other equipment, and to breed livestock, such as chickens, cows, and pigs. Participants also used loans to invest in inventory for their shops. Participants in Chin State who were affected by a landslide said that they used the loan to move their homes. Some participants said that they used the funds to purchase food or pay school fees.

4.5.6.2 Dry Zone

The most common use of funds borrowed was to purchase cows, pigs, and other livestock. Participants also said that they used loans for shop inventory, trading, and other business investments. In the Dry Zone, only four individuals mentioned using loans to pay for food or school fees.

4.5.6.3 Delta Zone

The majority of FGD participants in the Delta Zone used loans to purchase equipment for small-scale fishing, such as crab traps, motorboats, and fishing nets, and to breed livestock. Only three participants mentioned using loan funds to purchase food. Here is a typical comment:

“It took me a long time to think about getting a pig. It costs 30,000 MMK for a pig. It is not easy to get that kind of money. I was able to buy a pig with a loan. If you bought a pig with 30,000, after a season you would have around 150,000 or 200,000 MMK.” (Female, Delta Zone, Non-Agricultural FGD)

4.5.7 Household debt

Levels of household debt increased markedly from 2011 to 2015 in households in LIFT villages (Table 36). Only 18 per cent of households had a debt more than 500,000 MMK in 2011, but by 2015, 38 per cent of households in LIFT villages had such a debt ($p < 0.001$). However, the percentage of households with no debt increased slightly, from 4 per cent to 7 per cent.

Table 36: The value of debt in households in LIFT villages

Debt (in MMK)	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Less than 25,000	5.5	3.5	1.5	-4.0***
25,001–50,000	10.0	8.0	2.9	-7.1***
50,001–75,000	6.2	4.5	3.0	-3.2**
75,001–100,000	12.6	9.9	4.5	-8.1***
100,001–150,000	11.9	8.6	6.6	-5.3***
150,001–200,000	8.5	10.4	7.8	-0.7
200,001–300,000	10.6	12.0	12.4	1.8
300,001–400,000	6.5	6.5	8.9	2.4
400,001–500,000	6.6	5.4	7.1	0.5
Over 500,001	17.9	28.3	38.3	20.4***
No debt	3.6	2.7	6.8	-3.2
N (HHs)	976	976	976	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.5.8 How households compare their current level of indebtedness with previous years

Although debt levels increased substantially from 2011 to 2015, households in LIFT villages that indicated that their level of indebtedness was rising decreased from 60 per cent to 30 per cent ($p < 0.001$) (Table 37 and Figure 14). This was experienced across all income brackets. This suggests that participants are better able to service their debt, perhaps as a result of investments made with the loans they received.

Table 37: Level of current indebtedness, compared with previous years, for households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Debt is increasing	60.1	44.6	29.7	-30.4***
Debt is staying the same	24.2	25.0	36.8	12.6***
Debt is decreasing	15.7	27.8	25.8	10.1***
N	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

Figure 13: Level of current indebtedness, compared with previous years, for households in LIFT villages

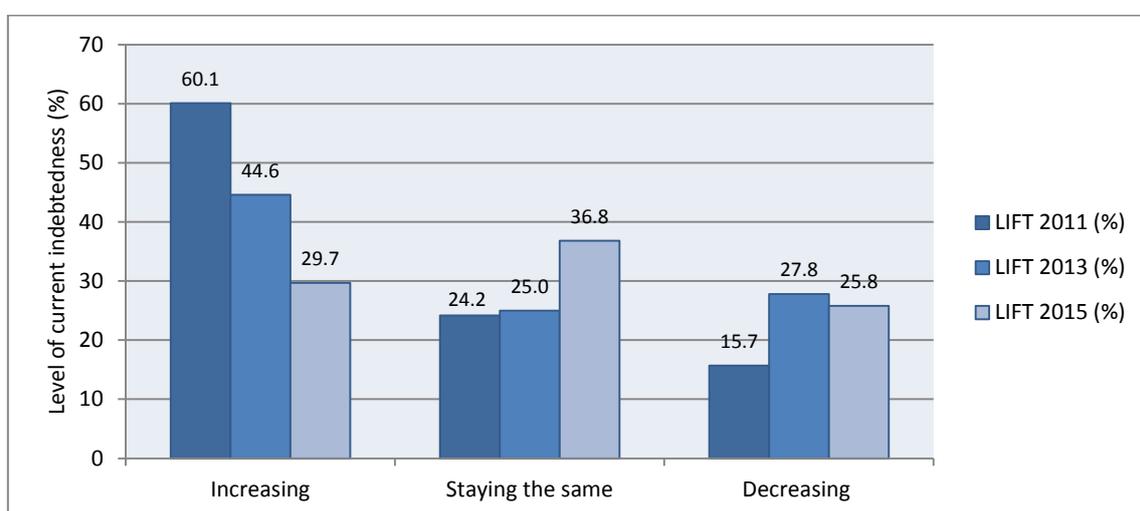


Table 38 indicates that the decline in an increased level of indebtedness was felt across regions. The Uplands and Delta zones experienced a bigger decline than the Dry Zone; however, the Dry Zone had higher baseline percentages in 2011. By 2015 between only 27 and 31 per cent of respondents across regions reported an increased level of indebtedness.

Table 38: How households compare their current level of indebtedness with previous years, by zone, sex of the head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Increased current level of indebtedness compared with the previous year (% "Yes")										
Baseline 2011	62.0	40.9	68.6	50.4	61.9	61.3	60.1	53.0	56.3	63.6
Endline 2015	26.7	30.1	31.0	27.7	30.1	30.5	32.5	28.1	29.4	30.1
Simple difference	-35.3***	-10.8*	-37.6***	-22.7***	-31.8***	-30.8	-27.6	-24.9	-26.9	-33.5

4.6 Agricultural practices and production

Land is one of, if not the most important, livelihood asset for households in rural Myanmar. Ownership of sufficient land could ensure income and food security; however, ownership of land was not universal and was inequitable in its distribution in the rural population.

4.6.1 Land ownership²⁰

The percentage of households in LIFT villages that owned farming land increased significantly from 50 per cent to 56 per cent between 2011 and 2015 ($p < .05$) (Table 39).

The average size of farm land owned for households in LIFT villages was between 8 and 9 acres across surveys.

