



To'os ba Moris Di'ak
Farming for Prosperity

Analysis of Secondary Data

with specific attention to TOMAK target areas

Technical Report 7
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Abbreviations, Acronyms and Glossary

<i>Aldeia</i>	Sub-division of a <i>Suku</i> . Hamlet.
ASI	Adam Smith International Pty Ltd
CDNIP	Community-Driven Nutrition Improvement Project
CRS	Catholic Relief Services
DFAT	Australian Department of Foreign Affairs and Trade
EoPS	End of Program Survey
FCS	Food Consumption Score
GoTL	Government of Timor-Leste
HH	Household
HoH	Head of household
IDD	Investment Design Document
LHZ	Livelihoods zone
MAE	<i>Ministêru Administrasaun Estatál</i> , Ministry of State Administration
MAF	Ministry of Agriculture and Fisheries
NTFPs	Non-timber forest products
PPI	Progress Out of Poverty Index
SAR of Oecusse	Special Administrative Region of Oecusse
SoL	Seeds of Life Program (ACIAR)
<i>Suku</i>	Village, in Tetun. In English the Portuguese term 'Suco' is also commonly used.
TOMAK	To'os Ba Moris Di'ak / Farming for Prosperity
TLNFS	Timor-Leste Food and Nutrition Survey, 2013
VC	Value chain

Executive Summary

Supporting and stimulating local economic and social development through a program such as Farming for Prosperity (To'os Ba Moris Di'ak – TOMAK) is a challenging task. There is much variation in the resource endowment of the people whose livelihoods the program wishes to improve, and there are many unpredictable and unknown factors that can influence the results and impact of the proposed activities.

One manner to make such challenges somewhat more manageable is by using insights and understanding of the pre-existing conditions obtained through the analysis and interpretation of secondary data. This is the purpose of this report.

The secondary data sources that have been reviewed include:

- Population and Housing Census (2015).
- Population and Housing Census (2010).
- Seeds of Life (SoL) end-of-program survey (2016).
- Community Driven Nutrition Improvement Project Survey (2015), conducted on behalf of Catholic Relief Services (CRS) in selected suku in Baucau and Viqueque.
- Food and Nutrition Survey (2013).

Despite the size of this document, the analysis presented in this report is little more than a 'scratching the surface'. There is so much more that can be learned from additional analysis of these, and other, datasets, either on their own, or through analysis which draws and combines several of the datasets.

The diversity and wide-ranging nature of the data makes summarizing the findings of the analysis presented in this document a challenging task in itself. Rather than attempting to do this, a brief explanation of the types of analysis done for each of the data sources is provided.

The **Population and Housing Censuses** of 2015 and 2010 are key sources for information on livelihood conditions. It is fortunate that the 2015 census included more agriculture-related data than the 2010 census. Some analysis has been done on **population changes**, and on current situations and changes compared to 2010 for **livestock rearing** and **crop production**. Data such as **level of agricultural activity**, **farming technologies** and **land tenure** are only available for 2015.

In 2013, the ADB published a report on 'Least developed sucos Timor-Leste' which drew on the 2010 census to classify all suku according to **poverty levels**. This data on suku poverty ranking was used to assess what the poverty ranking and population rankings are for the TOMAK focus areas suku.

In February-March 2016, an 'end-of-program' survey was conducted by the **Seeds of Life** program. Using the collected data, an analysis was done of the **types of crops grown** by livelihood zone, and by what percentage of farmers; on **storage, consumption and sale of main foodcrops**; on **rice buying** in the last year; on **agricultural assets ownership**; and on **sources of income** (including the sale of crops). The last part in this section is on the **Progress out of Poverty Index**.

Another recent survey conducted in an area of interest to TOMAK is the 2015 **Community-Driven Nutrition Improvement Project** survey. This survey was done in 49 suku in Baucau and Viqueque, as a baseline for the project implemented by Catholic Relief Services. The analysis which was done for this data covered **markets for agricultural products**, **food consumption in the last seven days**, **meat and fish consumption in cases of shortage**, and **foods eaten by women and children**. The last part of this section explores briefly **taboos and beliefs in unfit foods**.

In 2013, an extensive **Food and Nutrition Survey** was conducted, involving nearly 9,500 households in 128 suku from all municipalities. In this report some additional analysis has been done on the **food consumption scores** and on **household livelihood activities**.

All analyses have been conducted at suku-level for the suku that will potentially be targeted by TOMAK.

1. Introduction

1.1. Background

To'os Ba Moris Diak Program (TOMAK) is a A\$25 million, 5+5 year agricultural livelihoods program funded by the Australian government in Timor-Leste. Its goal is to ensure rural households live more prosperous and sustainable lives. TOMAK will achieve this through parallel and linked interventions that aim to:

- Establish a foundation of food security and good nutrition for targeted rural households.
- Build their capacity to confidently and ably engage in profitable agricultural markets.

The primary target area comprises inland mid-altitude areas that have some irrigation capacity. This zone includes around 70-80 suku, located mainly in the Maliana basin (including most of Bobonaro); the eastern mountain regions (including large parts of Baucau and Viqueque) as well as parts of Lautém and Manatuto; and Oecusse. The program will initially focus its activities in Baucau, Viqueque and Bobonaro municipalities.

A major focus of the Program's Inception Phase is to characterise these target areas in terms of the issues and opportunities relating to value chain (VC) development, nutrition, and gender, providing a foundation for development of TOMAK's *Program Guiding Strategy*. This characterisation was based on analysis of existing data sets, such as:

- Population and Housing Census (2010).
- Population and Housing Census (2015).
- Food and Nutrition Survey (2013).
- Seeds of Life (SoL) end-of-program survey (2016).
- Community Driven Nutrition Improvement Project Survey (2015), conducted on behalf of Catholic Relief Services (CRS) in selected suku in Baucau and Viqueque.

This report provides the findings of the analysis and interpretation of the above listed datasets, supporting the development of a better understanding of current socio-economic conditions and development opportunities in TOMAK's target areas¹.

1.2. Farming Livelihoods Typology

Timor-Leste has a wide variety of agriculture livelihoods. When DFAT started the design of a rural development focused program which would follow on from the Seeds of Life program, it was decided that it would focus on one or more agriculture livelihoods zones.

A typology of agriculture livelihoods zones was developed using data from the 2010 Population and Housing Census, which clustered the 414 rural suku according to the types of crops that were grown and the types of livestock kept². This resulted in a typology with seven livelihoods zones: three zones with irrigation, two highland zones, and two lowland zones based on rain-fed agriculture (see Figure 1).

A brief overview of the seven livelihoods zones, with their main characteristics, is given in Table 1.

¹ The report was prepared by Luc Spyckerelle, as part of his August-November 2016 short-term assignment with TOMAK.

² Robert L. Williams, Samuel Bacon, Adalfredo Perreria and Willie Erskine, 2015, Typology of agriculture livelihoods and zones in Timor-Leste, using national census data, unpublished manuscript

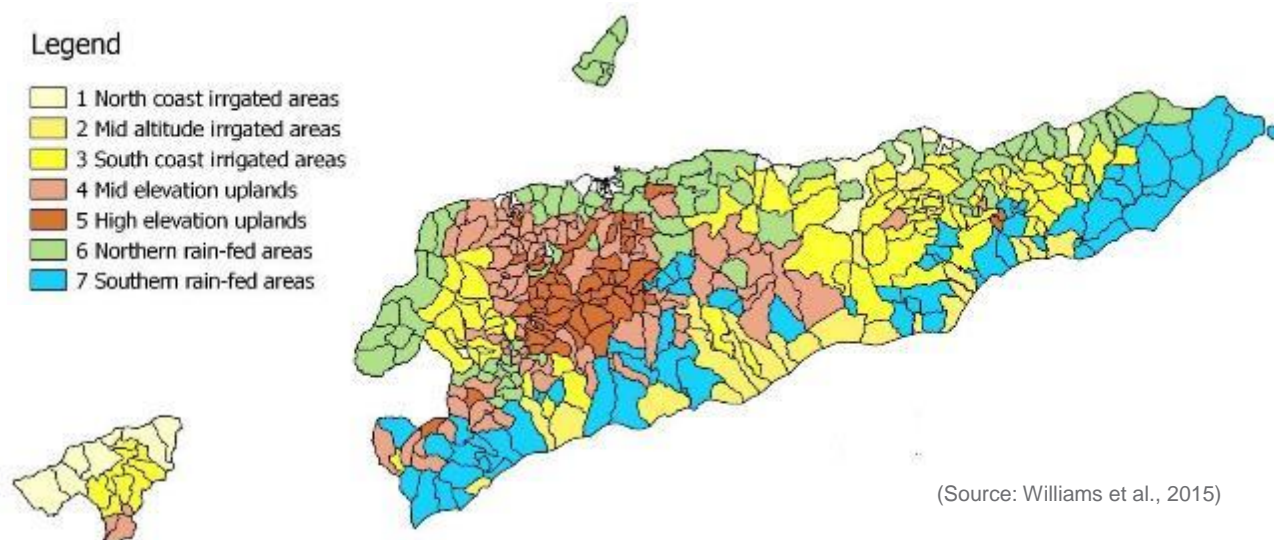


Figure 1. Suku by farming livelihoods

Table 1. Description, definition and population of seven livelihoods zones of rural suku in Timor-Leste based on 2010 census data for each suku

Description	No of suku	Population (2010)	Population (%)	Definition
1. North coast irrigated areas	12	42,637	5	Suku with more than 35% of households planting rice, located on north coast.
2. Mid altitude irrigated areas	85	145,631	18	Suku with more than 35% of households planting rice, at mid altitudes.
3. South coast irrigated areas	20	51,871	6	Suku with more than 35% of households planting rice located on south coast.
4. Mid elevation uplands	99	176,404	22	Suku with 50% household harvesting coffee, below 900m elevation.
5. High elevation uplands	54	101,205	13	Suku with 50% of households harvesting coffee above 900m elevation.
6. Northern rain-fed areas	78	151,331	19	Not belong to a rice or coffee based group, located area with single mode rainfall pattern. Low diversity, low specialisation.
7. Southern rain-fed areas	66	140,145	17	Not belong to a rice or coffee based group, located in an area with a bi-modal rainfall pattern. Low diversity, low specialisation.
Total	414	809,224		

(Source: Williams et al., 2015)

1.3. TOMAK Focus Areas

The TOMAK Investment Design Document (IDD) selected to focus on the inland irrigable watersheds, which has 86 suku³. In August and September 2016, discussions were held with municipal authorities in Baucau, Viqueque and Bobonaro, and this resulted in a preliminary revised longlist of up to 75 suku (see Figure 2).

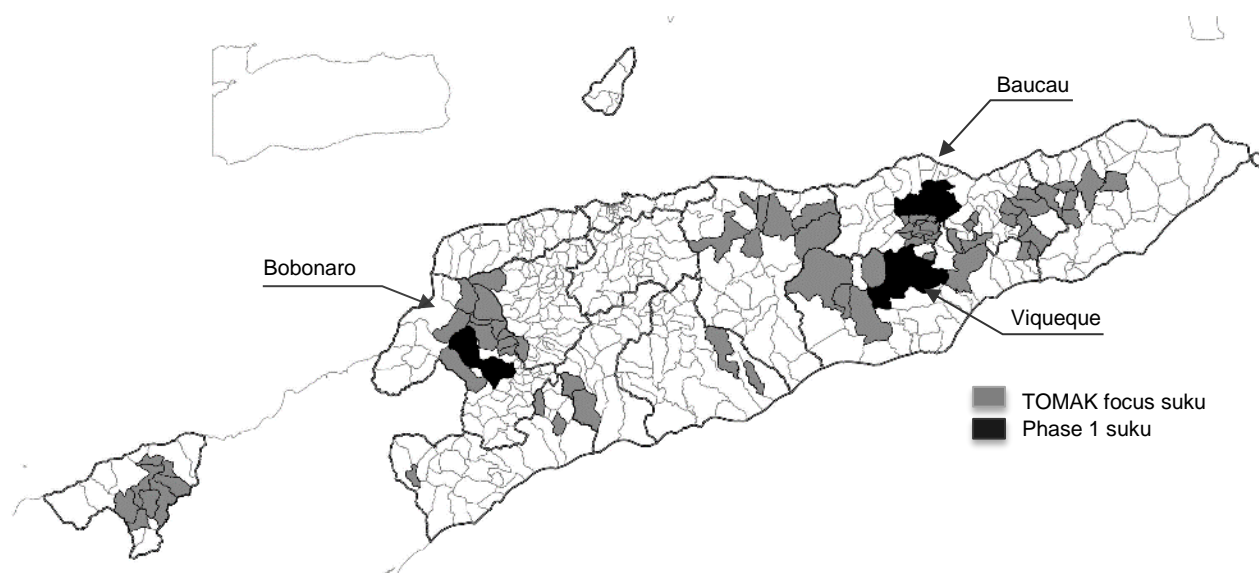


Figure 2. TOMAK focus suku and phase 1 suku

The program also identified 13 suku in Baucau, Bobonaro and Viqueque as possible ‘Stage 1’ suku⁴, which form three contiguous areas in each of these municipalities. The Stage 1 suku are listed in Table 2.

Table 2. Proposed phase 1 suku for TOMAK

Suku (Administrative Posts) in three Municipalities		
Bobonaro	Baucau	Viqueque
Lahomea (Maliana)	Buibau (Baucau)	Builale (Ossu)
Odomau (Maliana)	Gariuai (Baucau)	Ossorua (Ossu)
Raifun (Maliana)	Samalari (Baucau)	Ossu de Cima (Ossu)
Ritabou (Maliana)	Uailili (Baucau)	Uabubo (Ossu)
		Uaguia (Ossu)

The above identification of suku does not imply that program activities should strictly be limited to these suku. For certain activities, like those that focus on facilitating the marketing of agricultural products, it makes sense to target broader areas where marketable surpluses are being produced, and take advantage of economies of scale, rather than limit it to some suku only.

³ One suku qualified as both a ‘mid-altitude irrigated areas’ suku, and as a ‘mid elevation uplands suku’, and was initially classified as the latter. Since the suku was surrounded by ‘mid-altitude irrigated areas’ suku, it was re-classified as such.

⁴ Subject to final confirmation by Municipal officials.

1.4. Structure of the Report

This report is structured as follows. The next four sections discuss the five datasets that have been assessed, and what information has been derived from this that is relevant for the range of potential activities TOMAK anticipates to implement or support in these areas.

Apart from the results of the analyses described in this report, a range of spreadsheets have been prepared to facilitate future data analysis and mapping. These spreadsheets can be obtained from the TOMAK office. A description of the contents of the spreadsheets is given in Appendix 1 (Synopsis of the Available Spreadsheets), and Appendix 3 (List of Spreadsheets).

2. Population and Housing Censuses (2015 and 2010)

2.1. Background

Between 11 and 25 July 2015, Timor-Leste conducted its third population and housing census. The first census of the independent Timor-Leste was conducted in 2004, and the second one in 2010.

The data from the 2010 census was distributed in printed and electronic format (as PDF documents). The data from the 2015 census data is primarily distributed in electronic format, as spreadsheets, that can be downloaded from <http://www.statistics.gov.tl/category/publications/census-publications/2015-census-publications/>

As with the 2010 census, the data is made available according to three broad categories:

➤ **Population distribution by administrative area**, which provides such data as:

- 1) Population and household distribution
- 2) Population by age and sex
- 3) Nationality, citizenship and religion
- 4) Language
- 5) Marriage
- 6) Internal migrations
- 7) Aldeia populations
- 8) Population living abroad

➤ **Social and economic characteristics**, which provides such data as:

- 1) Education
- 2) Main economic activity
- 3) Occupation
- 4) Industrial sector
- 5) Employment sector
- 6) Fertility
- 7) Birth certification
- 8) Disability
- 9) Housing characteristics and amenities
- 10) Agriculture
- 11) Mortality

➤ **Suku tables**⁵, which provides suco-level data on:

- 1) Households and population by five year age groups
- 2) Population by broad age groups and sex
- 3) School attendance
- 4) Level of education
- 5) Main economic activity
- 6) Housing characteristics – Ownership
- 7) Housing characteristics – Materials for walls
- 8) Housing characteristics – Materials for roofs
- 9) Housing characteristics – Materials for floors
- 10) Housing characteristics – Condition
- 11) Housing characteristics – Number of rooms
- 12) Housing characteristics – Bathing facilities
- 13) Housing characteristics – Human waste disposal
- 14) Housing characteristics – Human waste final disposal

⁵ The 2015 census English publications use the term 'Suco' and not 'Suku'. To avoid confusion, when referring to publications from Statistics Timor-Leste, and in spreadsheets derived from that data, the term 'Suco' will be used.

- 15) Housing characteristics – Kitchen facilities
- 16) Household amenities – Cooking fuel
- 17) Household amenities – Lighting fuel
- 18) Household amenities – Drinking water
- 19) Household amenities – Asset ownership
- 20) Household amenities – Banking facilities
- 21) Agriculture – Level of activity
- 22) Agriculture – Livestock
- 23) Agriculture – Crops
- 24) Agriculture – Agriculture technology
- 25) Agriculture – Land tenure

The sections below provide feedback on some initial analysis of population and agriculture data. The data tables which have been prepared by compiling census data tables are not included in this report as it would take up too much space. Appendix 1 gives a synopsis of the 2015 census data tables that have been prepared.

2.2. Population

Timor-Leste's population in mid-July 2015⁶ was 1,183,643 persons, compared to a population of 1,066,409 persons in 2010, which is an 11% increase. Table 3 shows the total population and the number of households by municipality for both the 2015 and 2010 censuses.

Table 3. Comparison of population and private households in the 2015 and 2010 censuses

Municipality	Total population				Number of private households			
	2015	2010	Difference 2015-2010	% change	2015	2010	Difference 2015-2010	% change
Aileu	48,837	44,325	4,512	10%	7,598	6,965	633	9%
Ainaro	63,136	59,175	3,961	7%	10,601	9,664	937	10%
Baucau	123,203	111,694	11,509	10%	22,976	21,255	1,721	8%
Bobonaro	97,762	92,049	5,713	6%	17,635	16,883	752	4%
Covalima	65,301	59,455	5,846	10%	12,564	11,105	1,459	13%
Dili	277,279	234,026	43,253	18%	42,485	35,224	7,261	21%
Ermera	125,702	117,064	8,638	7%	20,671	19,280	1,391	7%
Lautém	65,240	59,787	5,453	9%	12,050	11,447	603	5%
Liquiçá	71,927	63,403	8,524	13%	11,885	10,351	1,534	15%
Manatuto	46,619	42,742	3,877	9%	7,467	6,925	542	8%
Manufahi	53,691	48,628	5,063	10%	9,023	7,856	1,167	15%
SAR of Oecusse	68,913	64,025	4,888	8%	14,345	13,890	455	3%
Viqueque	76,033	70,036	5,997	9%	15,297	13,807	1,490	11%
Timor-Leste	1,183,643	1,066,409	117,234	11%	204,597	184,652	19,945	11%

Of the 442 suku, 134 (30% of the total) experienced a reduction in population. In terms of percentage changes compared to the 2010 census figures, the changes range from -79% to 7,306%. This seems to indicate that for some suku there may have been difficulties in implementing the survey in either 2010 (resulting in major increases in 2015) or in 2015 (showing much smaller populations in 2015). Also, for suku which had a smallish population in either 2010 or 2015, the percentage changes become more accentuated.