Table 39: Land size and ownership in households in LIFT villages

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Own land (%)	49.9	54.2	56	6.1*
N (HHs)	976	976	976	–
Average size of land owned (acres)	8.7	8.0	7.7	-1.0
N (HHs)	487	529	547	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

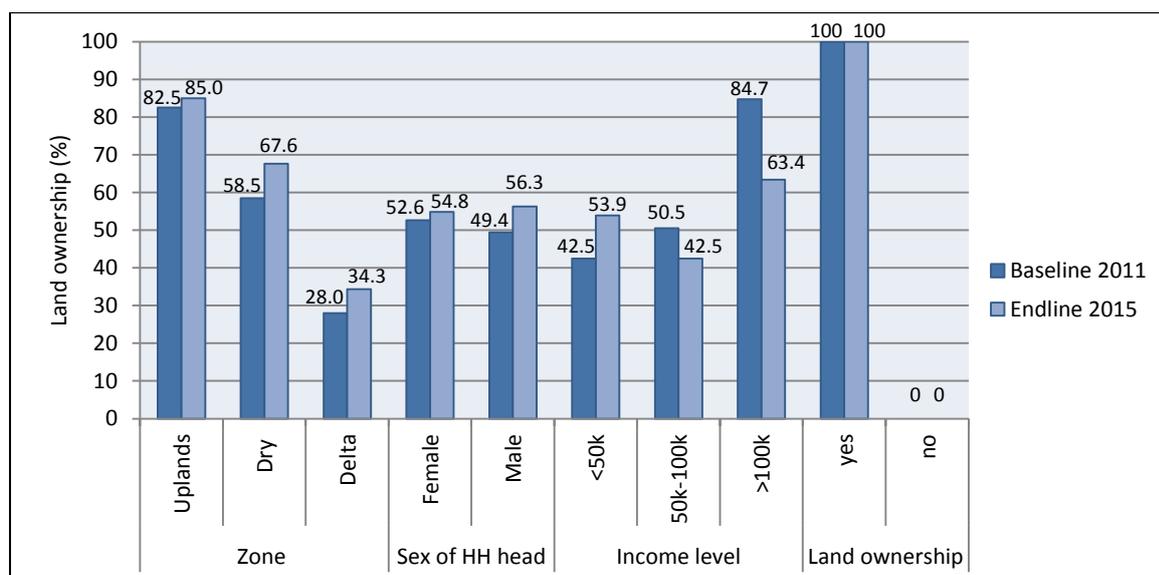
²⁰ Land ownership is considered broadly to include: cases where land is formally titled and registered in one or more household member's name; land that has been purchased, transferred, or inherited but not formally titled (or if titled, not registered in the household's name); land leased from the government; and land where the household believes that it has an established right (formal or informal) to use the land, which is a right that is generally recognised by the community.

The table below breaks down land ownership by zone, sex of head of household, income level and land ownership. It is interesting to note that land ownership is highest in the Uplands but increased the most in the Dry Zone between 2011 and 2015. It is also interesting to note that land ownership increased in the lowest income group but declined in the middle and highest income group (Figure 15).

Table 40: Land ownership, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Households owning land (% "Yes")										
Baseline 2011	82.5	58.5	28.0	52.6	49.4	42.5	50.5	84.7	100.0	0.0
Endline 2015	85.0	67.6	34.3	54.8	56.3	53.9	42.5	63.4	100.0	0.0
Simple difference	2.5	9.1*	6.3*	2.2	6.9	11.4	-8.0	-21.3	6.1	-6.1

Figure 14: Land ownership, by zone, sex of head of household, income group, and land ownership



4.6.2 Employment of farm labour

The percentage of households in LIFT villages that undertook farming activities in the past 12 months increased between 2011 and 2015, from 51 per cent to 57 per cent ($p < .01$) (Table 41). The percentage that employed workers to assist in agricultural production also increased from 57 per cent to 61 per cent. Furthermore, the percentage of respondents that indicated that they employed more farm labourers in the past 12 months increased by 19 percentage points across the three rounds ($p < 0.001$).

Table 41: Farming activities in households in LIFT villages

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Undertook farming activities in the past 12 months (%)	50.5	56.4	57.1	6.6**
N (HHs)	976	976	976	–
Employed workers to assist in agricultural production (%)	57.2	68.0	61.4	4.2
N (HHs)	493	550	557	–
Employed more farm labourers in the past 12 months (%)	27.0	26.2	45.9	18.9***
N (HHs)	282	374	342	–
Employed the same farm labourers in the past 12 months (%)	66.0	61.5	47.4	-18.6
N (HHs)	282	374	342	–
Employed fewer farm labourers in the past 12 months (%)	7.1	12.3	6.7	0.4
N (HHs)	282	374	342	–

* p<0.05, ** p<0.01, *** p<0.001

For further breakdown by zone, sex of household head, income group and land ownership see Table 42 .

Table 42: Employment of farm labour, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Undertook any farming activities in the past 12 months (% “Yes”)										
Baseline 2011	81.3	59.6	29.3	48.7	50.9	43.3	50.2	88.3	90.8	10.4
Endline 2015	85.0	64.3	38.4	52.9	57.9	56.0	43.6	64.1	94.5	9.3
Simple difference	3.7	4.7	9.1	4.2	7.0	12.7	-6.6	-24.2	3.7	-1.1

4.6.3 Crop production

The 2015 data collection round took place later in the calendar year²¹, compared with the 2011 and 2013 rounds, and, therefore, questions related to crop production were adjusted to take this into account.

By matching the appropriate questions from the various questionnaires, there was a slight increase in the percentage of households that grew annual crops in the past 12 months, increasing from 51 per cent in 2011 to 52 per cent in 2015 (Table 43).

Among respondents who owned land and grew annual crops in the past 12 months there was a significant decrease in households in LIFT villages ($p < .05$) (Table 44).

Combining the appropriate questions from the various surveys, there was a significant increase among households in LIFT villages growing crops in the previous monsoon season from 48 per cent in 2011 to 54 per cent in 2015 ($p < 0.05$).

Table 43: Crop production in households in LIFT villages

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Grew annual crops in the past 12 months/in the 2014 monsoon (%)	51.1	56.8	52.4	1.3
Grew crops in the previous monsoon season (%)	48.4	50.8	53.7	5.3*
N (HHs)	976	976	976	–
Grew other crops after the last monsoon season (%)	24.6	26.8	20.8	–3.8*
N (HHs)	976	555	976	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Households in LIFT villages that grew rice increased their production from 35 units per acre in 2011 to 41 units per acre in 2015 (Table 45)²².

Table 44 details the findings for the households that grew annual crops in the past 12 months by zone, sex of head of household, income group, and land ownership.

²¹ Data collection for the first round of the baseline survey started in late September 2011 and was completed by the beginning of November. The second survey in 2013 started in October and was completed by November. The third survey started at the end of December 2015 and was completed by early February 2016.

²² Rice production is defined as total crop harvested divided by total area planted

Table 44: Crop production, by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Grew annual crops in the past 12 months (% "Yes")										
Baseline 2011	82.5	64.2	29.7	48.7	51.6	43.8	50.8	89.2	92.0	10.4
Endline 2015	82.1	52.3	35.3	49.0	53.0	51.8	38.2	59.6	88.1	6.8
Simple difference	-0.4	-11.9*	5.6	0.3	1.4	8.0	-12.6**	-29.6***	-3.9*	-3.6*

Table 45 and Figure 16 show that the mean rice production over the previous 12 months prior to the survey increased across the three rounds. Meanwhile Table 46 indicates that fewer households perceived an increase in crop yields and on the whole perceived that crop yields had stayed steady across the three rounds. It is important to note that the findings in Table 45 relate only to rice production, whereas the findings in Table 46 relate to the perception of yield for all crops.

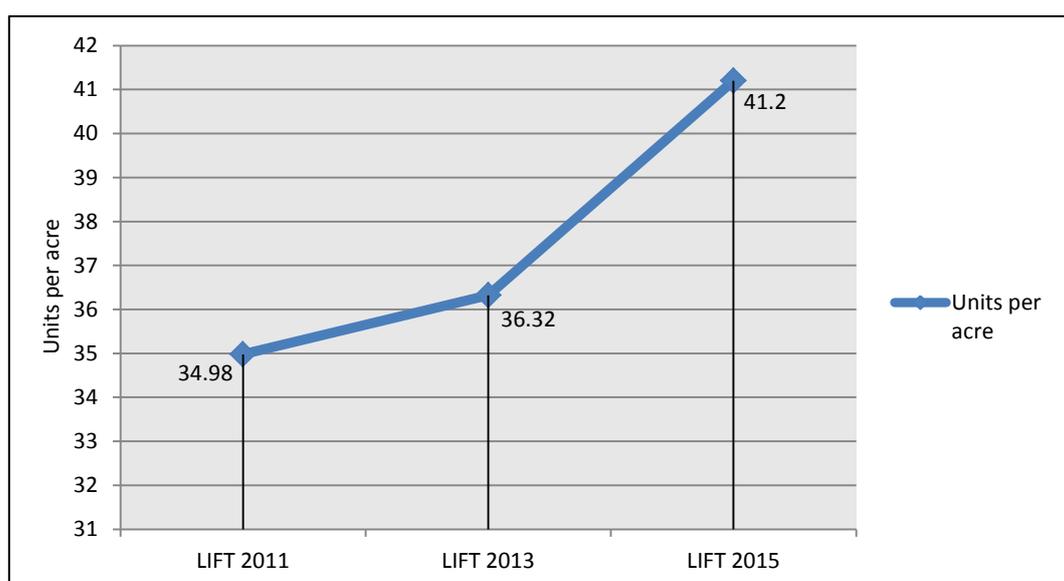
Table 45: Mean rice production in the past 12 months in households in LIFT villages†

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Units per acre	34.98	36.32	41.20	6.22
N (HHs)	180	226	219	–

* p<0.05, ** p<0.01, *** p<0.001

†Mean rice production was calculated by dividing total harvest by area planted.

Figure 15: Mean rice production in the past 12 months in households in LIFT villages†



†Mean rice production was calculated by dividing total harvest by area planted.

Table 46: The perception of crop yield, compared with the average season in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Increased	22.7	24.1	19.6	-3.1
Same	38.1	33.4	41.3	3.2
Decreased	39.2	42.5	39.1	-0.1
N (HHs)	472	494	511	-

* p<0.05, ** p<0.01, *** p<0.001

Binomial logistic regression tests comparing households in LIFT villages that received agriculture and livestock training in 2015 with households that did not indicate that households in LIFT villages that received training in agriculture were 4.2 times more likely to report that their crop yields had increased (p<.001). Households that received training in livestock practices were 2.4 times more likely to indicate a crop yield increase (p<.01) than households that did not receive training.

4.6.4 Constraints to crop production

In the three surveys, participants that grew monsoon or post-monsoon crops were asked about constraints to their crop production. Multiple responses were recorded.

Apart from a lack of knowledge, skills or experience, which stayed steady, the percentage of households reporting crop-limiting constraints across all categories declined between 2011 and 2015. The biggest decline was in reports of a lack of fertilizer. A lack of fertiliser affected more than 20 per cent of households in LIFT villages in 2011, but only 3 per cent of households in 2013, and 6 per cent in 2015 (p<.001).

Table 47: Crop-limiting constraints in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Lack of money to buy the necessary inputs (or lack of credit)	28.1	13.0	26.6	-1.5
Lack of land	5.2	9.3	38.8	
Lack of draught power/mechanical power in the village	7.3	5.4	4.2	-3.1**
Lack of other tools and equipment in the village	8.0	1.5	2.0	-6.0***
Lack of fertilizer in the village	20.5	3.3	6.3	-14.2***
Lack of quality seeds in the village	12.0	1.3	2.2	-9.8***

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Lack of knowledge, skills, or experience	1.0	0.3	1.1	0.1
Lack of water resources or irrigation infrastructure	8.1	7.4	4.4	-3.7**
Crop pests and disease	9.0	12.4	6.1	-2.9*
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

4.7 Food security

From the first to the third data rounds, households in LIFT villages experienced dramatic improvements in their food security.

4.7.1 Months of adequate household food provisioning

Months of adequate household food provisioning (MAHFP) assesses a household's access to food over the course of the previous 12 months. Food access depends on the ability of a household to obtain food from its own production, stocks, purchases, collecting, or through food transfers from relatives, the community, government or donors. A household's ability to meet its food needs can vary over the year due to factors such as the level and timing of crop production, changes in income sources such as employment, as well as social obligations, climate patterns, or natural disasters. Over time, MAHFP captures changes in the household's ability to address food insecurity. It has the advantage of capturing the combined effects of a range of interventions and strategies, such as improved agricultural production, processing, and storage, and interventions that improve income generation.²³

MAHFP increased dramatically among households in LIFT villages between 2011 and 2015 (Table 48). The percentage of households indicating that they did not have enough food in one month in the past 12 months decreased: in 2011, more than 75 per cent of households in LIFT villages indicated that they did not have enough food in at least one month. This decreased to 9 per cent in 2013, and then to less than 5 per cent in 2015 (p<.001 for 2011 to 2015).