The absolute percentage changes in population by administrative posts is shown in Figure 3.

⁶ The night of 11 July 2015 is the official reference time of the census.

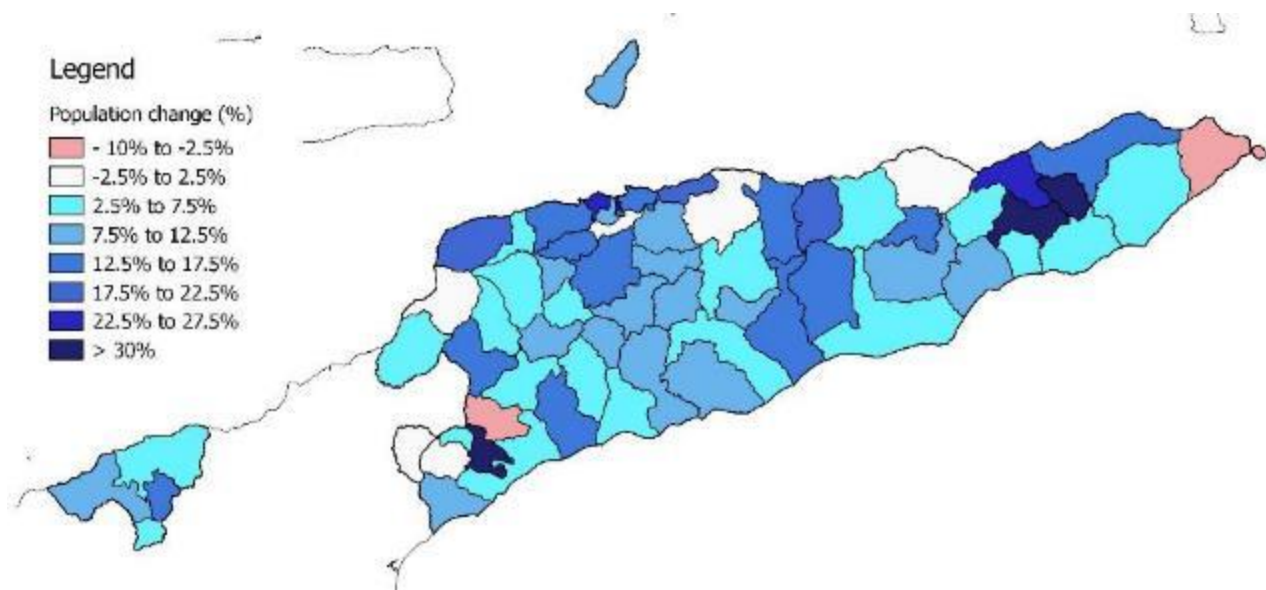


Figure 3. 2015-2010 population changes in percentage in administrative posts

As the overall population has increased by 11%, it is also worthwhile to see in which administrative posts the changes were below or above this national average growth rate. This is displayed in Figure 4.

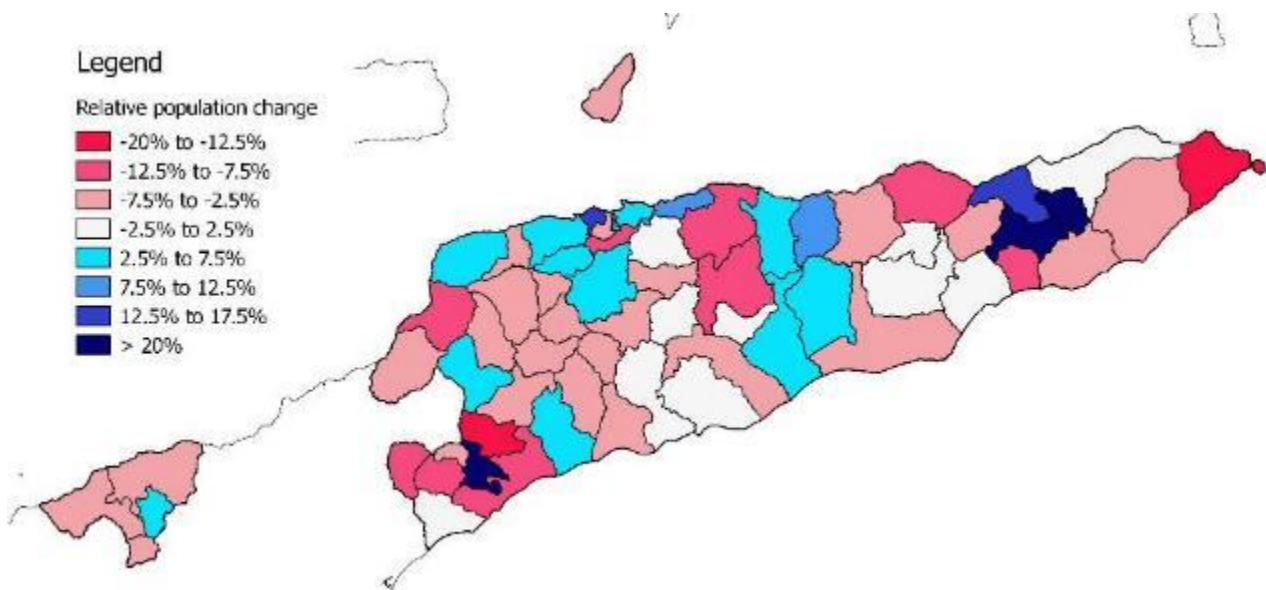


Figure 4. 2015-2010 population changes, below and above the national average, in percentage, in administrative posts

2.3. Agriculture – Livestock Rearing and Crop Production

The 2015 census had a much bigger coverage of agriculture-related questions than the 2010 census. The first question (shown in Figure 5) asked about respondent's household members' involvement in either livestock rearing or crop production in the previous 12 months.

Table 4 shows the number and percentage of private households involved in livestock rearing for both own use and sale, and in crop production for the main season and the second season.

H16. Did any member of this household do livestock rearing for own use or for selling or operate land for purposes of crop production in the main or second season, during the last 12 months?	Livestock rearing and crop production	
Write "1" or "2" for each activity 1. Yes 2. No	Livestock	
	a. Livestock for own use	<input type="checkbox"/>
	b. Livestock for selling	<input type="checkbox"/>
	Crops	
	c. Crops in the main season	<input type="checkbox"/>
	d. Crops in the second season	<input type="checkbox"/>

Figure 5. Involvement in agriculture question in the 2015 census

Table 4. Involvement of private households in livestock rearing and crop production

Municipality	Livestock rearing (own use)		Livestock rearing (to sell)		Crop production (main season)		Crop production (second season)	
	Yes	% yes	Yes	% yes	Yes	% yes	Yes	% yes
Aileu	7,326	96%	7,223	95%	7,383	97%	7,319	96%
Ainaro	10,079	95%	9,962	94%	10,138	96%	10,085	95%
Baucau	21,653	94%	21,376	93%	20,542	89%	20,166	88%
Bobonaro	16,571	94%	16,496	94%	16,599	94%	16,331	93%
Covalima	12,045	96%	12,057	96%	11,661	93%	11,497	92%
Dili	24,264	57%	23,211	55%	11,914	28%	11,165	26%
Ermera	18,986	92%	18,433	89%	19,701	95%	19,479	94%
Lautém	11,379	94%	11,347	94%	10,826	90%	10,597	88%
Liquiçá	11,346	95%	11,310	95%	11,063	93%	10,932	92%
Manatuto	6,934	93%	6,919	93%	6,165	83%	6,077	81%
Manufahi	8,769	97%	8,717	97%	8,560	95%	8,503	94%
SAR of Oecusse	13,661	95%	13,498	94%	14,024	98%	13,939	97%
Viqueque	14,521	95%	14,387	94%	13,653	89%	13,477	88%
Timor-Leste	177,534	87%	174,936	86%	162,229	79%	159,567	78%

From the above table we can observe that:

- Nearly all households that raise animals also sell animals.
- Nearly all households that are involved in crop production grow crops in both the main season and the second season.

The second observation seems somewhat surprising as many locations in Timor-Leste have only one wet season and one dry season, and crop cultivation in the dry season is generally thought to be minimal.

2.4. Agriculture – Level of Agricultural Activity

The households that reported at least one household member had been involved in either livestock rearing or crop production were asked what level of agricultural activity the household had been involved in during the last 12 months (Figure 6).

The responses by municipality are shown in Table 5. Overall, slightly more than half of the households involved in agricultural activities (livestock rearing or crop growing) produce mostly for home consumption, with some sales, and for slightly less than half of the households it is a minor, backyard activity. There are however noticeable differences between the municipalities.

H17. What level of agricultural activity did this household (livestock and crops), do during the last 12 months?	Level of Agricultural Activity	
	1. Just minor agriculture activity (backyard)	<input type="checkbox"/>
	2. Producing mainly for home consumption with some sales	
	3. Producing mainly for sale with some home consumption	

Figure 6. Level of agricultural activity question in the 2015 census

Table 5. Level of agricultural activity

Municipality	Just minor agriculture activity (backyard)		Producing mainly for home consumption with some sales		Producing mainly for sale with some home consumption	
	Households	%	Households	%	Households	%
Aileu	3,472	46%	3,837	51%	180	2%
Ainaro	5,368	52%	4,578	44%	433	4%
Baucau	10,212	46%	11,037	50%	869	4%
Bobonaro	8,184	48%	8,581	50%	436	3%
Covalima	3,845	31%	8,227	67%	252	2%
Dili	9,956	39%	15,086	58%	785	3%
Ermera	12,098	60%	7,525	38%	425	2%
Lautém	4,843	42%	6,545	56%	262	2%
Liquiçá	7,129	62%	3,974	34%	488	4%
Manatuto	2,453	34%	4,305	60%	368	5%
Manufahi	4,507	51%	4,083	46%	311	3%
SAR of Oecusse	6,252	44%	7,859	55%	92	1%
Viqueque	5,898	40%	8,522	58%	356	2%
Timor-Leste	84,217	46%	94,159	51%	5,257	3%

2.5. Agriculture – Crop Growing

In both the 2015 and 2010 censuses, respondents were asked whether they were involved in agriculture activities in the past 12 months, and if yes, for which crops. In the 2015 census the question was also asked if it was primarily for self-consumption or for cash. The agriculture crop questions of both censuses are shown in Figure 7.

2015 census	2010 census
<p>H19. Did this household grow the following crops during the last 12 months?</p> <p>Write "1", "2" or "3" for each crop</p> <p>1. Yes – only or mainly for self consumption</p> <p>2. Yes – only or mainly for cash.</p> <p>3. No</p>	<p>H14. In the last 12 months (11 July 2009 - to date) did your household grow any crops, either temporary or permanent, to support the household?</p> <p>Write "1" or "2" for each crop.</p> <p>1. Yes</p> <p>2. No</p>
<p>Crops</p> <p>a. Rice <input style="width: 40px;" type="text"/></p> <p>b. Maize <input style="width: 40px;" type="text"/></p> <p>c. Cassava <input style="width: 40px;" type="text"/></p> <p>d. Sweet potato <input style="width: 40px;" type="text"/></p> <p>e. Vegetables <input style="width: 40px;" type="text"/></p> <p>f. Beans <input style="width: 40px;" type="text"/></p> <p>g. Coffee <input style="width: 40px;" type="text"/></p> <p>h. Coconut <input style="width: 40px;" type="text"/></p> <p>i. Fruit (permanent), except coconut <input style="width: 40px;" type="text"/></p> <p>j. Fruit (temporary) <input style="width: 40px;" type="text"/></p> <p>k. Timber Trees <input style="width: 40px;" type="text"/></p> <p>l. Others..... <input style="width: 40px;" type="text"/> (please specify)</p>	<p>a. Rice <input style="width: 40px;" type="text"/></p> <p>b. Maize <input style="width: 40px;" type="text"/></p> <p>c. Cassava <input style="width: 40px;" type="text"/></p> <p>d. Vegetables <input style="width: 40px;" type="text"/></p> <p>e. Fruit (temporary) <input style="width: 40px;" type="text"/></p> <p>f. Fruit (permanent) <input style="width: 40px;" type="text"/></p> <p>g. Coffee <input style="width: 40px;" type="text"/></p> <p>h. Coconut <input style="width: 40px;" type="text"/></p> <p>i. Other temporary crops <input style="width: 40px;" type="text"/></p> <p>j. Other permanent crops <input style="width: 40px;" type="text"/></p>

Figure 7. Agriculture crop questions in the 2015 and 2010 censuses

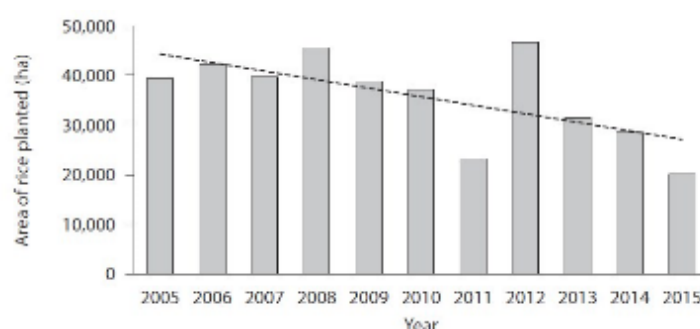
Table 6 shows the total number of crop growing households in both the 2015 and 2010 censuses, and the number of crop growers by crop.

Table 6. Crop growing households by crop in the 2015 and 2010 censuses

Crop growing households and crops	2015	2010	Difference 2015-2010	% change to 2010
Crop growing households	162,806	116,426	46,380	40%
Rice	71,541	45,673	25,868	57%
Maize	142,361	102,347	40,014	39%
Cassava	130,670	94,834	35,836	38%
Sweet potato	112,425			
Vegetables	106,435	78,605	27,830	35%
Beans	103,034			
Coffee	76,848	51,357	25,491	50%
Coconut	103,334	76,835	26,499	34%
Fruit (permanent)	100,716	88,246	12,470	14%
Fruit (temporary)	100,881	86,527	14,354	17%
Timber trees	76,304			
Others	48,504			
Other temporary crops		83,924		
Other permanent crops		85,355		

One interesting observation, when comparing Table 3 with Table 6, is that in 2010 the percentage of crop growing households was 63% of all private households, and it had increased to 80% in 2015. The data from Table 6 shows that the increase in the number of households growing rice is, with a 57% increase, the biggest

of all crops. This seems somewhat surprising in light of the general trend of declining areas of rice planted (see Figure 8⁷). It may well be that there is indeed an increase in the number of persons growing rice, but that most of the increase is for persons growing very small plots, whilst at the same time the number of farmers growing larger size plots has declined.



Source: Spyckerelle et al., 2016

Figure 8. Areas of rice planted in Timor-Leste, 2005-2015

2.6. Agriculture – Livestock

In the 2015 and 2010 censuses, respondents were asked whether they were involved in livestock raising in the past 12 months, and if yes, for which type and how many animals. The livestock questions of both censuses are shown in Figure 9.

2015 census	2010 census																																		
<div style="border: 1px solid black; padding: 5px;"> <p>H18. What is the number of livestock currently owned by your household?</p> <p>Write "000" if none</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">Livestock</td></tr> <tr><td>a. Chickens</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>b. Pigs</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>c. Sheeps</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>d. Goats</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>e. Cattles/Cows</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>f. Buffaloes</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>g. Horses</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>h. Other</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td colspan="2" style="text-align: center;">(please specify)</td></tr> </table> </div>	Livestock		a. Chickens	<input type="text"/> <input type="text"/> <input type="text"/>	b. Pigs	<input type="text"/> <input type="text"/> <input type="text"/>	c. Sheeps	<input type="text"/> <input type="text"/> <input type="text"/>	d. Goats	<input type="text"/> <input type="text"/> <input type="text"/>	e. Cattles/Cows	<input type="text"/> <input type="text"/> <input type="text"/>	f. Buffaloes	<input type="text"/> <input type="text"/> <input type="text"/>	g. Horses	<input type="text"/> <input type="text"/> <input type="text"/>	h. Other	<input type="text"/> <input type="text"/> <input type="text"/>	(please specify)		<div style="border: 1px solid black; padding: 5px;"> <p>H15. What is the number of livestock currently owned by your household?</p> <p>Write "000" if none.</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>a. Chickens</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>b. Pigs</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>c. Sheep</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>d. Goats</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>e. Horses</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>f. Cattle/Cow</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> <tr><td>g. Buffalo</td><td><input type="text"/> <input type="text"/> <input type="text"/></td></tr> </table> </div>	a. Chickens	<input type="text"/> <input type="text"/> <input type="text"/>	b. Pigs	<input type="text"/> <input type="text"/> <input type="text"/>	c. Sheep	<input type="text"/> <input type="text"/> <input type="text"/>	d. Goats	<input type="text"/> <input type="text"/> <input type="text"/>	e. Horses	<input type="text"/> <input type="text"/> <input type="text"/>	f. Cattle/Cow	<input type="text"/> <input type="text"/> <input type="text"/>	g. Buffalo	<input type="text"/> <input type="text"/> <input type="text"/>
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Figure 9. Livestock questions in the 2015 and 2010 censuses

Table 7 shows the total number of animal rearing households in both the 2015 and 2010 censuses, and the number of animals they had at the time of the survey. It should be noted that for certain animals the numbers in 2016 have been substantially different from those in mid-2015. In the second half of 2015, Timor-Leste suffered from an El Niño, and there many animals reportedly died because of the drought.