From 2011 to 2015, the percentage of households in LIFT villages with no months with a lack of food increased from 24 per cent to 95 per cent (p<.001).

The mean number of months which households indicated that they did not have enough food to meet their needs decreased significantly from 2.4 months to 0.1 month among households in LIFT villages from 2011 to 2015 (p<.01).

²³ Bilinsky, Paula and Anne Swindale. (2010). Months of Adequate Household Food Provisioning (MAHFP) for Measurement of Household Food Access: Indicator Guide (v.4). Washington, D.C.: Food and Nutrition Technical Assistance Project (FANTA), Academy for Educational Development.

Table 48: Insufficient food in the past 12 months in households in LIFT villages

	HHs in LIFT villages 2011	HHs in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Were there months in the past 12 months with not enough food (%)	76.1	8.7	4.7	-71.4***
0 months (%)	23.9	91.3	95.3	71.4***
1 month (%)	3.5	1.2	0.7	-2.8***
2 months (%)	26.6	5.0	2.9	-23.7***
3 months (%)	22.1	1.9	0.7	-21.4***
4 months (%)	12.9	0.4	0.2	-12.7***
5 months (%)	7.9	0.0	0.2	-7.7***
6 months (%)	1.6	0.1	0.0	-1.6***
7 months (%)	0.8	0.0	0.0	-0.8*
8 months (%)	0.2	0.0	0.0	-0.2
9 months (%)	0.1	0.0	0.0	-0.1
10 months (%)	0.0	0.0	0.0	0.0
11 months (%)	0.1	0.0	0.0	-0.1
12 months (%)	0.2	0.0	0.0	-0.2
Mean number of months	2.4	0.2	0.1	-2.3**
N (HHs)	976	976	976	-

* p<0.05, ** p<0.01, *** p<0.001

The poorest income group experienced the sharpest decline in food insecurity across rounds (Table 49). Of those who earned less than 50,000 MMK a month, more than 85 per cent of households in LIFT villages lacked food in at least one month in 2011, whereas only 11 per cent did by 2015 (p<0.001).

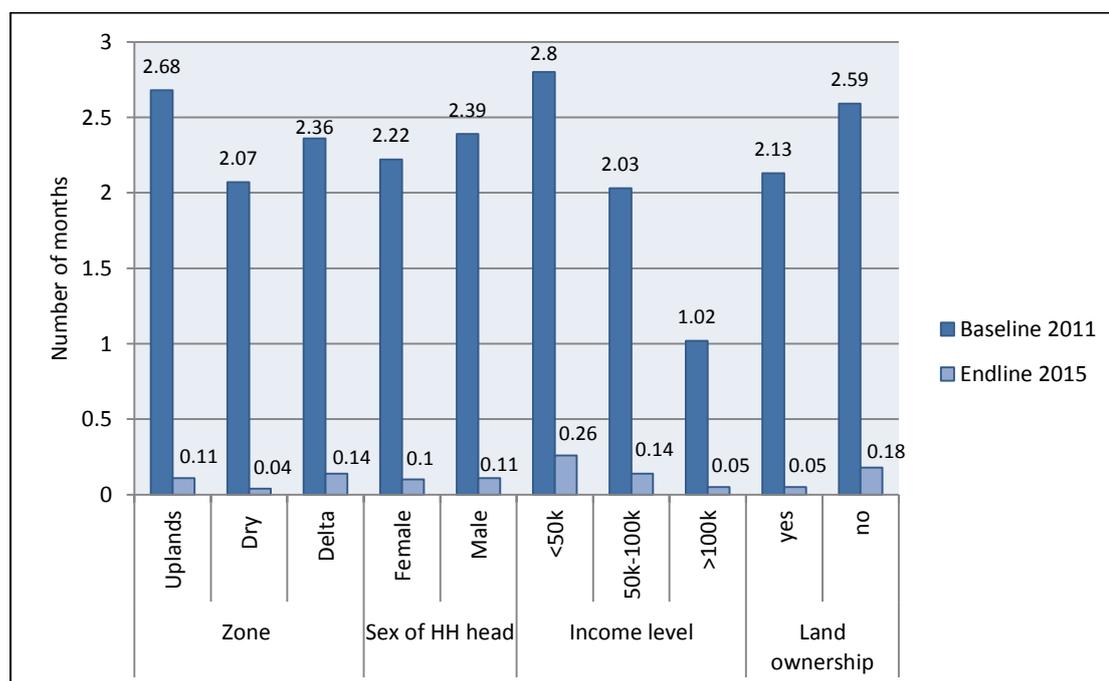
Table 49: Months of adequate household food provisioning (MAHFP), by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Had months in the past 12 months in which the household did not have enough food to meet household needs (% "Yes")										
Baseline 2011	78.3	72.1	77.4	73.1	76.7	85.6	73.1	39.6	69.0	83.2

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Endline 2015	4.6	2.2	6.3	3.9	4.9	11.3	6.4	2.2	2.2	7.9
Simple difference	-73.7***	-69.9***	-71.1***	-69.2***	-71.8***	-74.3***	-66.7***	-37.4***	-66.8***	-75.3***
Mean number of months in which the household did not have enough food to meet household needs										
Baseline 2011	2.68	2.07	2.36	2.22	2.39	2.80	2.03	1.02	2.13	2.59
Endline 2015	0.11	0.04	0.14	0.1	0.11	0.26	0.14	0.05	0.05	0.18
Simple difference	-2.57***	-2.03	-2.22	-2.12*	-2.28*	-2.54**	-1.89	-0.97	-2.08***	-2.41

The mean number of months in which households did not have enough food to meet household needs decreased across all zones and income groups (Figure 17). It declined more in the lowest income households compared to households in other income brackets.

Figure 16: Mean number of months in which the household did not have enough food to meet household needs



4.7.2 Food consumption

The positive changes in food availability in LIFT areas were accompanied by increases in the diversity of foods that households in LIFT villages ate in the 24 hours prior to data collection. Across the three data rounds, the consumption of foods made from flour (noodles, bread, biscuits, etc.), meat (beef, pork, chicken, liver, heart, etc.) and eggs, and the drinking of coffee or tea all increased by 10

percentage points. There were other notable increases in other food categories and the only decrease recorded was the in the consumption of fish and shellfish (Table 50).

Table 50: Food consumption in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Any rice, sticky rice, or any other food made from rice, sticky rice, maize, wheat, barley, oats, millet, or sorghum?	100	100	100	0.0
Any noodles, bread, biscuits, or any other foods made from flour?	13.3	24.2	28.3	15.0***
Any potatoes, cassava, yams, taro, or any food made from roots or tubers?	10.7	17.6	17.1	6.4***
Any vegetables?	83.3	82.3	88.0	4.7**
Any fruits?	23.3	32.4	29.7	6.4**
Any beef, pork, lamb, goat, rabbit, chicken, duck, other birds, or other meats or organs such as liver, heart, kidney etc.?	11.7	27.3	29.5	17.8***
Any other meats from frogs, eel, rats, snakes, dogs, cats etc.?	1.7	1.3	2.3	0.6
Any eggs from chickens, quails, ducks, or other birds?	10.5	24.7	29.1	18.6***
Any fish, crabs, prawns, or shellfish, either fresh or dried?	52.2	48.9	49.5	-2.7
Any food made from gram, peas, cowpeas, pigeon peas, lentils, beans, peanuts, or other nuts?	29.8	34.3	37.2	7.4**
Any milk, milk solids, yogurt, cheese, or other milk products?	5.3	6.8	7.2	1.9**
Any food made with peanut oil, coconut oil, palm oil, sesame oil, sunflower oil or other oils, animal fat, butter, or margarine?	87.3	95.5	96.6	9.3***
Any sugar, <i>jaggery</i> , or honey?	21.6	30.6	27.0	5.4*
Any coffee or tea?	14.0	23.6	38.8	24.8***
Any condiments such as salt, pepper, curry, chillies, etc.?	100	100	100	0.0
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

4.7.3 Household Dietary Diversity Score

The Household Dietary Diversity Score (HDDS) is a widely used proxy measure of household food access where participants are asked to recall the number of different food groups consumed over the previous 24 hours. While a diversified diet is an important outcome in itself, it is also correlated with improved outcomes in birth weight, child anthropometric status, and caloric and protein adequacy. It is also correlated with household income.²⁴ Increased food expenditure resulting from additional income is generally associated with increased quantity and quality of the diet.

Table 51 summarises the results of the average number of different food groups, as listed in Table 50, consumed by households that were interviewed during the surveys. From the first survey to the third survey, the average number of different food groups consumed in the previous 24 hours before the interview increased from 5.4 to 6.1 different food groups.

Table 51: Household Dietary Diversity Score in households in LIFT villages

	HHs in LIFT villages 2011	HHS in LIFT villages 2013	HHs in LIFT villages 2015	LIFT change 2011–2015
Mean HDDS score	5.4	6.0	6.1	0.7
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

The biggest changes and increases were seen in the Uplands when compared to other regions, the lowest income group when compared to other income groups and among those who owned land when compared to those who did not (Table 52).

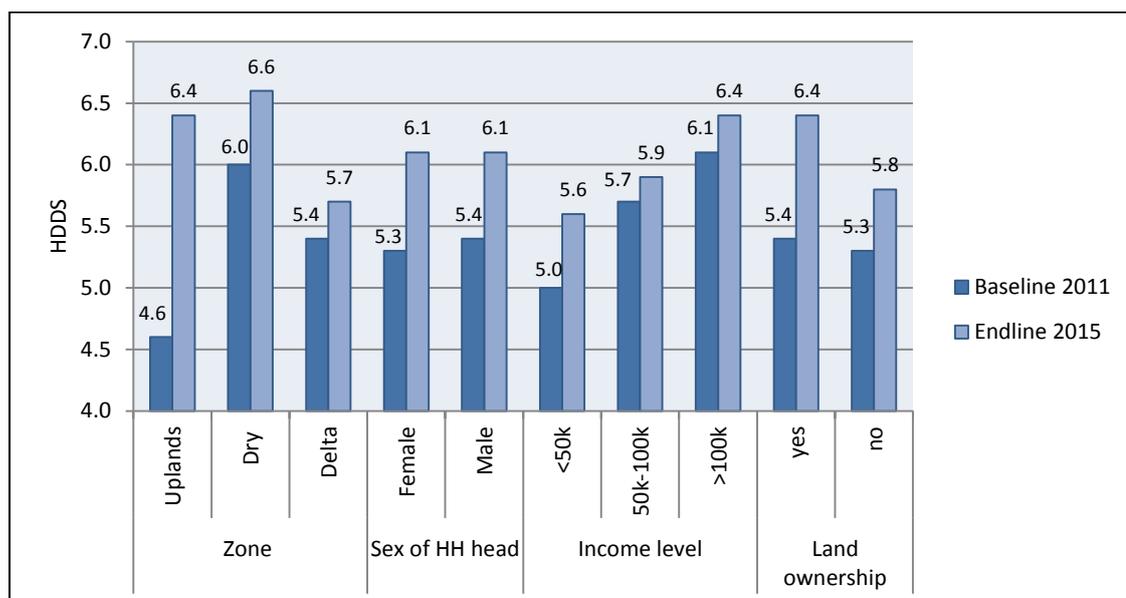
Table 52: Household Dietary Diversity Score (HDDS), by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
HDDS										
Baseline 2011	4.6	6.0	5.4	5.3	5.4	5.0	5.7	6.1	5.4	5.3
Endline 2015	6.4	6.6	5.7	6.1	6.1	5.6	5.9	6.4	6.4	5.8
Simple difference	1.8***	0.6***	0.3***	0.8	0.7	0.6***	0.2***	0.3*	1.0***	0.5***

²⁴ Swindale, Anne and Paula Bilinsky. (2006). Household Dietary Diversity Score for Measurement of Household Food Access: Indicator Guide (v.2). Washington, D.C.: Food and Nutrition Technical Assistance Project (FANTA), Academy for Educational Development.

Figure 18 shows an increase of the average number of food groups consumed in the previous 24 hours before the interview across all geographical zones, sex of head of household, income levels, and land ownership.

Figure 17: Household Dietary Diversity Score (HDDS), by zone, sex of head of household, income group, and land ownership



4.7.4 Perceptions of food availability

Table 53: Perceived food availability in the past 12 months, compared with the previous year, in households in LIFT villages

	HHs in LIFT villages 2011 (%)	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2011–2015
Increased food availability	14.7	24.1	21.0	6.3***
Same as previous year	51.6	54.1	64.1	12.5***
Decreased	33.2	21.0	14.8	-18.4***
N (HHs)	976	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

Fifteen per cent of households in LIFT villages in 2011 and 24 per cent in 2013 perceived that their food availability had increased. In 2015 21 per cent reported this to be the case (Table 53).