⁷ Spyckerelle L. et al., 2016, "Advances in food availability in Timor-Leste", in Nesbitt H et al. (eds), Food security in Timor-Leste through crop production. Proceedings of TimorAg2016, an international conference held in Dili, Timor-Leste, 13–15 April 2016. ACIAR Proceedings No. 146. Australian Centre for International Agricultural Research: Canberra

Table 7. Livestock rearing households and number of animals in the 2015 and 2010 censuses

Private households, livestock rearing house-holds, and type and number of animals		2015	2010	Difference 2015-2010	% change to 2010
Private households		204,597	184,652	19,945	11%
Private households involved in livestock rearing		178,363			
Chickens	Number of households	146,158	124,658	21,500	17%
	Number of chickens	928,806	702,474	226,332	32%
Pigs	Number of households	146,449	123,862	22,587	18%
	Number of pigs	419,169	330,435	88,734	27%
Sheep	Number of households	7,885	6,957	928	13%
	Number of sheep	40,498	41,854	-1,356	-3%
Goats	Number of households	46,154	45,781	373	1%
	Number of goats	158,467	152,360	6,107	4%
Cattle/cows	Number of households	52,864	43,028	9,836	23%
	Number of cattle/cows	221,767	161,654	60,113	37%
Buffaloes	Number of households	26,324	19,119	7,205	38%
	Number of buffaloes	128,262	96,484	31,778	33%
Horses	Number of households	27,339	27,691	-352	-1%
	Number of horses	50,751	57,819	-7,068	-12%
Other	Number of households	46,818			
	Number of other livestock	121,069			

2.7. Agriculture – Farming Technologies

H21. Did this household use the following farming technologies during the last 12 months? <i>Write "1" or "2" for each technology</i> 1. Yes 2. No	
Technology	
a. Mulching	<input type="checkbox"/>
b. Inorganic fertilizer (Industrial)	<input type="checkbox"/>
c. Organic fertilizer (Natural)	<input type="checkbox"/>
d. Organic pesticides	<input type="checkbox"/>
e. Chemical pesticides	<input type="checkbox"/>
f. Herbicides	<input type="checkbox"/>
g. Improved seeds	<input type="checkbox"/>
h. Irrigation	<input type="checkbox"/>

In the 2015 census, the households that were involved in agriculture were also asked which farming technologies they had used in the past 12 months (Figure 10).

As can be seen from Table 8, the use of farming technologies is reportedly still very low. The highest is for the use of 'improved seeds' and that only stands at 15%. It should be noted that the definition for 'improved seeds' in the census is rather restrictive.

Figure 10. Farming technologies question in the 2015 census

The instruction manual for the 2015 census interviewers mentions that:

"Certified seeds are those that can be certified as meeting certain national standards as regards their physical and genetic purity. Usually certificated seeds are labelled in some way. Seed collected from a crop that had been planted with certified seeds in a previous year should not be considered as certified."

This means that many farmers who have kept improved seeds and cuttings from the foodcrops they planted with improved seeds and planting material distributed by MAF in collaboration with the Seed of Life program are not counted as farmers using improved seed technology in the census.

Table 8. Type of farming technologies practiced

Type of farming technology	Yes	% yes	No	% no
Improved seeds	25,145	15%	137,661	85%
Organic fertilizer (Natural)	22,900	14%	139,906	86%
Inorganic fertilizer (Industrial)	15,948	10%	146,858	90%
Mulching	13,544	8%	149,262	92%
Organic pesticides	13,347	8%	149,459	92%
Irrigation	12,734	8%	150,072	92%
Herbicides	11,973	7%	150,833	93%
Chemical pesticides	11,612	7%	151,194	93%

2.8. Agriculture – Land Tenure

The households involved in agriculture were asked about the tenure they had to the land they used (Figure 11).

The results are shown in Table 9. Half of the households have rent free access to land, and 30% of the households own their land, but do not have a certificate or número referéncia. When a payment for rent is made, this is more commonly a share of the harvest, rather than a fixed amount.

<p>H23. Many producers have access to land solely through rent, gratuitous use, or from inheritance and tradition without, however, having registration or certificate emitted from the public administration. In which case do the lands you explore fall into?</p> <p>Write "1" or "2" for each option</p> <p>1. Yes 2. No</p>	<p>Land tenure</p> <p>a. Rent for a share product <input type="checkbox"/></p> <p>b. Lease/rent for fixed value <input type="checkbox"/></p> <p>c. Rent free <input type="checkbox"/></p> <p>d. Owned without número referéncia or certificate <input type="checkbox"/></p> <p>e. Owned with número referéncia <input type="checkbox"/></p> <p>f. Owned certificate from Portuguese <input type="checkbox"/></p> <p>g. Owned certificate from Indonesia <input type="checkbox"/></p> <p>h. Communal land <input type="checkbox"/></p>
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Figure 11. Land tenure question in the 2015 census

Table 9. Type of land tenure

Type of Land Tenure	Yes	% yes	No	% no
Rent free	81,710	50%	81,096	50%
Owned without número referéncia or certificate	49,302	30%	113,504	70%
Owned with número referéncia	27,932	17%	134,874	83%
Communal land	17,903	11%	144,903	89%
Owned, certificate from Indonesia	17,208	11%	145,598	89%
Rent and share product	13,141	8%	149,665	92%
Owned, certificate from Portuguese	10,741	7%	152,065	93%
Lease/rent for fixed value	8,231	5%	154,575	95%

2.9. Population and Poverty Ranking of Suku in TOMAK Focus Areas

2.9.1. Ranking on 2010 Census Data

In 2013, the ADB published Least developed sucos Timor-Leste⁸, which used the household asset data of the 2010 Population and Housing Census data⁹ to calculate living standards at the suku level. The suku were

⁸ ADB 2013. Least Developed Sucos, Timor-Leste. Pacific Studies Series, ADB, Manila, the Philippines

then sorted and ranked on the basis of a 'suku asset index', and grouped into one of five categories (i.e. lowest, second, middle, fourth and highest).

In the TOMAK focus areas there are 75 suku. Table 10 shows the number of suku for each of the living standard group categories, and by municipality.

Table 10. Number of suku by living group standard in the TOMAK focus areas – Absolute rating

Municipalities	Living Standard Group					Total
	Lowest	Second	Middle	Fourth	Highest	
Baucau	9	1	7	4	1	22
Bobonaro	2	4		2	5	13
Viqueque	8	3		1		12
Sub-total	19	8	7	7	6	47
Ainaro		1	1			2
Covalima	1			1		2
Ermera	1			1		2
Lautem	3	1	1	1		6
Manatuto	3				4	7
Manufahi					1	1
Oecusse	2	2	2	1	1	8
Sub-total	10	4	4	4	6	28
Total	29	12	11	11	12	75

There is a large group of suku in the lowest living standard group, because the ratings in the above table are still the 'absolute ratings', i.e. those when considering all 442 suku in the country.

When only considering the living standard ratings of the 75 suku in the TOMAK focus areas, the number of suku in each living standard group becomes as given in

⁹ NSD (National Statistics Directorate) 2011. Population and housing census of Timor-Leste, 2010, Volume 4: Suco report, National Statistics Directorate and United Nations Population Fund, Dili

Table 11.

Table 11. Number of suku by living group standard in the TOMAK focus areas – Relative rating

Municipalities	Living Standard Group					Total
	Lowest	Second	Middle	Fourth	Highest	
Baucau	4	5	3	8	2	22
Bobonaro	1	2	3	1	6	13
Viqueque	6	2	3	1		12
Sub-total	11	9	9	10	8	47
Ainaro			2			2
Covalima	1				1	2
Ermera		1		1		2
Lautem	1	2	1	2		6
Manatuto	1	2			4	7
Manufahi					1	1
Oecusse	1	1	3	2	1	8
Sub-total	4	6	6	5	7	28
Total	15	15	15	15	15	75

For the municipalities Baucau, Bobonaro and Viqueque, and their administrative posts, the suku in the TOMAK focus areas are given by living standard group (relative rating) in Table 12 on the next page.

Table 12. Suku from Baucau, Bobonaro and Viqueque in TOMAK focus areas, by living standard group – Relative rating (2010 census data)

Municipalities and administrative posts	Living Standard Group				
	Lowest	Second	Middle	Fourth	Highest
Baucau					
Baguia	Defa Uassi Lari Sula	Lavateri		Samalari	
Baucau			Wailili	Buibau Samalari	Gariuai
Laga	Atelari	Sagadati			
Quelicaí	Abo	Lelalai Laisorolai De Cima Maluro	Letemuno	Baguia	
Venilale			Bado Ho'o	Baha Mori Uma Ana Ico Uma Ana Ulu Uataco	Uailaha
Bobonaro					
Atabae		Atabae	Hataz		
Cailaco	Dau Udo	Guenu Lai	Atudara Goulolo	Purugoa	Meligo
Maliana					Lahomea Odomau Raifun Ritabou Tapo/Memo
Viqueque					
Lacluta	Laline	Dilor			
Ossu	Liaruca Uabubo	Builale	Uaigia Ossurua	Ossu De Cima	
Uatucarbau	Bahatata Loi Ulu				
Viqueque			Bahalarauain		
Watulari	Afaloicaí				

2.9.2. Ranking on 2015 Census Data

In considering target suku for program interventions, apart from poverty rating it is also important to consider population. The 75 suku in the TOMAK focus areas had in 2010 a population of 140,362 persons in 27,736 households; in 2015 this had increased to a population of 165,730 persons in 31,279 households.

The 75 suku can be divided into five groups, based on their number of households in 2015:

- > More than 750 households 11 suku, of which 7 in Baucau, Bobonaro, Viqueque
- > Between 500 and 749 households 12 suku, 7
- > Between 350 and 499 households 12 suku, 8
- > Between 200 and 349 households 22 suku, 16
- > Less than 200 households 18 suku, 9

Table 13 lists the Baucau, Bobonaro and Viqueque suku by poverty rating (relative rating, as calculated from the 2010 census data) and number of households (based on 2015 census data).

Table 13. Suku from Baucau, Bobonaro and Viqueque in the TOMAK focus areas, by living group standard (relative rating, 2010 census data) and number of households (2015 census data)

No. of HHs in suku	Living Standard Group				
	Lowest	Second	Middle	Fourth	Highest
More than 750 HHs	Afaloicai			Buibau Ossu De Cima	Ritabou Gariuai Tapo/Memo Lahomea
Between 500 and 749 HHs	Uabubo	Sagadate	Uailili Bahalarauain Bada-Ho'o		Odomau Meligo
Between 350 and 499 HHs		Dilor Laisorolai De Cima	Ossorua Hataz	Uatu Haco Uma Ana Ulo Samalari (Baguia)	Uailaha
Between 200 and 349 HHs	Atelari Larisula Liaruca Defawassi	Lavateri Atabae Builale	Atudara Letemumo Uaguia Goulolo	Baha Mori Samalari (Baucau) Baguia Uma Ana Ico	Raifun
Less than 200 HHs	Laline Bahatata Abo Loi Ulo Dau Udo	Lelalai Maluro Guenu Lai		Purugoa	

3. Seeds of Life End-of-Program Survey (2016)

3.1. Background

The Seeds of Life (SoL) program was an initiative between ACIAR (Australian Centre for International Agricultural Research) and the Timor-Leste Ministry of Agriculture and Fisheries, with additional support from Australian Aid (AusAID and DFAT). The Program's goal was to improve food security through increased productivity of food crops such as maize, rice, sweet potato, cassava and peanuts. The third phase of the program (2011-2016) continued to test new cultivars, but the main thrust of the program was to substantially increase seed production, and the distribution of new varieties throughout the country.

In February-March 2016, the Program conducted its 'End-of-Program Survey' (EoPS) to assess its achievements on adoption of improved foodcrop varieties by local farmers, and how this adoption has impacted on rural households' food security as well as their economic situation.

A sample of 700 foodcrop growing households (HHs) were interviewed across 60 rural suku selected randomly in the 13 municipalities. Data collection was done electronically by a team of 16 experienced enumerators and supervisors using tablets.

Table 14 shows the number of respondents in the SoL End-of-Program Survey, by livelihood zone. The 'mid altitude irrigated areas' zone included 11 suku, which are also all TOMAK focus areas suku. There was however one more suku, in the Southern rainfed areas, which – at the suggestion of Viqueque authorities – was also included in the TOMAK focus areas. It was decided to present the analysis results in this section by the livelihood zones, and not have a separate category of 'TOMAK Focus Areas', which would have been the mid altitude irrigated areas, plus one suku.

Table 14. Number of respondents in the SoL End-of-Program Survey, by livelihood zone

No.	Livelihood zone	No. of suku	No. of farmer HHs
1	North coast irrigated areas	3	34
2	Mid altitude irrigated areas	11	129
3	Northern rain-fed areas	1	83
4	High altitude uplands	15	49
5	Mid altitude uplands	4	183
6	South coast irrigated areas	8	11
7	Southern rain-fed areas	16	190
8	Urban	2	21
Grand Total		60	700

3.2. Crops Grown

For the survey, farmers in rural suku were randomly selected. At the start of the survey, the respondents were asked if they had cultivated in the last year at least one or more of five crops: maize, rice, peanut, cassava and/or sweet potato. If the answer to this question was 'yes' – which it nearly always was – the respondents were asked if they agreed to be interviewed.

3.2.1. Question on Crops in Survey

The respondents in the survey were asked the following question:

Which crops did you grow in the last 12 months (February 2015 - January 2016)?

- a) Maize
- b) Rice (both wet and dry land)
- c) Other cereals (sorghum, millet, etc.)
- d) Peanut
- e) Cassava
- f) Sweet Potato
- g) Other rootcrops (taro, yam, elephant foot yam, arrowroot, etc.)
- h) Beans, peas and other nuts: velvet beans, string beans, red beans, green peas, groundnuts, etc.
- i) Vegetables: green leafy veg, carrot, tomato, cucumber, pumpkin, onion
- j) Fruits: banana, lemon, mango, papaya, honey dew, etc.
- k) Coffee
- l) Coconut
- m) Other [specify]

3.2.2. Farming Households growing Crops, by Livelihood Zones

Table 16 (on the next page) shows the number of farmer households growing a certain crop in each of the livelihood zones. The mid altitude irrigated areas – which covers most of the TOMAK focus areas – has been put on top, with a light yellow background.

Table 15 shows the importance in the mid altitude irrigated areas zone of these crops, by rank, compared to the other livelihood zones, together with the minimum and maximum percentages of farmers growing these crops.

Table 15. Importance of crops in the mid altitude irrigated areas livelihood zone, compared to other livelihood zones

Crop	Rank for LHZ (1=high to 8=Low)	Percentage of farmers growing the crop		
		In LHZ	Maximum	Minimum
Maize	6	99.2%	100.0%	90.9%
Cassava	7	87.6%	100.0%	70.6%
Fruits	2	77.5%	84.2%	57.1%
Vegetables	4	68.2%	94.1%	52.4%
Beans, peas & other nuts	6	56.6%	91.8%	45.8%
Sweet potato	5	59.7%	100.0%	41.2%
Other root crops	5	50.4%	81.8%	8.8%
Coconut	3	58.1%	72.7%	2.0%
Peanut	3	34.9%	50.0%	4.8%
Coffee	6	11.6%	81.6%	0.0%
Rice	2	58.9%	70.6%	0.0%
Other crops	2	21.7%	26.8%	0.0%
Other cereals	5	0.0%	2.9%	0.0%

From Table 15 and Table 16 we can observe that:

- Two crops are grown by all or most foodcrop farmers: maize and cassava.
- Nine crops, or groups of crops, are grown by more than half of the foodcrop farmers in the mid-altitude irrigated areas livelihood zone.
- Three crops which are more important in this zone than most others (rank 2) are: fruits, rice and other crops (mostly candlenut and teak)

Table 16. Number and percentage of farmer households growing certain crops, by livelihood zone

Livelihood zone	No. of farmer HHs	Maize	Cassava	Fruits	Vegetables	Beans, peas & other nuts	Sweet potato	Other root crops	Coconut	Peanut	Coffee	Rice	Other crop	Other cereals
Mid altitude irrigated areas	129	128 99.2%	113 87.6%	100 77.5%	88 68.2%	73 56.6%	77 59.7%	65 50.4%	75 58.1%	45 34.9%	15 11.6%	76 58.9%	28 21.7%	0 0.0%
North coast irrigated areas	34	34 100.0%	24 70.6%	22 64.7%	32 94.1%	20 58.8%	14 41.2%	3 8.8%	14 41.2%	15 44.1%	0 0.0%	24 70.6%	2 5.9%	1 2.9%
Northern rain-fed areas	83	83 100.0%	74 89.2%	56 67.5%	47 56.6%	38 45.8%	39 47.0%	18 21.7%	32 38.6%	18 21.7%	10 12.0%	14 16.9%	3 3.6%	0 0.0%
High altitude uplands	49	49 100.0%	44 89.8%	33 67.3%	32 65.3%	45 91.8%	43 87.8%	28 57.1%	1 2.0%	11 22.4%	40 81.6%	1 2.0%	0 0.0%	1 2.0%
Mid altitude uplands	183	181 98.9%	174 95.1%	127 69.4%	118 64.5%	130 71.0%	121 66.1%	92 50.3%	54 29.5%	54 29.5%	90 49.2%	9 4.9%	15 8.2%	1 0.5%
South coast irrigated areas	11	10 90.9%	11 100.0%	8 72.7%	8 72.7%	6 54.5%	11 100.0%	9 81.8%	8 72.7%	1 9.1%	1 9.1%	3 27.3%	2 18.2%	0 0.0%
Southern rain-fed areas	190	190 100.0%	184 96.8%	160 84.2%	149 78.4%	143 75.3%	143 75.3%	123 64.7%	118 62.1%	95 50.0%	46 24.2%	30 15.8%	51 26.8%	2 1.1%
Urban	21	21 100.0%	21 100.0%	12 57.1%	11 52.4%	12 57.1%	11 52.4%	12 57.1%	2 9.5%	1 4.8%	14 66.7%	0 0.0%	1 4.8%	0 0.0%
Grand Total	700	696 99.4%	645 92.1%	518 74.0%	485 69.3%	467 66.7%	459 65.6%	350 50.0%	304 43.4%	240 34.3%	216 30.9%	157 22.4%	102 14.6%	5 0.7%

3.3. Storing, Eating and Selling Foodcrops

3.3.1. Question on Storage of Five Main Foodcrops in Survey

In the Seeds of Life end-of-program survey, the respondents were asked for each of the five main foodcrops (i.e. maize, rice, peanut, cassava and sweet potato) that they were growing, how much they had still in store, how much they had eaten, and how much they had sold¹⁰. The survey was conducted over a five-week period in February-March 2016, at the peak of the 'hungry season'.

For maize, rice and peanut, three questions were asked; for cassava and sweet potato, only the questions b) and c). The questions for maize are given as an example:

- a) From all the maize you harvested last year, how much do you still have in stock?
- b) From all the maize you harvested last year, how much did you eat?
- c) From all the maize you harvested last year, how much did you sell?