However the percentage of households that reported that food availability had decreased compared with the previous year consistently decreased across the rounds from 33 per cent in 2011 to 21 per cent in 2013 and then to 15 per cent in 2015 ($p < 0.001$).

Households in LIFT villages that received training in agricultural and livestock practices, compared with households that did not receive training, had significant differences in their perceptions of whether food availability had increased over the past 12 months. Households in LIFT villages that received training in agricultural practices were 2.2 times more likely to indicate that their food availability had increased, compared with households that did not receive training in 2016 ($p < 0.01$); those that had received livestock training were 2.3 times more likely ($p < 0.01$).

4.7.5 Positive changes in food security based on FGD data

FGD participants from all three regions described improvements in food security, saying that there were occasional shortages of food three or four years ago, but that food security had been less of a problem in recent years. Many participants attributed this change to higher and steadier wages, as indicated in these comments:

“Better income makes better food consumption.... We can buy vegetables at any time at a reasonable price. We sold out our rice and are buying rice from another source as the quality of the rice is much better than ours.” (Female, Delta Zone, Agricultural FGD)

“It has improved as the food security situation has improved. At first, it was difficult. In the past, I can only buy the rice in *pyi*²⁵, but now I can buy in a whole bag.” (Female, Uplands Zone, Vulnerable Women FGD)

Food security was also attributed to the availability of ready-made foods and vendors who accepted monthly payments for food:

“The vendors are also providing by-the-month payments, so that is quite convenient.” (Male, Dry Zone, Agricultural FGD)

Improvements in transportation and road infrastructure also allowed villagers to access a greater variety of food:

“In the past, we could only eat fish and frog as the road condition was poor. So we did not buy meat as often, but now it is more accessible. We can buy meat and fish from home as they come and sell from their motorcycles.... In the past, I ate [meat] about two times a week, but now I eat it about five times a week.” (Male, Delta Zone, Vulnerable Men FGD)

²⁵ *Pyi* is a measurement of volume in Myanmar that equals 2,560 ml, 2.7 quarts in imperial measurement, or about 8 cups.

“Now, we are able to have more food. In the morning, when we want to drink tea, we don’t have to go to the teashop. We just stay at home and have instant tea.” (Male, Dry Zone, Agricultural FGD)

4.7.6 Food security challenges based on FGD data

According to FGD participants, the food security situation worsened periodically, according to seasonal changes. After the monsoon paddy season in January, households working in agriculture experienced food shortages. From September to November, labourers, fishing net makers, and crab hunters experienced food shortages:

“In those months, saltwater flows into freshwater and we cannot catch fish and prawns. And the farming season has not come by that time. Food is still scarce in Thidingyut and Tazaungmone. By that time, paddy fields in the freshwater areas are not harvested, and saltwater inundates those areas. Then, we cannot catch fish and prawns.” (Female, Delta Zone, Agricultural FGD)

In the Dry Zone, food security challenges occurred from June to August, in between farming seasons, when there are fewer employment opportunities. Participants in all three zones emphasised that the food supply was not so short that they had to skip meals; rather, they may opt to purchase cheaper rice during those months or eat smaller portions:

“Four family members usually eat one *pyi* (eight cups of rice). But instead cook seven cups of rice, reducing the portion by one cup of rice.” (Female, Delta Zone, Vulnerable Women FGD)

“We have to budget the food and drinks that we consume. As for reducing the intake, we would not consume any snacks during these times.” (Female, Delta Zone, Non-Agricultural FGD)

“Instead of purchasing any of the main dishes, we would just eat rice with fish paste.” (Female, Delta Zone, Non-Agricultural FGD)

4.8 Nutrition and anthropometry findings

This section of the report is based on comparisons between the 2013 and 2015 data rounds because the relevant questions were not asked in the 2011 survey.

4.8.1 Stunting, underweight, and wasting

In both the 2013 and 2015 nutrition and anthropometry surveys, anthropometric indicators for children under age 5 were collected, providing outcome measures of nutritional status in households in LIFT villages. Height (length) and weight measurements were taken using standardised procedures and were compared with the 2006 WHO Child Growth Standards, which are based on an international sample of ethnically, culturally, and genetically diverse healthy children living under optimum conditions that are conducive to achieving a child’s full genetic growth potential. Use of

the 2006 WHO Child Growth Standards is based on the finding that well-nourished children of all population groups for which data exist follow similar growth patterns before puberty.

Weight-for-age takes into account both chronic and acute malnutrition and is often used as a longitudinal monitor of nutritional status. Children who are less than two standard deviations (SDs) below the median of the WHO Standards in terms of weight-for-age may be considered underweight.

The height-for-age index provides an indicator of linear growth retardation (stunting) among children. Children who are less than two SDs below the median of the WHO Standards in terms of height-for-age may be considered short for their age (stunted) or chronically malnourished. Severe stunting reflects the outcome of a failure to receive adequate nutrition over a number of years and is also affected by recurrent and chronic illness. Height-for-age, therefore, represents a measure of the long-term effects of malnutrition in a population and does not vary appreciably according to the season of data collection.

Weight-for-height is a measure of acute malnutrition (wasting), a predictor of child mortality. Children who are less than two SDs below the median of the WHO Child Growth Standards in terms of weight-for-age are considered wasted.

Valid height and weight measurements were used to calculate three indicators:

- Prevalence of underweight children ages 0–59 months (weight-for-age)
- Prevalence of stunted children ages 0–59 months (height-for-age)
- Prevalence of wasted children ages 0–59 months (weight-for-height)

To ensure that there were enough cases to compare households over time, the analysis is based on all nutrition and anthropometry surveys collected in the three zones in 2013 and 2015 data rounds, and not just those that were collected in the 60 villages that were common in the three data rounds. Given the lack of cases, the results have not been disaggregated by region. The number of children age 5 and under in 2013 was 3,972, and in 2015, it was 3,537.

Table 54 provides the results for these anthropometric indicators. The data indicate a marked reduction in the number of underweight, stunted, and wasted children in households in LIFT villages from 2013 to 2015.

In 2013, 22 per cent of children in the survey population under age 5 showed signs of being moderately or severely underweight (less than two SDs below the median). By 2015, only 14 per cent of children in households in LIFT villages were classified as moderately or severely underweight. This change was statistically significant ($p < .01$).

The prevalence of stunting decreased from 32 per cent of children in households in LIFT villages in 2013 to 25 per cent in 2015. The change was statistically significant ($p < .01$).

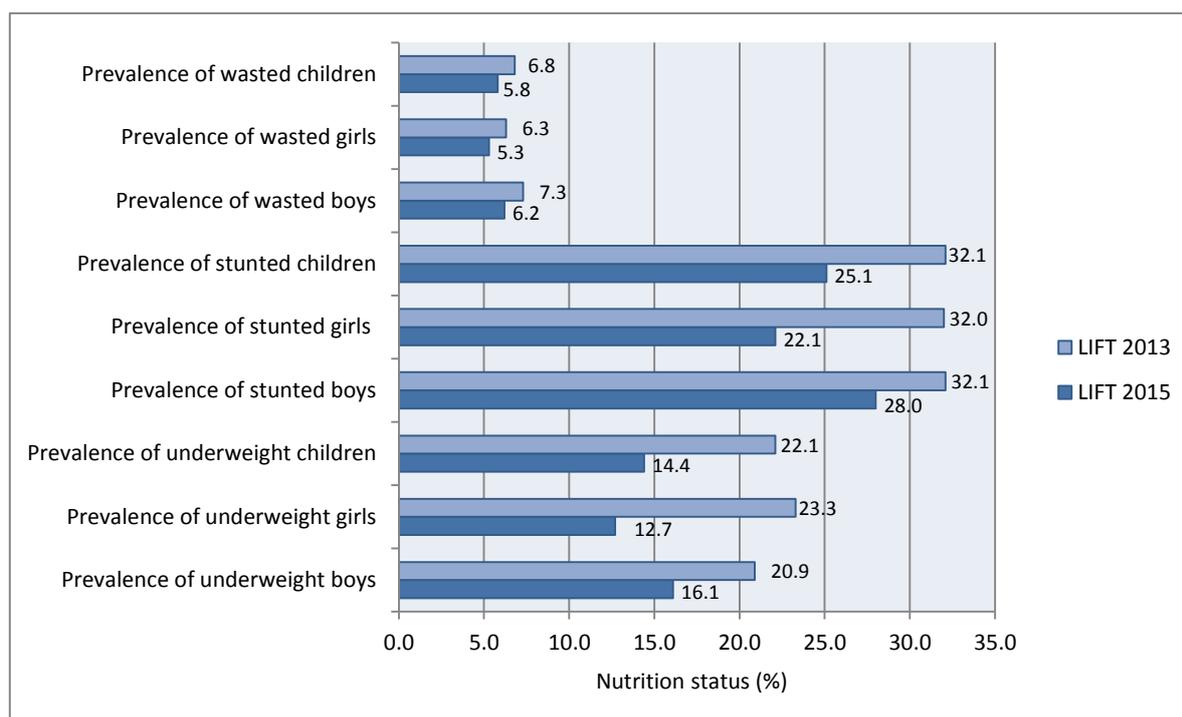
The prevalence of wasting in households in LIFT villages decreased insignificantly from 7 per cent to 6 per cent between 2013 and 2015.

Table 54: Nutrition status of children ages 0–59 months in households in LIFT villages

	Individuals in LIFT villages 2013	Individuals in LIFT villages 2015	LIFT change 2013–2015
Prevalence of underweight boys (%)	20.9**	16.1**	-4.8**
N (Individuals)	1,538	1,400	–
Prevalence of underweight girls (%)	23.3**	12.7**	-10.6**
N (Individuals)	1,440	1,363	–
Prevalence of underweight children (%)	22.1**	14.4**	-7.7**
N (Individuals)	2,978	2,763	–
Prevalence of stunted boys (%)	32.1	28.0	-4.1
N (Individuals)	1,521	1,385	–
Prevalence of stunted girls (%)	32.0**	22.1**	-9.9**
N (Individuals)	1,417	1,345	–
Prevalence of stunted children (%)	32.1**	25.1**	-7.0**
N (Individuals)	2,938	2,730	–
Prevalence of wasted boys (%)	7.3**	6.2**	-1.1**
N (Individuals)	1,521	1,379	–
Prevalence of wasted girls (%)	6.3**	5.3**	-1.0
N (Individuals)	1,423	1,348	–
Prevalence of wasted children (%)	6.8**	5.8**	-1.0
N (Individuals)	2,944	2,727	–

* p<0.05, ** p<0.01, *** p<0.001

Figure 18: Nutrition status of children aged 0–59 months in households in LIFT villages



These improvements suggest a marked increase in the well-being of children in rural Myanmar. This improvement most likely reflects the dramatic improvement in household food security from 2011 to 2013 and 2015, as discussed in Section 4.7 of this report.

4.8.2 Children with diarrhoea

Dehydration caused by severe diarrhoea is a cause of morbidity and mortality among young children, although the condition can be treated easily with oral rehydration therapy. Exposure to diarrhoea-causing agents is frequently caused by contaminated water and unhygienic practices in food preparation and the disposal of excreta. For this survey caretakers were asked whether any children under age 5 had diarrhoea at any time during the two-week period preceding the survey.

Between 2013 and 2015, there were no significant changes in the extent of diarrhoea among children younger than age 5 in households in LIFT villages (Table 55).

Table 55: Children under age 5 that experienced diarrhoea in the past two weeks

	Individuals in LIFT villages 2013	Individuals in LIFT villages 2015	LIFT change 2013–2015
Had diarrhoea in past two weeks (%)	16.0	16.1	0.1
N (Individuals)	1,315	1,259	–
Had diarrhoea in a household that treats its drinking water (%)	15.7	16.2	0.5
N (Individuals)	1,194	1,231	–

	Individuals in LIFT villages 2013	Individuals in LIFT villages 2015	LIFT change 2013–2015
Had diarrhoea in a household that does not treat its drinking water (%)	19.8	14.3	-5.5
N (Individuals)	121	28	–

* p<0.05, ** p<0.01, *** p<0.001

4.9 Water and sanitation

4.9.1 Source of drinking water

In 2013 and in 2015 the main source of drinking water during the summer season was surface water (rivers, dams, lakes, ponds, streams, canals, and irrigation channels), accounting for 52 and 47 per cent of households in LIFT villages respectively (p<0.05)(Table 56). Protected spring water accounted for 14 per cent of households in LIFT villages in 2015 compared to 5 per cent in 2013.