During the first week of the survey, the respondents were asked to give percentage estimates, but it was found that this was very difficult for them to do. The choice of answers was therefore changed to the following list, with the percentage estimates that were used in the analysis:

- > None 0 %
- > Very little 10 %
- > Less than half 30 %
- > Half 50 %
- > More than half 70 %
- > Nearly all 90 %
- > All 100 %
- > Don't know (blank)

3.3.2. Maize

There were 673 respondents for who data was available on the percentages of maize still in store, eaten and sold. As a first step, it was necessary to make corrections for some records as the qualitative to quantitative data conversion (e.g. "very little" ≈ 10%) resulted in more than 100%.

For 658 households, there was also data on reported maize harvests of the previous year, these ranged from nothing being harvested, to a maximum harvest of 2,475 kg. The maize farmers for who harvest data was available have been categorised into five groups of approximately similar size, to compare the percentages of maize still in store, eaten and sold with the amounts they harvested. Table 17 shows the number of households by percentage of maize still stored, and by category of amount of maize harvested.

¹⁰ For cassava and sweet potato, the questions were only asked about eating and selling. These two root crops are usually not harvested in a single instance, but rather sporadically, as there is a need to use the for food, or when there is an opportunity for sale, and the question on storage does not make sense.

Table 17. Number of maize growing households by amounts of maize harvested and percentage still in storage at the time of the survey

Percentage of maize harvest still stored	Amounts of maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
Average kg harvested	17,2	59.1	120.7	243.0	710.8			
Storage empty	58	52	50	45	12	15	232	34%
1-19%	31	30	33	45	31	16	186	28%
20-39%	8	13	20	23	46	5	115	17%
40-59%	3	9	10	10	16	0	48	7%
60-79%	10	16	5	10	13	1	55	8%
80-99%	5	13	8	5	2	0	33	5%
All maize still stored	1	1	2				4	1%
Total # of households	116	134	128	138	120	37	673	
# of male headed HHs	104	120	120	134	118	32	628	
# of female headed HHs	12	14	8	4	2	5	45	

Some observations:

- One-third of all maize growing households no longer had maize in storage at the time of the survey, and less than one-fifth of the households had still more than half their harvest. Of the households without any maize left, this represented 34% of the male headed households, and 47% of the female headed households.
- Households with smaller maize harvests were more likely to have little or no stock of maize left.
- The maize harvests of female headed households are proportionally smaller than those of male headed households.

For the TOMAK focus area, the data from 132 households is shown in Table 18.

Table 18. Number of maize growing households by amounts of maize harvested and percentage still in storage at the time of the survey in the TOMAK focus area

Percentage of maize harvest still stored	Amounts of maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
Average kg harvested	15.3	58.2	117.5	238.9	583.3			
Storage empty	14	16	17	11	4	1	63	48%
1-19%	6	9	10	6	7	3	41	31%
20-39%	1	3	6	5	8		23	17%
40-50%		2		2	1		5	4%
Total # of households	21	30	33	24	20	4	132	

Nearly half of all maize growing households no longer had maize in storage, and none of the households had more than half of their harvest still in storage.

For the amounts of maize eaten, the data is given in Table 19 for the total sample and in Table 20 for the TOMAK focus area.

Table 19. Number of maize growing households by amounts of maize harvested and percentage of maize harvest having been eaten by the household

Percentage of maize eaten by the household	Amounts of maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
All eaten	6	1	3	7	1		18	3%
80-99%	26	30	36	46	16	4	158	23%
60-79%	26	30	29	34	28	14	161	24%
40-59%	18	19	18	20	21	11	107	16%
20-39%	13	10	14	12	31	7	87	13%
1-19%	6	2	2	1	8		19	3%
None eaten	21	42	26	18	15	1	123	18%
Total # of households	116	134	128	138	120	37	673	

Some observations:

- The proportions of harvested maize having been eaten by the households seems to be under-reported, especially for the households who had rather small maize harvests. Only 3% of all households said they had eaten all their maize, including some households at the higher end of the amounts of maize having been harvested. Similarly, 18% of the households reported that they had eaten none of their harvested maize, which seems rather high.
- The number of households with large maize harvests and which have consumed more than half of their large harvests seems also rather high.

Table 20. Number of maize growing households by amounts of maize harvested and percentage of maize harvest having been eaten by the household, TOMAK focus area

Percentage of maize eaten by the household	Amounts of maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
All eaten	2	1	2	1			6	5%
80-99%	5	6	12	8	4	1	36	27%
60-79%	4	13	6	7	3	2	35	27%
40-59%	3	4	7	4	6	1	25	19%
20-39%	7	6	6	2	6		27	20%
1-19%				1	1		2	1.5%
None eaten				1			1	0.8%
Total # of households	21	30	33	24	20	4	132	

For the amounts of maize sold, the data is given in Table 21 for the total sample, and in Table 22 for the TOMAK focus area.

Table 21. Number of maize growing households by amounts of maize harvested and percentage of maize harvest having been sold by the household

Percentage of maize sold	Amounts maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
None sold	105	118	105	107	70	30	535	79%
1-19%	5	9	5	13	21	4	57	8%
20-39%	2	4	6	12	15	3	42	6%
40-59%	3	3	8	5	10		29	4%
60-79%	1		2	1	4		8	1.2%
80-99%			2				2	0.3%
All sold							0	0%
Total # of HHs	116	134	128	138	120	37	673	

Table 22. Number of maize growing households by amounts of maize harvested and percentage of maize harvest having been sold by the household, TOMAK focus area

Percentage of maize sold	Amounts maize harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 37 kg	37 to 89 kg	90 to 164 kg	165 to 331 kg	332 to 2,475 kg			
None sold	18	26	24	21	12	2	103	78%
1-19%	1	2	1	1	1	1	7	5%
20-39%		2	3	1	4	1	11	8%
40-59%	2		4	1	2		9	7%
60-70%			1		1		2	1.5%
Total # of HHs	21	30	33	24	20	4	132	

The most noticeable observation is that nearly four out of five households do not sell any maize, even in the category of the large producers.

3.3.3. Rice

There were 151 respondents for who data was available on the percentages of rice still in store, eaten and sold. Again, as a first step, it was necessary to make some corrections for some records so that the sum of the percentages for rice in store, eaten and sold did not exceed 100%.

For 153 households, there was data on reported rice harvests of the previous year, these ranged from nothing being harvested, to a maximum harvest of 4,658 kg. The rice farmers for who harvest data was available have again been categorised into five groups of approximately similar size, to compare the percentages of rice still in store, eaten and sold with the amounts harvested. Table 23 shows the number of households by percentage of rice still stored, and by category of amount of rice harvested. Since there was only data for six female heads of households, no gender differentiated data is displayed.

Table 23. Number of rice growing households by amounts of rice harvested and percentage still in storage at the time of the survey

Percentage of rice harvest still stored	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
Average kg harvested	64.1	306.7	672.1	1,312.3	2,558.4			
Storage empty	10	7	5	4	1		27	18%
1-19%	12	14	15	5	5	2	53	35%
20-39%	1	7	9	15	11	1	44	29%
40-59%	1	2	1	5	10		19	13%
60-79%		1	1	1	2		5	3.3%
80-90%	2				1		3	2.0%
Total # of households	26	31	31	30	30	3	151	

Some observations:

- Proportionally fewer households had run out of self-grown rice than those that had run out of maize (18% vs 34%), and those that had run out of rice were primarily those with smaller amounts harvested.
- Of the households with the largest rice harvests, most still had between a third and half their harvest stored.

For the TOMAK focus area, the data from 73 households is shown in Table 24. It follows by-and-large the same pattern as the overall survey. It should also be noted that nearly half of all rice farmers' data in the total survey originates from the TOMAK focus area, so rice cultivation is clearly an important feature of this livelihoods zone.

Table 24. Number of rice growing households by amounts of rice harvested and percentage still in storage at the time of the survey in the TOMAK focus area

Percentage of rice harvest still stored	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
Average kg harvested	54.6	329.5	655.8	1,318.6	2,713.3			
Storage empty	3	4	1	3	1		12	16%
1-19%	5	8	8	2	5	1	29	40%
20-39%		3	8	7	6		24	33%
40-59%	1			2	4		7	10%
60-79%							0	0%
80-90%	1						1	1.4%
Total # of households	10	15	17	14	16	1	73	

For the amounts of rice eaten, the data is given in Table 25 for the total sample and in Table 26 for the TOMAK focus area.

Table 25. Number of rice growing households by amounts of rice harvested and percentage of rice harvest having been eaten by the household

Percentage of rice eaten by the household	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
All eaten	1	4		2	1		8	5%
80-99%	16	13	12	5	1	1	48	32%
60-79%	1	7	10	10	10	1	39	26%
40-59%	5	3	7	11	8		34	23%
20-39%		3	2	1	8	1	15	10%
1-19%	1	1					2	1.3%
None eaten	2			1	2		5	3%
Total # of households	26	31	31	30	30	3	151	

Some observations:

- The proportions of harvested rice having been eaten by the households seems to be under-reported, especially for the households who had rather small rice harvests. Only 5% of all households said they had eaten all their rice, and that includes a household which had a 3,000 kg harvest, which doesn't seem very plausible. The percentage of households that stated they had not eaten any of their rice was 3%, which seems more realistic than the 18% reported for maize.
- The number of households with rice harvests larger than one ton, and which reportedly have consumed more than half of their large harvests seems also rather high.

Table 26. Number of rice growing households by amounts of rice harvested and percentage of rice harvest having been eaten by the household, TOMAK focus area

Percentage of rice eaten by the household	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
All eaten		2		1	1		4	5%
80-99%	6	6	5	3	1		21	29%
60-79%		2	7	4	4		17	23%
40-59%	2	2	4	5	3		16	22%
20-39%		2	1	1	7	1	12	16%
1-19%	1	1					2	2.7%
None eaten	1						1	1.4%
Total # of households	10	15	17	14	16	1	73	

The observations made for the survey in general also seem to apply to the TOMAK focus area. It seems rather unbelievable that a household which harvested 1,400 kg of rice ate it all, and similarly for a household that harvested 3,000 kg.

For the amounts of rice sold, the data is given in Table 27 for the total sample, and in Table 28 for the TOMAK focus area.

Table 27. Number of rice growing households by amounts of rice harvested and percentage of rice harvest having been sold by the household

Percentage of rice sold	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
None sold	26	30	29	25	17	3	130	86%
1-19%			1	1	3		5	3%
20-39%		1	1	3	6		11	7%
40-59%				1	3		4	2.6%
60%					1		1	0.7%
Total # of HHs	26	31	31	30	30	3	151	

Table 28. Number of rice growing households by amounts of rice harvested and percentage of rice harvest having been sold by the household, TOMAK focus area

Percentage of rice sold	Amounts of rice harvested the previous year					No harvest data	Total # of HHs	% of HHs
	≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg			
None sold	10	15	16	11	6	1	59	81%
1-19%			1	1	3		5	7%
20-39%				1	5		6	8%
40-59%				1	1		2	2.7%
60%					1		1	1.4%
Total # of HHs	10	15	17	14	16	1	73	

The most noticeable observation for both the total sample and for the TOMAK focus area is that most of the rice harvested does not get sold. This is not very surprising given the availability of cheap imported rice in the market.

3.3.4. Peanut

There were 201 respondents for who data was available on the percentages of peanut still in store, eaten and sold. Again, as a first step, it was necessary to make some corrections for some records so that the sum of the percentages for rice in store, eaten and sold did not exceed 100%.

For 237 households, there was data on reported peanut harvests of the previous year, these ranged from nothing being harvested, to a maximum harvest of 5,500 kg. The peanut farmers for who harvest data was available have again been categorised into five groups of approximately similar size, to compare the percentages of peanut still in store, eaten and sold with the amounts harvested. Table 29 shows the number of households by percentage of peanut still stored, and by category of amount of peanut harvested.

Since there was only data for nine female heads of households, no gender differentiated data is displayed.

Table 29. Number of peanut growing households by amounts of peanut harvested and percentage still in storage at the time of the survey

Percentage of peanut harvest still stored	Amounts of peanut harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 10 kg ¹¹	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg			
Average kg harvested	0.7	11.1	22.9	46.0	446.2			
Storage empty	5	32	39	39	38	2	155	77%
1-19%			7	9	7		23	11%
20-39%				2	1		3	1.5%
40-59%		1			1		2	1.0%
60-79%	1	1	2	3	1		8	4.0%
80-90%	1		2	2	1		6	3.0%
All still stored			1	3			4	2.0%
Total # of households	7	34	51	58	49	2	201	

As can be seen in the table above, peanut is not a crop which farmers keep for long. Close to four out of five farmers no longer had any peanut from their previous harvest stored at the time of the survey, and this seems to be the same irrespective of the size of the peanut harvest.

For the TOMAK focus area, there was only data from 42 households, which is shown in Table 30. Here 90% of the peanut farmers no longer had peanut in store, and the four farmers who still had some, had less than 10% of the harvest.

Table 30. Number of peanut growing households by amounts of peanut harvested and percentage still in storage at the time of the survey in the TOMAK focus area

Percentage of peanut harvest still stored	Amounts of peanut harvested the previous year					Total # of HHs	% of HHs
	< 10 kg	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg		
Average kg harvested	9.0	11.2	22.0	47.9	251.2		
Storage empty	1	9	8	11	9	38	90%
10%				3	1	4	10%
Total # of households	1	9	8	14	10	42	

For the amounts of peanut eaten, the data is given in Table 31 for the total sample and in Table 32 for the TOMAK focus area.

¹¹ This category counted 45 entries, making it more-or-less similar in size to the other categories, but there were 38 farmers who had reported a zero harvest. The overall average therefore became 0.7 kg. If the farmers without harvests are left out, the average for the seven farmers with a non-zero harvest was 4.6 kg.

Table 31. Number of peanut growing households by amounts of peanut harvested and percentage of peanut harvest having been eaten by the household

Percentage of peanut eaten by the household	Amounts of peanut harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 10 kg	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg			
All eaten		13	9	7	2		31	15%
80-99%	4	12	21	15	7		59	29%
60-79%		1	8	8	11		28	14%
40-59%		3	2	8	9	1	23	11%
20-39%		1	2	6	7		16	8%
1-19%	1	2	2	5	11	1	22	11%
None eaten	2	2	7	9	2		22	11%
Total # of households	7	34	51	58	49	2	201	

Table 32. Number of peanut growing households by amounts of peanut harvested and percentage of peanut harvest having been eaten by the household, TOMAK focus area

Percentage of peanut eaten by the household	Amounts of peanut harvested the previous year					Total # of HHs	% of HHs
	< 10 kg	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg		
All eaten		4	1	2	1	8	19%
80-99%	1	4	5	3	2	15	36%
60-79%			2	2	4	8	19%
40-59%		1		4	2	7	17%
20-39%				1	1	2	5%
1-19%				2		2	5%
Total # of households	1	9	8	14	10	42	

Roughly half of all peanut farmers had completely eaten their harvest, or had about 10% of it left at the time of the survey (the two households in the highest harvest category, one of which lives in the TOMAK focus area, which had eaten their total harvest had respectively 66 kg and 110 kg harvested).

For the amounts of peanuts sold, the data is given in Table 33 for the total sample, and in Table 34 for the TOMAK focus area.

Table 33. Number of peanut growing households by amounts of peanut harvested and percentage of peanut harvest having been sold by the household

Percentage of peanut sold	Amounts of peanut harvested the previous year					No harvest data	Total # of HHs	% of HHs
	< 10 kg	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg			
None sold	7	31	47	35	17		137	68%
1-19%		1	3	4			8	4%
20-39%			1	6	8		15	7%
40-59%		2		9	11		22	11%
60-79%				3	11	2	16	8%
80-90%				1	2		3	1.5%
Total # of households	7	34	51	58	49	2	201	

Table 34. Number of peanut growing households by amounts of peanut harvested and percentage of peanut harvest having been sold by the household, TOMAK focus area

Percentage of peanut sold	Amounts of peanut harvested the previous year					Total # of HHs	% of HHs
	< 10 kg	11 to 20 kg	21 to 29 kg	30 to 65 kg	66 to 5,500 kg		
None sold	1	8	8	7	3	27	64%
1-19%				1		1	2.4%
20-39%				4	2	6	14%
40-59%		1		2	4	7	17%
60-70%					1	1	2.4%
Total # of households	1	9	8	14	10	42	

A large group of households (60 to 70%) does not sell any of its peanut harvest, and most that do sell, sell somewhere between a quarter and half of the harvest. It is primarily the farmers with the larger harvests who sell peanuts.

3.3.5. Cassava

For cassava, only limited analysis can be done. There were 644 respondents who reported what proportion of their cassava they had eaten, but that was matched with only 521 respondents who reported on whether or not any cassava had been sold, and data from only 83 respondents on total amount of cassava harvested in the last year (and the maximum amount reported was 8 kg).

Table 35 shows what percentage of the cassava harvest has been eaten and sold by the survey respondents overall, and in the TOMAK focus area.

Table 35. Number of cassava growing households by percentage of the cassava harvest being eaten and sold by the household

Percentage cassava eaten					Percentage cassava sold				
Percent-ages	Total sample		TOMAK focus area		Percent-ages	Total sample		TOMAK focus area	
	# of HHs	% of HHs	# of HHs	% of HHs		# of HHs	% of HHs	# of HHs	% of HHs
100	34	5%	5	4%	0	440	84%	102	82%
90	150	23%	31	25%	10	27	5%	7	6%
70	111	17%	16	13%	30	22	4%	5	4%
60	2	0.3%	1	0.8%	40	2	0.4%	1	0.8%
50	139	22%	34	27%	50	18	3%	5	4%
40	3	0.5%	1	0.8%	60	3	0.6%	1	0.8%
30	119	18%	20	16%	70	3	0.6%	1	0.8%
10	31	5%	5	4%	90	5	1.0%	3	2.4%
0	55	9%	12	10%	100	1	0.2%		
Totals	644		125			521		125	

Close to 70% of the households overall, and also 70% in the TOMAK focus area ate more than half of their cassava harvest. Four out of five households did not sell any of their cassava, and less than 10% of the households sold more than 40% of the harvest.

3.3.6. Sweet Potato

Similarly for sweet potato, only more limited analysis can be done. There were 438 respondents who reported what proportion of their sweet potato they had eaten or had been sold, but there was only data from 37 respondents on total amount of sweet potato harvested in the last year (and the maximum amount reported was 190 kg).

Table 36 shows what percentage of the sweet potato harvest has been eaten and sold by the survey respondents overall, and in the TOMAK focus area.

Table 36. Number of sweet potato growing households by percentage of the sweet potato harvest being eaten and sold by the household

Percentage sweet potato eaten					Percentage sweet potato sold				
Percent-ages	Total sample		TOMAK focus area		Percent-ages	Total sample		TOMAK focus area	
	# of HHs	% of HHs	# of HHs	% of HHs		# of HHs	% of HHs	# of HHs	% of HHs
100	45	10%	8	10%	0	372	85%	68	85%
90	134	31%	26	33%	10	17	4%	4	5%
80	1	0.2%			20	1	0.2%		
70	70	16%	4	5%	30	18	4%	1	1.3%
50	72	16%	23	29%	50	18	4%	5	6.3%
40	3	0.7%	1	1.3%	60	3	0.7%	1	1.3%
30	75	17%	11	14%	70	8	1.8%	1	1.3%
10	33	8%	7	9%					
0	5	1.1%			100	1	0.2%		
Totals	438		80			438		80	

As with cassava, sweet potato is very much consumed by the household themselves (75% of the households ate more than half of their sweet potato harvest), and 85% of the households did not sell part of their harvest.

3.3.7. Rice Buying

As part of the survey, the respondents were also asked whether they had bought rice in the 12 months preceding the survey, and if yes, in which months, and what average amounts.

Of the 700 respondents, 651 (93%) bought rice in the previous year. The minimum amount reported of rice buying in the year was 25 kg, and the maximum 1,500 kg.

A total of 526 respondents (or 81% of the rice buyers) bought rice every month.

Table 37 shows the number of rice buying households, and the average amounts bought per year, by the amounts of rice grown by the households, and Table 38 for the TOMAK focus area.

Table 37. Number of rice buying households, and average amounts bought per year, by category of rice harvest

Amount of rice bought per year		Non-rice farmer	Amounts of rice harvested the previous year					Total
			≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg	
Not buying rice	#	8	2	2	8	16	17	53
25 to 275 kg	#	60	11	18	15	6	7	117
	kg	144	140	121	113	129	75	131
300 kg	#	259	12	9	7	4	3	294
	kg	300	300	300	300	300	300	300
360 to 540 kg	#	54	1				1	56
	kg	373	360				360	372
600 kg	#	119	2	1	1	3	2	128
	kg	600	600	600	600	600	600	600
684 to 1,500 kg	#	47	3	1		1		52
	kg	974	840	1,200		720		966
Total # of households		547	31	31	31	30	30	700
Average kg bought		415	318	231	191	321	230	389

Some observations:

- A farming household buys on average close to 400 kg of rice a year. For the TOMAK focus area, the average amount of rice bought per year is closer to 350 kg.
- Rice growing households with larger rice harvests buy fewer rice and/or smaller average amounts of rice than rice growing households with smaller harvests, or households that do not grow rice.

Table 38. Number of rice buying households, and average amounts bought per year, by category of rice harvest, TOMAK focus area

Amount of rice bought per year		Non-rice farmer	Amounts of rice harvested the previous year					Total
			≤ 160 kg	161 to 500 kg	501 to 999 kg	1,000 to 1,530 kg	1,531 to 4,658 kg	
Not buying rice	#	4	2		5	9	8	28
25 to 275 kg	#	2	4	11	10	2	5	34
	kg	163	136	112	100	75	65	105
300 kg	#	30	5	3	2	2	2	44
	kg	300	300	300	300	300	300	300
360 to 540 kg	#	8						8
	kg	371						371
600 kg	#	15	1	1		1	1	19
	kg	600	600	600		600	600	600
684 to 1,500 kg	#	7	1					8
	kg	1,063	720					1,020
Total # of households		66	13	15	17	14	16	141
Average kg bought		463	306	182	133	270	191	348

3.4. Agricultural Assets Ownership in the Various Livelihood Zones

3.4.1. Background

In the Seeds of Life end-of-program survey, data was collected on ownership or access of the household to agricultural assets, more specifically:

- Ownership of agricultural equipment (“Does your household own these agricultural tools/equipment, and if yes, how many?”, for 13 types of tools/equipment).
- Ownership of livestock (“Does your household own these animals, and if yes, how many?”, for seven types of animals).
- Land ownership of the cultivated land (“Is the land your household cultivates your own?”, with answers ‘no’, ‘yes, all of it’ and ‘yes, some of it’).
- Total area of cultivated land, for foodcrops or plantation or as pasture. The farmers were first asked how many plots they cultivated, and then the length and width of each plot. The total area was the sum of the individual plot areas.

The answers to these questions were used to calculate for each household an “agricultural assets score”¹².

3.4.2. Agricultural Assets Scores of the Seeds of Life End-of-Program Survey Respondents

Data on agricultural assets was collected from 695 respondents as part of the Seeds of Life end-of-program survey¹³. Table 39 shows the number of respondents in each livelihoods zone, and the average agricultural assets score for the farmers in each livelihoods zone.

Table 39. Number of crop farmers and average “agricultural assets score” in each livelihoods zone

Livelihoods zone	Total	
	No. of respondents in livelihoods zone	Average agricultural assets score
Mid altitude irrigated areas	127	104
North coast irrigated areas	33	104
South coast irrigated areas	11	164
Mid altitude uplands	183	72
High altitude uplands	49	69
Northern rain-fed areas	82	85
Southern rain-fed areas	189	110
Urban	21	52
Total	695	92

Table 39 shows that the farmers in TOMAK's mid-altitude irrigated areas livelihoods zone, with an average agriculture assets score of 104, have generally more agricultural assets than the average farmer in Timor-Leste (with an average score of 92).

The same observation is also obtained when looking at the spread of households by agricultural assets wealth over the different livelihoods zones (Table 40). There are proportionally fewer households from the lowest quintile in this livelihoods zone, and proportionally more in the second, fourth and highest quintile¹⁴. The “urban” livelihoods zone shows up as the poorest, but the suku

¹² The methodology to calculate the agricultural assets score is explained in the annex to this memo.

¹³ There were actually 700 respondents, but for five of them no data on the household's livestock was available.

¹⁴ The five quintiles do not have exactly 140 households each. Households with the same agricultural assets score were kept together in the same quintile.

Balibar in Dili and Riheu in Ermera are more rural in nature than urban, and the total of cultivated areas are smaller than elsewhere.

Table 40. Number and percentages of crop farmers in each livelihoods zone, by agricultural assets wealth quintiles

Livelihoods zones	Quintiles of agricultural assets wealth (Number of respondents and percentages by LHZ)					Total
	Lowest	Second	Middle	Fourth	Highest	
Mid altitude irrigated areas	21 17%	30 24%	26 20%	21 17%	29 23%	127
North coast irrigated areas	8 24%	6 18%	5 15%	9 27%	5 15%	33
South coast irrigated areas	1 9%	1 9%	0 0%	3 27%	6 55%	11
Mid altitude uplands	46 25%	36 20%	43 23%	37 20%	21 11%	183
High altitude uplands	8 16%	18 37%	9 18%	10 20%	4 8%	49
Northern rain-fed areas	17 21%	16 20%	18 22%	15 18%	16 20%	82
Southern rain-fed areas	32 17%	25 13%	37 20%	43 23%	52 28%	189
Urban	8 38%	7 33%	3 14%	2 10%	1 5%	21
Total number of households	141	139	141	140	134	700
Percentage of households	20%	20%	20%	20%	19%	
Male headed households	130	123	132	135	131	651
% of male headed HHs	20%	19%	20%	21%	20%	
Female headed households	11	16	9	5	3	44
% of female headed HHs	25%	36%	20%	11%	7%	

Compared to the overall distribution, there are proportionally more women headed households in the two lower quintiles, and fewer in the top two quintiles.

The gender difference is also obvious when looking at the livelihoods zones. As shown in Table 41, female headed households have overall and in each livelihoods zone – with two exceptions – consistently lower agricultural assets scores than male headed households (but the data on female headed households in each livelihoods zone could very easily change as the numbers are small).

Table 41. Number of male and female headed households in each livelihoods zone, and average agricultural assets scores

Livelihoods zone	Number of households in livelihoods zone		Average agricultural assets score in LHZ	
	Male HoH	Female HoH	Male HoH	Female HoH
Mid altitude irrigated areas	120	7	105.3	84.9
North coast irrigated areas	30	3	109.5	46.0
South coast irrigated areas	9	2	185.6	66.0
Mid altitude uplands	176	7	72.9	50.6
High altitude uplands	46	3	70.8	41.3
Northern rain-fed areas	77	5	85.3	88.4
Southern rain-fed areas	176	13	114.2	56.2
Urban	17	4	49.2	66.0
Total	651	44	94.0	63.2

3.4.3. Cultivated areas

There are significant differences between the total areas of land which farmers in each of the livelihoods zones use for either foodcrop cultivation, plantations and/or pasture. Table 42 shows for each livelihoods zone how many farmers had access to what amount of agricultural land. The bottom of the table (on the next page) shows that women headed households generally have access to less land than male headed households.

Table 42. Number and percentage of farmers in each livelihoods zone, by total amount of cultivated area

Livelihoods zones	Total amount of cultivated area (foodcrops, plantation, pasture)							Total
	< 0.15 ha	0.15 - 0.29 ha	0.30 - 0.99 ha	1.00 - 1.99 ha	2.00 - 2.99 ha	3.00 - 4.99 ha	> 5.00 ha	
Mid altitude irrigated areas	3 2%	17 13%	46 36%	30 24%	18 14%	10 8%	3 2%	127
North coast irrigated areas	4 12%	5 15%	19 58%	5 15%				33
South coast irrigated areas		4 36%	3 27%	1 9%	1 9%	2 18%		11
Mid altitude uplands	10 5%	18 10%	47 26%	53 29%	23 13%	23 13%	9 5%	183
High altitude uplands		2 4%	12 24%	20 41%	7 14%	7 14%	1 2%	49
Northern rain-fed areas	20 24%	7 9%	30 37%	14 17%	5 6%	6 7%		82
Southern rain-fed areas	8 4%	20 11%	45 24%	63 33%	28 15%	20 11%	5 3%	189
Urban	3 14%	2 10%	5 24%	7 33%	3 14%	1 5%		21
No. of households	48	75	207	193	85	69	18	695
% of households	7%	11%	30%	28%	12%	10%	3%	
Male headed HHs	42	65	193	183	82	68	18	651
% male headed HHs	6%	10%	30%	28%	13%	10%	3%	
Female headed HHs	6	10	14	10	3	1		44
% female headed HHs	14%	23%	32%	23%	7%	2%		

For the TOMAK livelihoods zone, compared to the total survey average, there were fewer of the very small farms (i.e. less than 1,500 m²), and more of the small farms (ranging from 0.15 to 1.00 ha), fewer of the 1-2 ha farms, slightly more of the 2-3 ha farms, and fewer for the farms larger than 3 ha.

From a gender perspective, the average sizes of farm holdings of male headed households are in all livelihoods zones larger than the holdings of female headed households, even though the minimum sizes of male plots are smaller than the minimum sizes of female plots (Table 43).

Table 43. Minimum, average and maximum sizes of total amounts of cultivated areas for male and female headed households, by livelihoods zone

Livelihoods zones	Total amount of cultivated area (foodcrops, plantation, pasture) – m2						
	Male Head of Household			Female Head of Household			Average M&F
	Min	Average	Max	Min	Average	Max	
Mid altitude irrigated areas	170	13,829	56,000	900	5,447	13,600	13,367
North coast irrigated areas	375	6,413	18,220	1,400	2,200	2,800	6,030
South coast irrigated areas	2,500	14,717	35,150	2,000	2,125	2,250	12,427
Mid altitude uplands	200	17,289	120,000	2,000	14,575	35,000	17,185
High altitude uplands	1,650	17,187	52,000	3,550	6,767	12,000	16,549
Northern rain-fed areas	300	9,136	48,150	2,800	4,855	8,700	8,875
Southern rain-fed areas	400	16,429	203,500	225	7,690	22,500	15,828
Urban	80	11,431	40,450	1,400	11,975	26,800	11,535
Grand Total		14,757			7,806		14,317

3.4.4. Livestock

In the surveyed population, 97% of the households have one or more types of livestock, with chickens and pigs being the most common. In TOMAK's livelihood zone, having two to four types of livestock is very common (Figure 12).

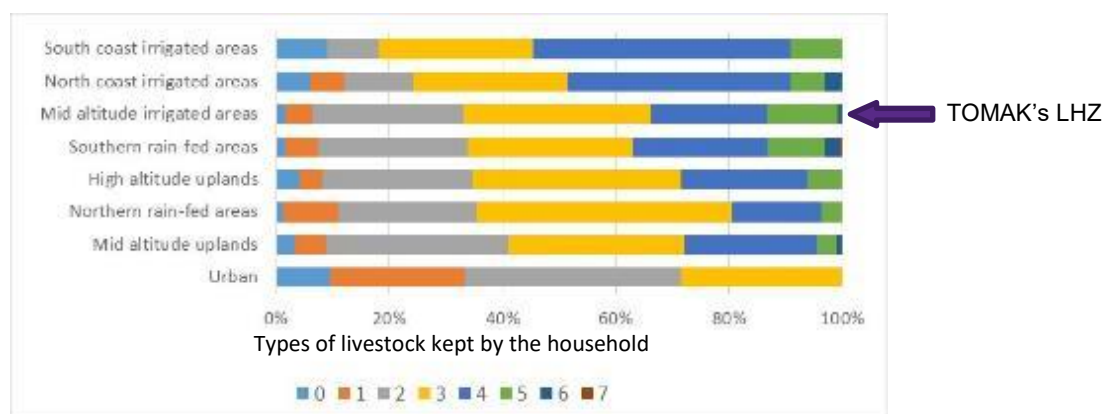


Figure 12. Number of types of livestock kept by farming households

With the exception of pigs in the urban livelihoods zone, there is not much variation between the proportion of households keeping chickens and pigs. Keeping goats and cattle is also fairly common in the TOMAK livelihoods zone (Table 44).

Table 44. Number and percentage of households by type of livestock kept, and by livelihoods zone

Livelihoods zones	Households with livestock							Number of HHs
	Chicken	Pig	Sheep	Goat	Cow	Buffalo	Horse	
Mid altitude irrigated areas	110 87%	114 90%	7 6%	56 44%	47 37%	23 18%	33 26%	127
North coast irrigated areas	28 85%	29 88%		21 64%	19 58%	5 15%	3 9%	33
South coast irrigated areas	9 82%	9 82%		6 55%	8 73%	2 18%	2 18%	11
Mid altitude uplands	154 84%	162 89%	4 2%	70 38%	79 43%	12 7%	32 17%	183
High altitude uplands	42 86%	46 94%		18 37%	15 31%	5 10%	15 31%	49
Northern rain-fed areas	70 85%	76 93%	2 2%	41 50%	18 22%	15 18%	4 5%	82
Southern rain-fed areas	159 84%	170 90%	1 1%	60 32%	95 50%	48 25%	55 29%	189
Urban	17 81%	16 76%		4 19%	2 10%			21
# of households	589	622	14	276	283	110	144	695
% of households	85%	89%	2%	40%	41%	16%	21%	
Male headed HHs	553	585	13	261	270	107	141	651
% male head HHs	85%	90%	2%	40%	41%	16%	22%	
Female headed HHs	36	37	1	15	13	3	3	44
% female head HHs	82%	84%	2%	34%	30%	7%	7%	

Female headed households are generally less livestock keeping than male headed households, especially for larger animals.

Table 45 shows the average number of animals kept by livestock keeping households for each type of livestock. It shows that, if a household keeps a certain type of livestock, they usually have on average three to five of them (except for horses, where it is two). The bottom of the table also shows that female headed households who keep livestock generally have fewer animals¹⁵.

¹⁵ For cows the number of animals with female headed households is higher than that of male headed households, but that is due to one female headed household in Bobonaro with reportedly 35 cattle; without that outlier, the average for female headed households drops to 2.8 animals.

Table 45. Average number of livestock kept by households, and by livelihoods zone

Livelihoods zones	Type of livestock kept						
	Chicken	Pig	Sheep	Goat	Cow	Buffalo	Horse
Mid altitude irrigated areas	7.9	3.3	5.3	5.2	5.6	7.3	2.3
North coast irrigated areas	8.2	4.2		6.4	4.0	5.0	1.7
South coast irrigated areas	18.3	5.6		3.5	9.9	14.5	3.0
Mid altitude uplands	7.8	2.9	5.5	2.8	3.8	2.7	1.5
High altitude uplands	4.5	2.3		4.6	2.5	1.8	1.9
Northern rain-fed areas	9.4	3.0	21.5	4.1	3.6	5.4	1.5
Southern rain-fed areas	10.8	4.1	1.0	4.3	4.8	5.9	2.1
Urban	8.5	2.8		2.8	2.5		
Average for all farmers	8.8	3.4	7.4	4.2	4.6	5.7	2.0
Average male headed HHs	8.9	3.4	7.8	4.3	4.5	5.8	2.0
Average female headed HHs	6.5	3.1	1.0	3.3	5.3	3.7	2.0

For TOMAK's livelihoods zone specifically, the number of male and female headed households with their average number of animals by type is given in Table 46.

Table 46. Number of male and female headed households in TOMAK's livelihoods zone, with the average number of animals by type

Type of animal	Male headed HHs (N _m = 120)		Female headed HHs (N _f = 7)		All households (N = 127)	
	Number of HHs	Average # of animals	Number of HHs	Average # of animals	Number of HHs	Average # of animals
Chicken	104	8.1	6	5.5	110	7.9
Pig	109	3.3	5	2.2	114	3.3
Sheep	6	6.0	1	1.0	7	5.3
Goat	53	5.3	3	3.0	56	5.2
Cow *	45	5.1	2	18.0	47	5.6
Buffalo	22	7.5	1	2.0	23	7.3
Horse	32	2.3	1	4.0	33	2.3

* In Bobonaro, there was one male headed HH with 40 cows, and one female headed HH with 35 cows. If we leave out both these outliers, the male average drops to 4.3 and the female average drops to 1.0.

Using scatter diagrams, it was also checked if, for the TOMAK livelihoods zone, there was perhaps a pattern between:

- > the log of cultivated area vs. the score for agricultural equipment
- > the log of cultivated area vs. the score for livestock
- > the score for agricultural equipment vs. the score for livestock

None of the scatter diagrams revealed a systematic pattern.