Table 56: Drinking water sources in summer for households in LIFT villages

	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2013–2015
Piped water into home	0.0	0.5	0.5*
Piped water to yard	0.0	0.1	0.1
Piped water to public tap/standpipe	0.0	1.8	1.8***
Tube well or borehole	17.1	15.5	-1.6
Protected well	9.8	9.3	-0.5
Unprotected well	2.4	1.9	-0.5
Protected spring water	5.2	14.1	8.9***
Unprotected spring water	1.4	3.0	1.6*
Rainwater	6.3	2.5	-3.8***
Tanker truck	1.2	0.7	-0.5
Cart with small tank	0.5	0.1	-0.4
Surface water (river, dam, etc.)	52.5	47.1	-5.4*
Bottled water	3.6	0.9	-2.7***
N (HHs)	976	976	–

* p<0.05, ** p<0.01, *** p<0.001

However the breakdown by zone highlights that protected springs as a major source of drinking water is heavily concentrated in the Uplands. The percentage of households in LIFT villages in the

Uplands Zone using protected spring water as their main source of drinking water in the summer season increased from 20 per cent in 2013 to 58 per cent in 2015 ($p < .001$). Only a small number of households in LIFT villages in the Dry Zone indicated that spring water was their main source of drinking water in 2013, and none indicated it as a source in 2015. No households in the Delta Zone indicated using this source of drinking water in either 2013 or 2015.

The use of spring water as the main source of drinking water increased more in: (1) LIFT male-headed households compared to female headed households; in the poorest households compared to other income groups; in the households that owned land compared to those that did not (Table 57).

Table 57: Source of drinking water by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Protected spring was the main source of drinking water in the summer season (% "Yes")										
Baseline 2011	20.4	0.7	0.0	6.7	4.9	12.5	1.5	0.9	7.9	2.0
Endline 2015	57.5	0.0	0.0	9.7	15.0	30.5	15.7	9.2	22.5	3.5
Simple difference	37.1***	-0.7	0.0	3.0	10.1***	18.0***	14.2***	8.3***	14.6***	1.5

4.9.2 Treatment of drinking water

In 2013, 93 per cent of households in LIFT villages treated their drinking water. By 2015, 99 per cent of households in LIFT villages treated their drinking water (Table 59).

In the Uplands Zone in 2013, 74 per cent of households in LIFT villages treated their drinking water. This compared with 97 per cent or higher of households in LIFT villages in the Delta and Dry zones that treated their drinking water. By 2015, in the Uplands Zone, 98 per cent of households in LIFT villages ($p < .001$) treated their drinking water.

By income and the variable for treating drinking water, households in LIFT villages in the poorest income group that treated their drinking water saw the greatest increase going from 88 per cent in 2013 to 98 per cent in 2015 ($p < .001$).

Table 58: Treatment of drinking water by zone, sex of head of household, income group, and land ownership

	Zone			Sex of HH head		Income level			Land ownership	
	Uplands	Dry	Delta	Female	Male	<50k	50k-100k	>100k	yes	no
Treat the household's drinking water to make it safe (% "Yes")										
Baseline 2011	74.2	97.4	99.4	90.8	93.0	88.4	94.4	95.7	90.0	95.7
Endline 2015	97.9	98.9	100	99.4	99.1	98.6	99.3	99.3	99.1	99.3
Simple difference	23.7***	1.5	0.6	8.6***	6.1***	10.2***	4.9**	3.6**	9.1***	3.6**
Treat drinking water by straining it through a cloth (% "Yes")										
Baseline 2011	23.0	72.1	90.5	69.6	72.2	62.3	80.1	71.4	63.9	80.6
Endline 2015	37.4	78.4	93.8	76.6	75.7	46.0	78.8	81.9	68.1	85.7
Simple difference	14.4**	6.3	3.3	7.0	3.5	-16.3	-1.3	10.5	4.2	5.1*

Households in LIFT villages used a number of methods to ensure that their drinking water was clean, and many used more than one method. The predominant method was straining water through a cloth (Table 59). In 2013, 72 per cent of households in LIFT villages used this as one of the methods to treat their water. By 2015, the percentage of households using this method increased significantly by 4 percentage points ($p < 0.05$).

In the Uplands Zone, the percentage of households in LIFT villages treating their drinking water by straining it through a cloth increased from 23 per cent to 37 per cent between 2013 and 2015 ($p < 0.01$), which was a much greater increase than the other zones.

The second most common method of treating the drinking water was to boil it. About 60 per cent of households in LIFT villages boiled their drinking water in 2013. By 2015, this increased to nearly 75 per cent ($p < 0.001$).

Table 59: Drinking water treatment in households in LIFT villages

	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2013–2015
Yes, treat drinking water	92.6	99.2	6.6***
N (HHs)	976	976	–
Boil	59.8	72.1	12.3***
Add bleach, chlorine, or iodine	1.1	0.4	-0.7

	HHs in LIFT villages 2013 (%)	HHs in LIFT villages 2015 (%)	LIFT change 2013–2015
Strain it through a cloth	71.8	75.8	4.0*
Use a water filter (ceramic, sand, composite, etc.)	9.8	9.4	-0.4
Solar disinfection	0.1	0.1	0.0
Let it stand and settle	21.2	25.6	4.4*
N (HHs)	904	968	–

* p<0.05, ** p<0.01, *** p<0.001

Conclusion

The multi-donor Livelihoods and Food Security Trust (LIFT) Fund, designed to increase food security and improve the livelihoods of poor families in Myanmar, undertook programmes from 2010 to 2015 across rural Myanmar. By 2011 the programmes covered three of the country's main agro-ecological zones — the Delta, Dry, and Uplands Zones — and in 2012 they expanded to Rakhine State in the Coastal Zone.

This 2015 Household Survey report analyses the results from 60 villages in the Delta, Dry and Uplands zones that were surveyed across three data collection rounds 2011, 2013 and 2015

It highlights the tremendous scale and pace of change that took place in LIFT villages. Nearly all indicators showed dramatic increases from 2011 to 2013 and increases, albeit smaller than in the previous years, from 2013 to 2015. By 2015 households in LIFT villages enjoyed far greater food security, owned more assets, had greater access to credit and had reduced rates of malnutrition and stunting. Whilst the findings presented in this report need to be understood within the context of the changes taking place across Myanmar over this period, these household surveys and this report provide a framework and context from which programme effect can begin to be understood.

LIFT Household Survey 2015