3.4.5. Ternary Diagram of Tools/Equipment – Livestock – Land Area for the TOMAK Livelihoods Zone

One can also plot the data of the tools/equipment, livestock and land areas components of the agricultural assets score for the farmer households in TOMAK's livelihoods zone on a ternary or triangular diagram (Figure 13). In the diagram the households are plotted by the percentage contributions of each of the three components to the overall score.

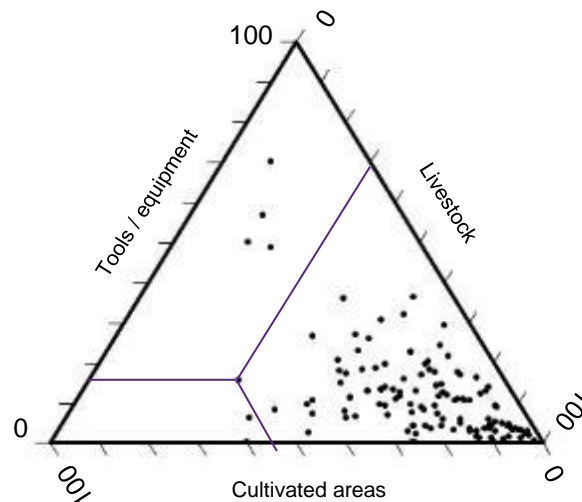


Figure 13. Ternary diagram for tools/equipment, livestock and agricultural area in the mid-altitude irrigated areas livelihoods zone

The farmer households seem to be concentrated in the area of relatively small land areas, significant livestock activities and relatively little endowment for agricultural tools or equipment. A differently construed agricultural assets score may give a somewhat different picture, but it would probably not completely reverse this general observation.

The main points from the analysis in Section 3.4, Agricultural Assets Ownership in the Various Livelihood Zones, are probably:

- The farmers in the TOMAK livelihoods zone are somewhat better endowed in term of agricultural assets (being equipment/tools, livestock or access to land for agricultural use) than the average farmer in Timor-Leste, but they are not the most endowed. [The South Coast Irrigated Areas may score better, but as the sample for that livelihoods zone was the smallest, the reliability of the result may not be that certain. The Southern Rainfed Areas also seem slightly better endowed].
- The better agricultural endowment of farmers in this livelihoods zone is also reflected in the distribution of households by quintiles. There are proportionally fewer household in the lowest and fourth quintiles, but more in the second and top quintiles. There are however gender differences when looking at male and female headed households for the total sample; women headed households are more concentrated in the two lowest quintiles than male headed households. The agricultural assets scores of female headed households are generally much lower than those of male headed households.
- Close to 60% of the farmers in the TOMAK livelihoods zone have access to between 0.30 to 2 ha of agricultural land (for foodcrops, plantation and/or pastures). Here again, the sizes of agricultural areas managed by female headed households are generally smaller than those of male headed households.
- In the TOMAK livelihoods zone, most households have between two and four types of animals, with chickens and pigs being the most common. Goats and cattle are also quite common. Female headed households generally have fewer animals than male headed households.

3.5. Sources of Income

3.5.1. Background

In the Seeds of Life end-of-program survey, the respondents were asked several questions about their economic situation through the following questions:

- During the last 12 months (February 2015 - January 2016), has your household received money from the following activities:
 - Selling crops (any crops)
 - Plantation (coffee, cacao, rubber, etc.)
 - Selling chickens or other livestock
 - Selling fish
 - Small business (kios, sell fuel, sell firewood, selling cakes/tais, buying/reselling products)
 - Day-labour
 - Work with monthly salary: taxi, SEO, teacher, police, security, etc.
 - Government payment (pension, veteran, bolsa de mae)
 - Own company
 - Money from CSP or CSPG
- If “Small business” had been selected as one of the answers, a follow-up question was “Who is the main person in the HH who takes care of this small business?”, with as possible answers “men”, “women” and “both”.
- If “Crop” had been selected as one of the answers, a follow-up question was “The crops you sell are crops your HH produces or crops you bought and then re-sold?”, with as possible answers “own”, “bought” and “both”.
- Three follow-up questions to the above question if own crops were sold were:
 - Which of the crops you produce does your household make the most money from?
 - How much money did you make from this crop last year?
 - Overall, what proportion of your total household income last year would you say comes from selling crops YOU PRODUCE?
- All respondents were also asked to rank their three most income generating activities (taken from the list in the first bullet):
 - 1 = gives the highest income
 - 2 = gives the second highest income
 - 3 = gives the third highest income

3.5.2. Sources of Income of the Seeds of Life End-of-Program Survey Respondents

Data on sources of income was collected from 700 respondents as part of the Seeds of Life end-of-program survey. Table 47 shows for different types of income the number and percentage of households who earned or obtained in the last year an income from that source. Table 48 shows the gender differentiation, for the total sample and for the households in the TOMAK livelihoods zone.

Table 47. Sources of income of households (number of households and percentages)

Livelihoods zones	Agri- culture	Detail for agriculture				Small business	Labour	Salary	Govern- ment	Com- pany	Seed pro- duction	Total
		Crop	Plant- ation	Live- stock	Fish							
TOMAK target area	125 89%	70 50%	28 20%	99 70%	1 1%	39 28%	23 16%	17 12%	62 44%	2 1%		141
North coast irrigated areas	29 85%	14 41%		27 79%	6 18%	11 32%	9 26%	5 15%	5 15%			34
South coast irrigated areas	6 55%	3 27%	1 9%	5 45%		5 45%	1 9%	2 18%	6 55%			11
Mid altitude uplands	169 92%	80 44%	104 57%	106 58%	3 2%	40 22%	30 16%	36 20%	88 48%	1 1%		183
High altitude uplands	48 98%	26 53%	46 94%	29 59%		14 29%	10 20%	3 6%	27 55%			49
Northern rain-fed areas	67 81%	33 40%	6 7%	48 58%	14 17%	34 41%	22 27%	20 24%	29 35%			83
Southern rain-fed areas	153 86%	89 50%	55 31%	118 66%	3 2%	43 24%	47 26%	32 18%	77 43%	1 1%	2 1%	178
Urban	19 90%	11 52%	16 76%	10 48%		7 33%	5 24%	10 48%	7 33%			21
Number of households	616	326	256	442	27	193	147	125	301	4	2	700
Percentage of households	88%	47%	37%	63%	4%	28%	21%	18%	43%	0.6%	0.3%	

Note – Explanation for column headings

Agriculture	Crop, plantation, livestock or fish	Fish	Selling fish	Salary	Work with monthly salary: taxi, SEO, teacher, police, security, etc.
Crop	Selling any kind of crop	Small business	Small business (kios, sell fuel, sell firewood, carpenter, ojek, selling cakes/tais, buying/reselling products)	Government	Government payment (pension, veteran, bolsa de mãe)
Plantation	Coffee, cacao, rubber, etc	Labour	Day-labour (construction, road, house, agriculture, etc.)	Company	Own company
Livestock	Selling chickens or other livestock			Seed production	Money from CSP or CSPG

Table 48. Sources of income of male and female headed households (number of households and percentages),
for all livelihoods zones combined and for the TOMAK livelihoods zone

Livelihoods zones	Agri- culture	Detail for agriculture				Small business	Labour	Salary	Govern- ment	Com- pany	Seed pro- duction	Total
		Crop	Plant- ation	Live- stock	Fish							
Overall												
Number of households	616	326	256	442	27	193	147	125	301	4	2	700
Percentage of households	88%	47%	37%	63%	4%	28%	21%	18%	43%	0.6%	0.3%	
Male headed households	577	306	238	417	25	184	144	119	279	4	2	655
Percentage	88%	47%	36%	64%	4%	28%	22%	18%	43%	0.6%	0.3%	
Female headed households	39	20	18	25	2	9	3	6	22			45
Percentage	87%	44%	40%	56%	4%	20%	7%	13%	49%			
TOMAK livelihoods zone												
Number of households	125	70	28	99	1	39	23	17	62	2		141
Percentage of households	89%	50%	20%	70%	1%	28%	16%	12%	44%	1%		
Male headed households	116	63	24	92	1	39	23	16	54	2		131
Percentage	89%	48%	18%	70%	1%	30%	18%	12%	41%	2%		
Female headed households	9	7	4	7				1	8			10
Percentage	90%	70%	40%	70%				10%	80%			

Some observations from the above tables:

- Even though all households in the survey were engaged in agriculture, “agriculture” was not mentioned by all as a source of income for the household. Overall 88% of the households obtain income out of agriculture, but livestock sales (63%) are more important than crop sales (47%) or tree crop / plantation sales (37%). Male headed households do proportionally sell more livestock than female headed households (64% vs 56%).
- In TOMAK’s livelihoods zone, proportionally more households obtain an income from selling livestock (70% vs 63% nationally).
- Small businesses provide an income for 28% of the households, and somewhat more for male headed households (28%) than for female headed households (20%). Somewhat surprisingly, in TOMAK’s livelihoods zone, only male headed households were operating small businesses.
- Daily wage labour jobs are more important for male headed households (22%) than for female headed households (7%).
- 43% of households obtain an income from Government payments (such as pensions, veteran pensions, or Bolsa de Mãe). For women headed households that proportion is higher than for male headed households (49% vs 43%).

3.5.3. Sources of Income by Poverty Likelihood Quintile Groups

The sources of income can also be assessed by poverty likelihood quintile groups, based on the Progress out of Poverty (PPI) score of the surveyed households (see Table 49).

Table 49. Sources of income (number of households and percentages)
for poverty likelihood quintile groups

Source of income	Poverty likelihood quintile groups					Total
	Bottom	Second	Middle	Fourth	Top	
Agriculture	119 19%	127 21%	125 20%	116 19%	128 21%	615
Crop	62 19%	69 21%	67 21%	65 20%	62 19%	325
Plantation	39 15%	52 20%	57 22%	47 18%	60 24%	255
Livestock	94 21%	87 20%	93 21%	79 18%	89 20%	442
Fish	11 41%	8 30%	4 15%	2 7%	2 7%	27
Small business	40 21%	41 21%	41 21%	38 20%	32 17%	192
Labour	39 27%	44 30%	27 18%	16 11%	20 14%	146
Salary	10 8%	25 20%	22 18%	37 30%	31 25%	125
Government	45 15%	51 17%	72 24%	57 19%	75 25%	300
No. of respondents	134	141	146	134	144	699

Observations:

- For agriculture overall, all five quintile groups seem equally involved. This seems also to be the case for households that obtain an income from selling crops or selling livestock. Selling plantation crops, on the other hand, is more important for the middle and top quintile groups than the bottom and fourth quintile groups. As for obtaining an income from selling fish, this is clearly more an occupation for poorer households.

- > Households that obtain an income from day labour are more likely to be poor, and households where one or more members earn a monthly salary are more likely to be richer.
- > Social payments (referred to as “Government” in the table) are more common for the better-off households than for the poorer households¹⁶.

A related question is the number of sources of income by quintile groups. Do poorer households have to rely on more diverse sources of income than richer households? Table 50 shows the number of households by their sources of income if crop sales, plantations, livestock sales and fish sales are treated separately. The table shows that more than a third of the households have two sources of income, and close to another third have three sources of income. Within the groups of number of sources of income, there are no major differences between the poorer households and the richer households.

Table 50. Number of sources of income of households by poverty likelihood quintile groups

Number of sources of income	Poverty likelihood quintile groups					Total
	Bottom	Second	Middle	Fourth	Top	
1	17	16	19	17	21	90
2	55	48	54	54	49	260
3	40	48	43	43	46	220
4	17	25	21	13	26	102
5	4	2	5	6		17
6	1	2	2	1	2	8
7			1			1
Total	134	141	145	134	144	698

If the agriculture income sources are treated as one, the results become as shown in Table 51.

Figure 2 shows the same information, but also displays if agriculture (be it crop sales, plantation, livestock or fish) is also mentioned as a source of income. For 615 of the 698 households (88%) that was the case.

¹⁶ What we don't know is if this was also so at the start of such government transfers being made. It could be that the receiving households were initially poorer and that – as a result of receiving such payments for an extended period – they have moved up on the social ladder.

Table 51. Number of sources of income of households by poverty likelihood quintile groups (agriculture incomes grouped as one)

Number of sources of income	Poverty likelihood quintile groups					Total
	Bottom	Second	Middle	Fourth	Top	
1	40	37	40	36	32	185
2	73	71	75	71	84	374
3	17	24	22	21	25	109
4	3	7	8	6	2	26
5	1	2			1	4
Total	134	141	145	134	144	698

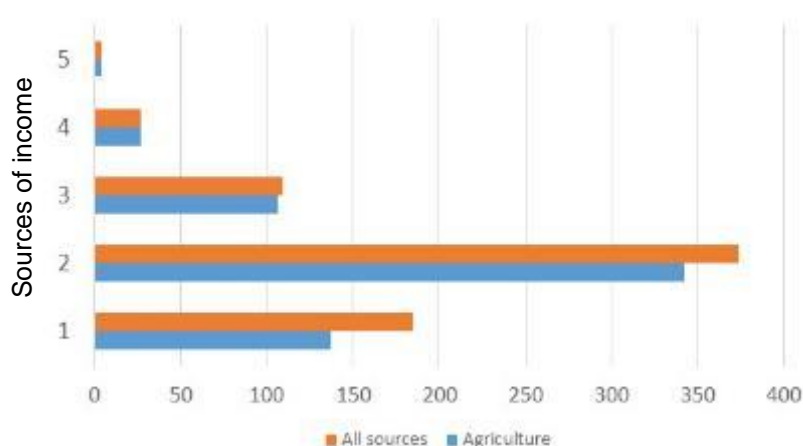


Figure 14. Number of households with one to five sources of income

3.5.4. Importance Ranking of Sources of Income

The respondents of the survey were also asked to rank their top three sources of income, 1 for the highest or most important, 2 for the second, and 3 for the third.

Table 52 shows the analysis of the data for the 580 records with valid data¹⁷.

Overall, sale of livestock is the most frequently mentioned source of income (by 58% of the respondents), and for 44% of those who get an income from selling animals, it is their most important source of income. Sales of crops was the second most mentioned source of income, and government transfers the third.

Table 53 shows similar data for the 126 valid records of respondents in TOMAK's livelihoods zone. Sale of livestock is also here mentioned as the most common source of income, by two-thirds of the respondents. Government transfers are almost as important as a source of income as crop sales (for 44% of the respondents), but it is more often the main source of income for those who receive it.

¹⁷ Valid records have values 1, or 1 and 2, or 1 and 2 and 3. The invalid records mostly had one value more than once, e.g. 1, 2, 2 and 3.

Table 52. Importance ranking of sources of household income (N=580)

Sources of income	Rank 1	Rank 2	Rank 3	Total	Percentage
Livestock	148 44%	130 39%	59 18%	337	58%
Crop	59 26%	97 43%	68 30%	224	39%
Government	107 50%	70 33%	38 18%	215	37%
Plantation	75 42%	70 40%	32 18%	177	31%
Small business	69 48%	54 38%	20 14%	143	25%
Labour	40 40%	43 43%	16 16%	99	17%
Salary	68 74%	20 22%	4 4%	92	16%
Fish	12 71%	3 18%	2 12%	17	3%
Company	1 25%	3 75%		4	0.7%
Other	1 50%	1 50%		2	0.3%

Table 53. Importance ranking of sources of household income in the TOMAK livelihoods zone (N=126)

Sources of income	Rank 1	Rank 2	Rank 3	Total	Percentage
Livestock	41 48%	33 39%	11 13%	85	67%
Crop	17 30%	24 43%	15 27%	56	44%
Government	27 49%	21 38%	7 13%	55	44%
Small business	19 54%	11 31%	5 14%	35	28%
Labour	8 42%	9 47%	2 11%	19	15%
Plantation	4 24%	6 35%	7 41%	17	13%
Salary	9 64%	4 29%	1 7%	14	11%
Company	1 50%	1 50%	0%	2	2%

3.5.5. Combinations of Crop-Livestock-Plantation Sales

For the three main sources of agricultural income (selling crops – plantations – livestock) Figure 15 shows what percentage of households in the total survey (on the left) and in TOMAK's livelihoods zone (on the right) earn an income of these sources.

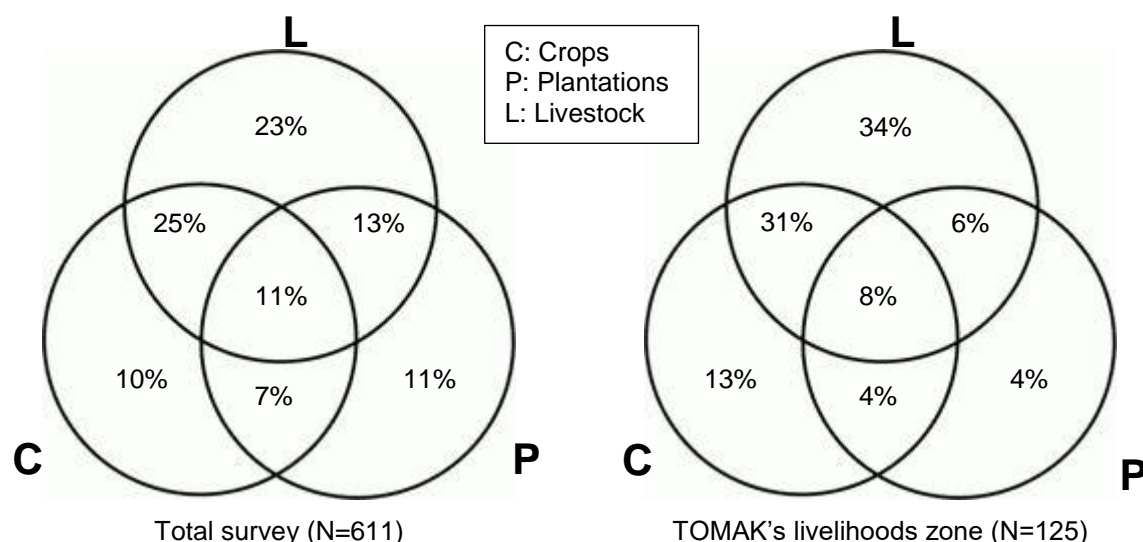


Figure 15. Percentage distribution of crop-plantation-livestock incomes of households

The graphs indicate that “livestock” and “livestock with crops” are the most frequently mentioned sources of income from agriculture.

3.5.6. Livestock Holding

Since livestock is an often-reported source of household income, it is worthwhile to get a better understanding of livestock holding patterns in the country, and in the TOMAK focus area.

Figure 16 shows chicken and pig holding in the total survey, and in the TOMAK focus area.

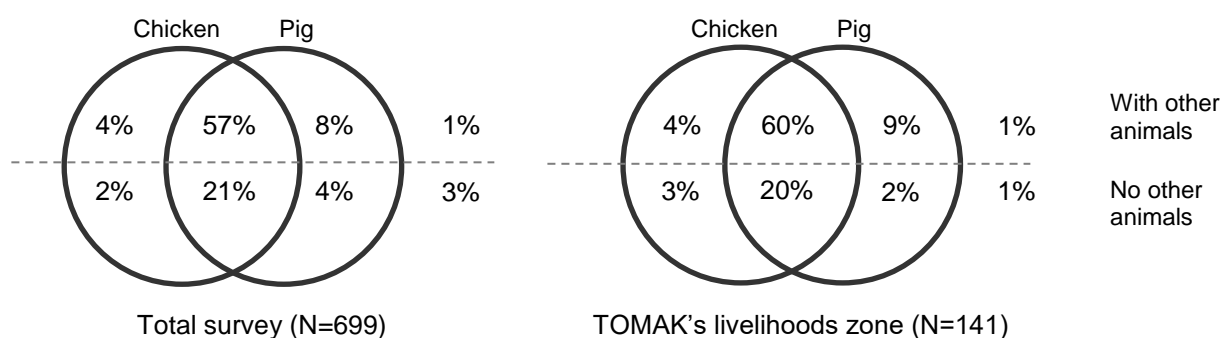


Figure 16. Chicken and pig holding

A total of 80% of the households in the TOMAK focus area hold chickens and pigs, and 60% of the households also have other animals. Only 1% of the households in the TOMAK area do not hold any animals (at least not chicken, pig, sheep, goat, cow, buffalo or horse).

3.5.7. Selling Food Crops and Plantation Crops

Of the 321 households who provided additional data on food crop and plantation crop sales, 310 (97%) were selling crops they had cultivated themselves, two households were selling crops they had bought from others, and nine households were selling a combination of self-grown crops and crops bought from others.

The self-grown crops sold by 315 households were of the types as shown in Table 54.

Table 54. Types of self-grown crops sold by households

Livelihoods zone	Maize	Rice	Peanut	Cassava	Sweet potato	Vegetables & other	Plantation crops	Total
TOMAK target area	26 38%	12 17%	8 12%	13 19%	7 10%	41 59%	17 25%	69
N. coast irrigated areas	2		3	2	1	10		14
S. coast irrigated areas				2	2	2	1	3
Mid altitude uplands	21	1	2	24	8	39	32	76
High altitude uplands	1			5	2	19	19	26
North. rain-fed areas	10	1		10	1	23	4	30
South. rain-fed areas	20	1	20	7	18	52	21	86
Urban	5			2	1	6	3	11
Total	85	15	33	65	40	192	97	315
Percentage	27%	5%	10%	21%	13%	61%	31%	

The most commonly sold self-grown crops are vegetables and other (e.g. fruits), followed by plantation crops (coffee, coconut, etc.) and maize. In the TOMAK focus area, selling maize comes in second position, after selling vegetables and other.

Table 55 shows self-grown crop sales by poverty likelihood quintile groups. For most crops there are no major differences between the different quintile groups.

Table 55. Types of self-grown crops sold by households, by poverty likelihood quintile groups

Type of self-grown crops sold	Poverty likelihood quintile groups					Total
	Bottom	Second	Middle	Fourth	Top	
Maize	16	19	18	14	18	85
Rice	3	3	1	4	4	15
Peanut	6	9	4	9	5	33
Cassava	10	5	23	13	14	65
Sweet potato	7	3	12	10	8	40
Vegetables & other	37	39	43	37	36	192
Plantation crops	20	21	14	19	23	97
Total	58	66	67	63	61	315
Percentages	18%	21%	21%	20%	19%	

3.5.8. Amounts of Food Crops Sold

In the survey, data was obtained from 658 households which either sold maize (636 households), peanut (199 households) and/or rice (148 households).

There was also data from cassava sales (83 households) and sweet potato (37 households), but for these two crops this was only the sales when the household had harvested the crops all at once; it did not take into account sporadic harvesting (i.e. a few roots today, a few next week), which is the more common manner of harvesting these crops.

Table 56. Number of households selling maize, peanut and rice, and average amounts sold (kg)

Livelihoods zone	Maize	Peanut	Rice	Number of households
TOMAK target area	128 183 kg	42 83 kg	72 1,093 kg	137
North coast irrigated areas	34 110	13 34	24 242	34
South coast irrigated areas	10 112	1 33	3 528	10
Mid altitude uplands	162 238	43 43	8 1,411	167
High altitude uplands	48 124	10 34	1 68	48
Northern rain-fed areas	65 166	14 17	12 1,248	67
Southern rain-fed areas	168 337	75 263	28 1,288	174
Urban	21 202	1 22		21
Total	636	199	148	658
Average amounts sold	227	131	1,003	

The combinations of households who sell maize, peanut and/or rice are shown in Figure 17, for the total survey (on the left) and for TOMAK's livelihoods zone (on the right). It shows that many households sell maize, but – as shown in Table 56 – the average amounts of rice sold are larger than those of maize or peanut.

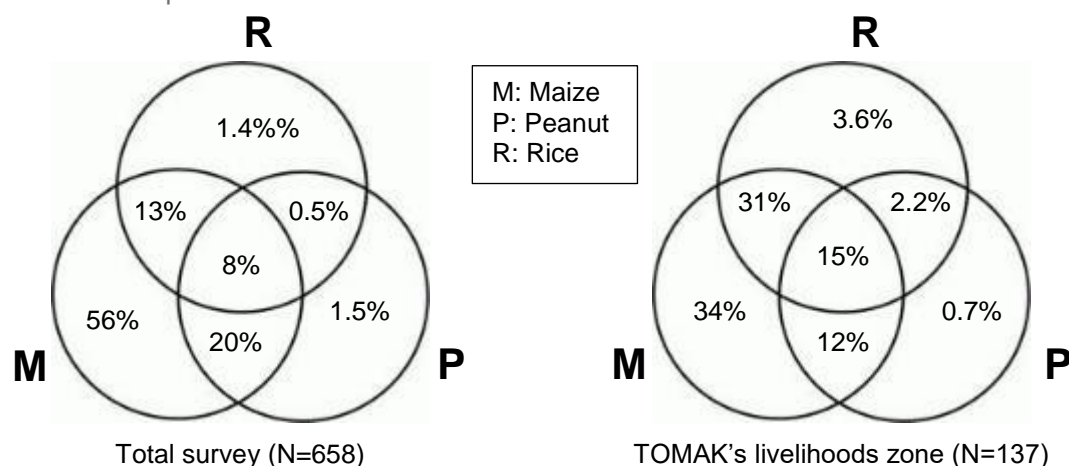


Figure 17. Percentage distribution of households selling maize, peanut and/or rice

3.5.9. Income Obtained from Selling Food Crops and Plantation Crops

285 households reported how much money they made in the last year from selling crops. For the 285 households, it came to \$106,313 in total, which gives an average of \$ 373 per household. Table 57 shows what amounts of money the households reported to have made in the 12 months before the survey from such sales. Rounded off amounts (i.e. 50, 100, 200, 250, 500, etc.) were the most commonly mentioned.

Table 57. Income obtained from the sale of self-grown crops, by poverty likelihood quintile groups

Income from crop sales (US\$)	Poverty likelihood quintile groups					Total
	Bottom	Second	Middle	Fourth	Top	
< 25	1		2	3	3	9
25-49	1	5	4	1	2	13
50-99	15	12	8	12	8	55
100-149	7	4	10	6	7	34
150-199	4	2	4	2	2	14
200-249	8	6	7	7	8	36
250-374	2	7	6	10	4	29
375-499	1	2	4	4	3	14
500-749	11	12	6	7	6	42
750-999	1		3	1	2	7
1000-1999	3	5	2	4	9	23
2000-3000	1	4	2	1	1	9
Total	55	59	58	58	55	285

There is no observable pattern that poorer households make smaller amounts, or richer households make bigger amounts from crop sales.

The respondents were also asked to assess what proportion of their total household income of the last year came from selling crops they produced themselves. Table 58 shows that 65% of the respondents thought crop sales only contributed little to their household income, but no information is available what were more important sources (although livestock sales and government transfers are likely possibilities).

Table 58. Income obtained from the sale of self-grown crops, by poverty likelihood quintile groups – Number of households and average amounts (US\$)

Levels and average amounts of crop sales' contribution to HH income	Poverty likelihood quintile groups					Total	Percentage
	Bottom	Second	Middle	Fourth	Top		
Little	35 \$264	38 \$239	38 \$218	38 \$239	31 \$320	180 \$253	65%
Some	12 \$324	10 \$577	10 \$347	11 \$547	11 \$564	54 \$469	20%
A lot	7 \$550	11 \$1,099	7 \$981	7 \$443	10 \$735	42 \$792	15%
Total	54	59	55	56	52	276	
Averages	\$310	\$456	\$333	\$332	\$432	\$373	

3.6. Progress out of Poverty Index (PPI)

3.6.1. Background

The “Progress out of Poverty Index” (PPI) is “an easy-to-use scorecard that estimates the likelihood that a household has expenditure below a given poverty line”. The PPI was developed in 2006 on the initiative of the Grameen Foundation from Bangladesh, and such scorecards have been developed for a number of countries, including Timor-Leste¹⁸.

The Timor-Leste scorecard was developed based on the 2007 Survey of Living Standards¹⁹. The approach for using the PPI is as follows:

1. A set of ten easily answerable questions, about a household’s characteristics and asset ownership, is used to collect basic data from households;
2. From a scorecard, the scores that correspond to the answer for each question for each responding household are looked up;
3. The scores for the ten questions are added up to give the household’s PPI score;
4. A lookup table gives an estimate how likely the household with that PPI score will be poor according to a given poverty line (e.g. “lower” and “upper” national poverty lines, \$1.25 per day, \$2.50 per day, etc.).

For groups of households, the estimates of “poverty likelihood” – not the PPI scores – are averaged.

3.6.2. PPI Results of the Seeds of Life End-of-Program Survey

As part of the Seeds of Life end-of-program survey, PPI data was collected from 699 respondents in all 13 municipalities. Table 39 shows what percentage of respondents in each livelihoods zone live on less than \$1.25 per day

Table 59. Percentage of crop farmers living with less than \$ 1.25/day, by livelihood zone

Livelihoods zone	Total	
	No. of respondents in livelihoods zone	% respondents living with less than \$ 1.25 /day
Mid altitude irrigated areas	129	24%
North coast irrigated areas	34	32%
South coast irrigated areas	11	26%
Mid altitude uplands	183	20%
High altitude uplands	49	18%
Northern rain-fed areas	82	26%
Southern rain-fed areas	190	19%
Urban	21	17%
Total	699	22%

Table 39 shows that in TOMAK’s mid-altitude irrigated areas livelihoods zone nearly a quarter (24%) of the farmers surveyed were living below the poverty line. For the total survey it was 22%. The livelihood zone where farmers were the least likely to be poor was the “urban” zone²⁰.

¹⁸ On 7 September 2016, it was announced that Innovations for Poverty Action [www.poverty-action.org] has become the new home for the PPI.

¹⁹ The PPI for Timor-Leste was first developed October 2011. A revised version, with some different questions was developed in June 2012 and released in December 2013. The latest version of the scorecard can be downloaded from http://www.simplepovertyscorecard.com/TLS_2007_ENG.pdf.

There are three livelihood zones where farmers are more likely to be poor than in the mid-altitude irrigated areas: the North coast irrigated areas, the northern rainfed areas, and the South coast irrigated areas. The last one seems somewhat counterintuitive, and may be an anomaly due to the limited number of farmers in that livelihood zone that were part of the survey (only 11 respondents, all from suku Tirilolo in Lautem).

Of the 699 respondents, 45 (6.4%) were female headed households, and 654 (93.6%) were male headed households. In the survey, the female headed households were less likely to be poor (16%) than the male headed households in the sample (22%).

Figure 12 shows the frequency distribution and the cumulative percentage of farmers by the PPI scores of the households. There were 40 respondents (5.7%) who were certainly not poor (i.e. with a PPI score of more than 65, and therefore certainly above the \$1.25 per day poverty line), and three respondents (0.4%) who were certainly poor (because had a PPI score less than 10, and were therefore 100% certain to be poor).

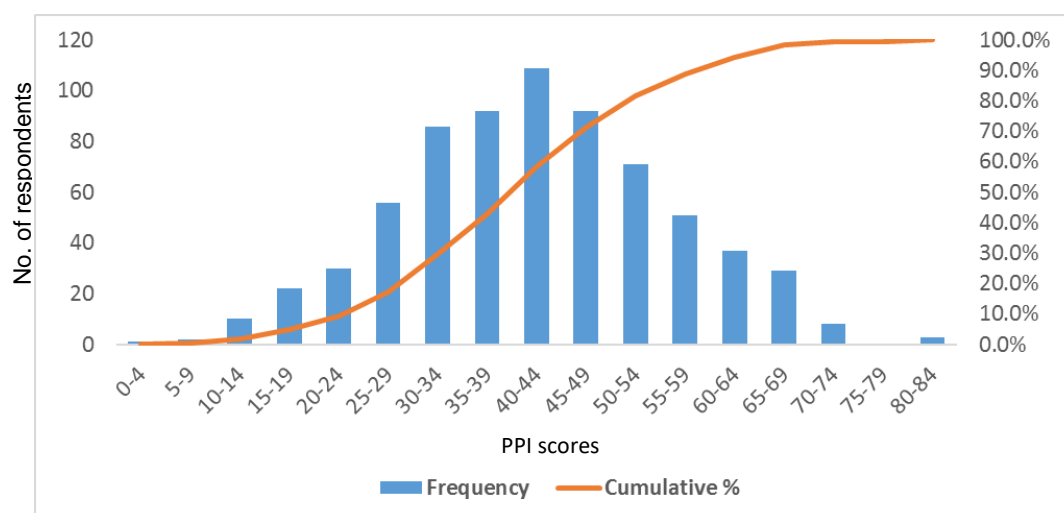


Figure 18. Poverty likelihood of survey respondents

Figure 19 on the next page compares the cumulative percentage lines of the likelihood of poverty, for both the total survey (699 respondents) and for the farmers in the mid-altitude irrigated areas livelihoods zone (129 respondents).

There is not much difference between the overall cumulative percentage line and that for the TOMAK livelihoods zone; between the PPI scores of 10 and 40, the LHZ 2 respondents are a bit more likely to be poor than the survey respondents in general, but there are no major differences between the two lines.

²⁰ The “urban” suku in the survey were suku which in the 2010 census were categorised as “urban” but which had been reclassified as “rural” for the 2015 census; they could therefore be selected as “rural” suku for the 2016 Seeds of Life end-of-program survey. The categorisation of livelihood zones which TOMAK uses was done with the 2010 data.

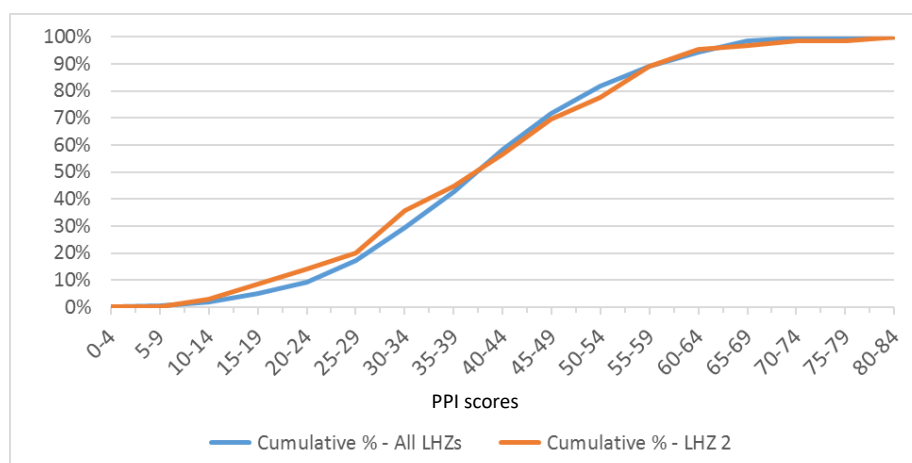


Figure 19. Cumulative percentages of poverty likelihood of all survey respondents and of those living in the mid-altitude irrigated areas livelihoods zone

Table 10 gives, for different likelihood percentages, the number of households that are likely to live on less than \$1.25 a day, measured at 2005 international prices, adjusted for purchasing power parity (PPP).

Table 61 gives for each livelihood zone the cumulative percentages of farming households in that zone likely to experience poverty.

The Progress out of Poverty Index seems to have become accepted as one indicator to assess the poverty status of households or groups of households. The fact that the alliance of “Innovations for Poverty Action” has become the new home for it may also help to boost its acceptance, and contribute to its broader use.

The PPI can easily be calculated, and has the advantage that the poverty likelihood assessment is made with reference to the country as a whole, and not only the surveyed households.

Table 60. Number of farmer households, by PPI score / percentage of poverty likelihood, by livelihood zone

Livelihood zone description	Number of households by PPI score and percentage of poverty likelihood at US \$1.25 / day (2005 PPP)																		Total
	PPI score	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
	Poverty likelihood %	100	100	70.5	73.8	61.4	52.4	38	25	8.8	8.1	2.7	4.7	3.9	0	0	0	0	
Mid altitude irrigated areas				4	7	7	8	20	12	15	17	10	15	8	2	2		2	129
North coast irrigated areas			1	4	2	2	3	4	2	4	3	4	3	1	1				34
South coast irrigated areas					2			3		1		3		1	1				11
Mid altitude uplands			1		5	7	16	17	29	33	26	24	9	5	8	3			183
High altitude uplands				1	1		5	3	8	6	3	5	8	6	3				49
Northern rain-fed areas	1		1		2	6	9	11	15	12	7	5	4	5	4				82
Southern rain-fed areas					3	7	14	26	24	30	33	18	10	11	10	3		1	190
Urban						1	1	2	2	8	3	2	2						21
Total		1	2	10	22	30	56	86	92	109	92	71	51	37	29	8		3	699

Table 61. Cumulative percentage of farmer households, by PPI score / percentage of poverty likelihood, by livelihood zone

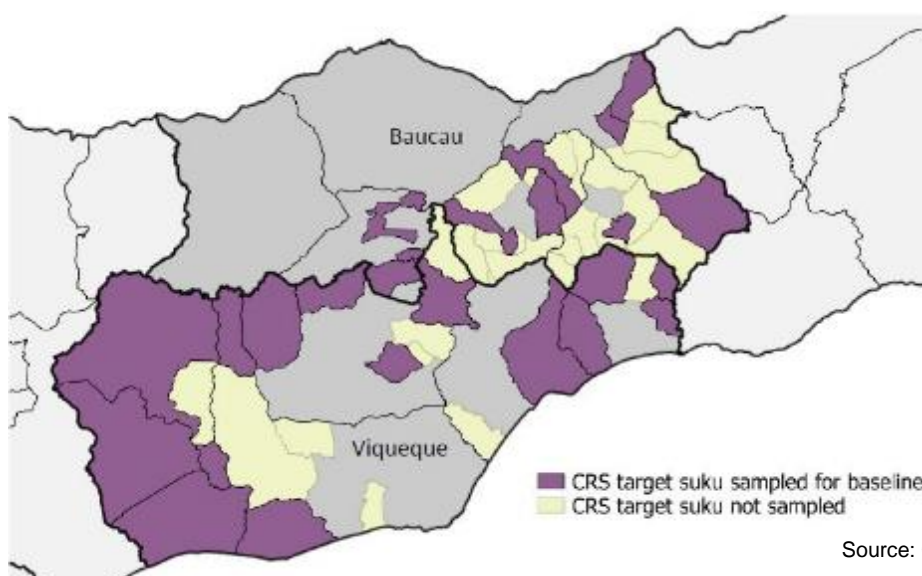
Livelihood zone description	Cumulative percentage of households by PPI score and percentage of poverty likelihood at US \$1.25 / day (2005 PPP)																		Total
	PPI score	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
	Poverty likelihood %	100	100	70.5	73.8	61.4	52.4	38	25	8.8	8.1	2.7	4.7	3.9	0	0	0	0	
Mid altitude irrigated areas		0%	0%	3%	9%	14%	20%	36%	45%	57%	70%	78%	89%	95%	97%	98%	98%	100%	
North coast irrigated areas		0%	3%	15%	21%	26%	35%	47%	53%	65%	74%	85%	94%	97%	100%	100%	100%	100%	
South coast irrigated areas		0%	0%	0%	18%	18%	18%	45%	45%	55%	55%	82%	82%	91%	100%	100%	100%	100%	
Mid altitude uplands		0%	1%	1%	3%	7%	16%	25%	41%	59%	73%	86%	91%	94%	98%	100%	100%	100%	
High altitude uplands		0%	0%	2%	4%	4%	14%	20%	37%	49%	55%	65%	82%	94%	100%	100%	100%	100%	
Northern rain-fed areas	1%	1%	2%	5%	12%	23%	37%	55%	70%	78%	84%	89%	95%	100%	100%	100%	100%	100%	
Southern rain-fed areas		0%	0%	0%	2%	5%	13%	26%	39%	55%	72%	82%	87%	93%	98%	99%	99%	100%	
Urban		0%	0%	0%	0%	5%	10%	19%	29%	67%	81%	90%	100%	100%	100%	100%	100%	100%	
Total		0.1%	0.4%	1.9%	5.0%	9.3%	17.3%	29.6%	42.8%	58.4%	71.5%	81.7%	89.0%	94.3%	98.4%	99.6%	99.6%	100.0%	

4. Community-Driven Nutrition Improvement Project Survey (2015)

4.1. Background

The Community-Driven Nutrition Improvement Project (CDNIP) is a three year project which aims to improve nutrition practices targeted to children under the age of two, and of pregnant and lactating women. The project is targeted at 5,500 households in 49 suku in the municipalities Baucau and Viqueque. The project is implemented by Catholic Relief Services (CRS), and is funded under the Japanese Social Development Fund, which is administered by the World Bank.

As part of the project, a baseline survey was conducted from late August to early October 2015, which collected quantitative and qualitative data from 3,446 persons in 595 households in 24 suku, and qualitative interviews were held with local leaders and health workers at suku and aldeia level, and with Ministry of Health staff at municipal and administrative post levels. A description of the survey methodology and its findings is available in a separate report²¹. CRS has generously granted TOMAK access to the survey data for analysis.



Source: CRS, 2015

Figure 20. Target suku in the CDNIP in Baucau and Viqueque

Table 62 shows the number of suku and respondents in the CDNIP baseline survey. Since focusing on either the mid-altitude irrigated areas, or the TOMAK focus areas would substantially reduce the amount of data used in the analysis, most of the analysis was done using the total survey data.

Table 62. Number of suku and respondents in the CRS survey

Municipality	Total survey		Mid-altitude irrigated areas		TOMAK focus areas	
	Number of suku	Number of HHs	Number of suku	Number of HHs	Number of suku	Number of HHs
Baucau	9	224	5	125	1	26
Viqueque	15	371	6	146	6	146

²¹ Catholic Relief Services, 2015, Community-Driven Nutrition Improvement Program (CDNIP), Baseline Survey, Final Report. Catholic Relief Services and Monash University

Total	24	595	11	271	7	172
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In the following sections, the results of the analysis of the survey data for such aspects as crop growing and marketing, food consumption and access to food are reported.

4.2. Markets for Agricultural Products

4.2.1. Crop growing

The question on crop growing was asked as shown below (Figure 21, but which shows only a truncated view of the whole list of crops). In the questionnaire 29 crops were mentioned specifically, but the enumerators could note additional, unlisted crops. Of the 595 respondents, 567 (95%) said they had grown crops in the past year.

Crops grown:					
10. In the last 12 months, did your household harvest...?		11. In what months did your household harvest the ...? (harvest not plant)	12. Did you grow it in the home garden or the other land?	13. In the last 12 months how many...did you harvest?	
	No / Yes→	J F M A M J J A S O N D	Garden / Other land→	Sacks / bunches / containers / fruits / trees?	Weight of sack/container (kg)
White maize	No / Yes→	J F M A M J J A S O N D	Garden / Other land→	in cobs / kernals	
Coloured/mixed corn/maize	No / Yes→	J F M A M J J A S O N D	Garden / Other land→	in cobs / kernals	
Rice	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		
Cassava	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		
Potato	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		
Sweet potato	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		
Taro	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		
Pumpkin	No / Yes→	J F M A M J J A S O N D	Garden / Other land→		

Figure 21. Question on crops grown in the CDNIP baseline survey

Table 63 shows the crops that were harvested by the respondents between September 2014 and August 2015, and what number of households, and percentage of crop growing households, harvested these crops.

Table 63. Crops being harvested in the last year

Crop	No. of growers	Percentage	Crop	No. of growers	Percentage
Cassava	430	76%	Cucumber	17	3.0%
Coloured/mixed maize	424	75%	Soybeans	16	2.8%
Sweet potato	300	53%	Lemon	15	2.6%
Rice	293	52%	Red/Kidney beans	13	2.3%
Pumpkin	245	43%	Pineapple	13	2.3%
Taro	225	40%	Eggplant	7	1.2%
Banana	198	35%	Carrot	6	1.1%
White maize	195	34%	Beans (unspecified)	6	1.1%
Coconut	190	34%	Mungbeans	4	0.7%
Papaya	177	31%	Beetlenut	4	0.7%
Green leafy vegetables	164	29%	Watermelon	3	0.5%
Potato	125	22%	Ginger	3	0.5%
Mango	80	14%	Orange	3	0.5%
Candlenut	75	13%	Rose apple (<i>jambu air</i>)	2	0.4%
Onion/garlic	64	11%	Bitter gourd	1	0.2%
Jackfruit	55	10%	Cashew nut	1	0.2%
Peanuts	54	10%	Chilli	1	0.2%
Cowpea	50	9%	Avocado	0	0.0%
Breadfruit	48	8%			
Tomato	38	7%			
Long/Green beans	35	6%			

Cassava and coloured (mostly yellow) maize are the two most commonly grown crops (by some three quarters of the farmers), with sweet potato and rice being grown by half of the farmers. Figure 22 shows the number of crops harvested per household.

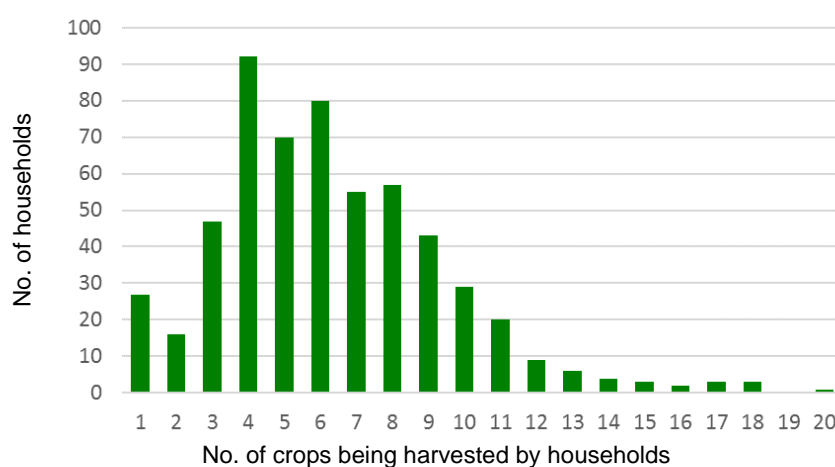


Figure 22. Number of crops having been harvested by households during Sep '14 – Aug '15

Of the 27 farmers who reported having harvested only one crop, 22 (81%) were rice farmers.

4.2.2. Crop selling

The farmers who usually sell crops were asked some follow-up questions (Figure 23). As for the selling of self-grown crops, of the 564 provided answers, 346 respondents (61%) said they usually do not sell any of their crops, and 218 (39%) said they usually do.

1. Usually, does your household sell any crops (crops that your household has grown)? No → 6 Yes ↓					
2. Usually, from where do you sell them? (all that apply)					
<input type="checkbox"/>	From the house	<input type="checkbox"/>	Market in another aldeia nearby	<input type="checkbox"/> Other, specify:	
<input type="checkbox"/>	From a big road nearby	<input type="checkbox"/>	Market in the subdistrict capital		
<input type="checkbox"/>	Market in this aldeia	<input type="checkbox"/>	Market in the district capital		
3. What crops does your household sell?	1	2	3	4	5
4. How much (quantity) does your household sell? (top 5 crops in value):					
All / almost all					
Most					
About half					
Some					
Just a little					
5. In the last 12 months, how much money has your household earned from selling this crop (crops that you have grown)?	\$	\$	\$	\$	\$
6. Why doesn't your household sell (more) at market?					
<input type="checkbox"/>	Need for the family to eat				
<input type="checkbox"/>	Market too far / no transport / bad roads				
<input type="checkbox"/>	When I go to market, nobody will buy it				
<input type="checkbox"/>	The price I would receive is too low				
<input type="checkbox"/>	Other, specify:				
7. How much (quantity) of your household's crops are destroyed by animals or pests, a lot or just a little?					
<input type="checkbox"/>	A lot	<input type="checkbox"/>	About half	<input type="checkbox"/>	Some
<input type="checkbox"/>		<input type="checkbox"/>	A little	<input type="checkbox"/>	None
8. In the last 7 days, has any member of your household been to a market to sell crops or any other goods?					
No / Yes →	9. What did they sell?				
	10. How much money did your household receive at the market?				
11. In the last 7 days, has any member of your household been to a market to buy crops or any other goods?					
No / Yes →	12. What did they buy?				
	13. How much money did your household spend at the market?				

Figure 23. Question on crop selling in the CDNIP baseline survey

Table 64 shows the locations where crops are sold.

Table 64. Locations of crop sales

Location of crop sales	No. of respondents	Percentage
Market in administrative post capital	60	28%
Market in this aldeia	59	27%
Market in another aldeia or suku nearby	56	26%
From the house	43	20%
Market in municipal capital	20	9%
Nearby road	10	5%
Market in another municipality or administrative post	6	3%
Total of answers	215	

Of the 215 respondents who sold crops, 181 (84%) only sold in one location, 29 (13%) sold in two locations, and 5 (2.3%) sold in three locations. Crops are overwhelmingly sold locally: from the house, at the market in the aldeia or in a nearby aldeia or suku, or in the administrative post capital market.

For 217 respondents, there is data on which crops they sold. Table 65 shows what crops were sold, and what percentage of the respondents who sold crops sold these ones.

Table 65. Types of crops sold

Crops sold	# of respondents	Percentage	Crops sold	# of respondents	Percentage
Green leafy vegetables	79	36%	Other type of beans	6	3%
Cassava	69	32%	Carrot	6	3%
Banana	49	23%	Ginger	6	3%
Maize	41	19%	Coconut oil	5	2.3%
Potato	38	18%	Peanut	5	2.3%
Onion / garlic	31	14%	Bitter gourd (paria)	4	1.8%
Candlenut	29	13%	Beetlenut	4	1.8%
Taro	28	13%	Cucumber	4	1.8%
Pumpkin	25	12%	Chillies	3	1.4%
Rice	22	10%	Mango	2	0.9%
Coconut	21	10%	Local wine	2	0.9%
Jackfruit	21	10%	Oranges	2	0.9%
Sweet potato	19	9%	Tunis	2	0.9%
Papaya	17	8%	Red/kidney beans	1	0.5%
Tomato	17	8%	Lemon	1	0.5%
Green beans	14	6%	Pineapple	1	0.5%
Eggplant	11	5%	Soybean	1	0.5%
Total number of respondents				217	

The number of crops sold by a household which sells crops is shown in Figure 24.

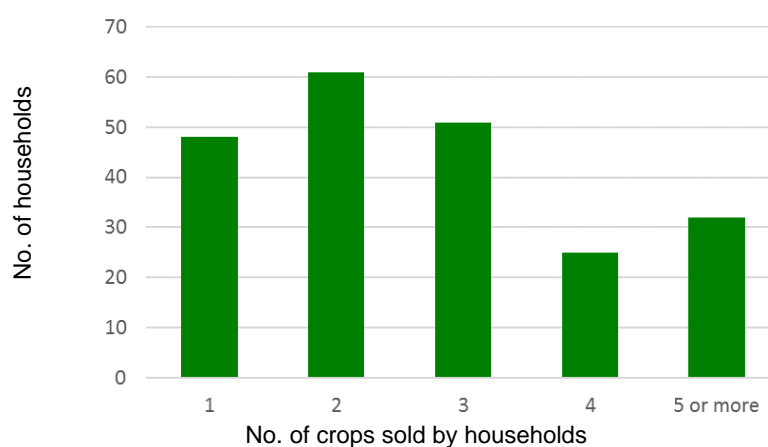


Figure 24. Number of crops sold by households

For the crops for which at least 10 respondents made sales, quantities and the average and maximum amounts received from such sales in the 12 months before the survey was conducted, are reported in

Table 66.

Table 66. Quantities of crops sold in the previous 12 months, and average and maximum amounts received by sellers

Main crops sold in the last 12 months	Amounts sold					Total # farmers	Amounts from yearly sales	
	(Almost) all	Most	About half	Some	Just a little		Average	Maximum
Green leafy vegetables	5 6%	16 20%	36 46%	10 13%	12 15%	79	\$68	\$1,320
Cassava	9 13%	16 23%	25 36%	9 13%	10 14%	69	\$91	\$400
Banana	7 14%	9 18%	17 35%	8 16%	8 16%	49	\$73	\$720
Maize	3 7%	11 27%	13 32%	8 20%	6 15%	41	\$104	\$720
Potato	7 18%	2 5%	14 37%	9 24%	6 16%	38	\$81	\$490
Onion / garlic	4 13%	13 42%	9 29%	4 13%	1 3%	31	\$77	\$1,000
Candlenut	12 41%	12 41%	1 3%	1 3%	3 10%	29	\$137	\$850
Taro	2 7%	2 7%	10 36%	4 14%	10 36%	28	\$48	\$370
Pumpkin	4 16%	1 4%	6 24%	8 32%	6 24%	25	\$53	\$470
Coconut	4 19%	10 48%	1 5%	2 10%	4 19%	21	\$157	\$360
Jackfruit	1 5%	3 14%	9 43%	4 19%	4 19%	21	\$61	\$500
Rice	1 5%	2 10%	13 62%	2 10%	3 14%	21	\$243	\$1,000
Sweet potato	3 16%	4 21%	5 26%	4 21%	3 16%	19	\$82	\$480

Main crops sold in the last 12 months	Amounts sold					Total # farmers	Amounts from yearly sales	
	(Almost) all	Most	About half	Some	Just a little		Average	Maximum
Papaya	1 6%	1 6%	6 35%	5 29%	4 24%	17	\$31	\$100
Tomato	1 6%	6 35%	5 29%	2 12%	3 18%	17	\$26	\$100
Green beans		2 14%	8 57%	1 7%	3 21%	14	\$39	\$300
Eggplant	1 9%	5 45%	3 27%	2 18%		11	\$58	\$240

The amount of money obtained from the sales, obtained from 217 respondents who provided the data, is shown in Figure 25.

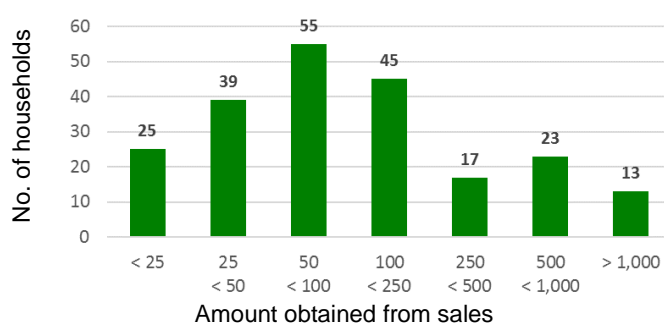


Figure 25. Money (US \$) obtained from crop sales by households

The 217 households made on average \$233, with a maximum of \$2,200 for a household which sold garlic/onions and rice (with \$1,000 for each of these), tomatoes (\$100) and cassava and maize (with \$50 for each).

The reasons given for not selling more of the crop harvests are given in Table 67.

Table 67. Reasons for not selling more

Reasons for not selling more	No. of respondents	Percentage
Need it to feed the family	535	91%
Can't get to the market due to bad roads / no transport / too far	207	35%
Price is too low, not worth going to the market	181	31%
When we go to market to sell crops nobody wants to buy it	96	16%
Other reason	49	8%
Total number of respondents	585	

Some of the "other reasons" were:

- > don't grow crops 19 times
- > don't grow much 13 times
- > no time 7 times
- > buyers come to us 3 times
- > need to feed animals 3 times
- > other 2 times

In the week before the interview, in 21% of the households (122 households) someone had been to the market to sell crops or other goods. Of those who went to the market, 70% sold only one type/category of crop or goods (as listed in Table 68), 25% sold two types, and 4% sold three types. The crops or goods that were sold are shown in Table 68.

Table 68. Crops and goods sold the previous week

Crops, animals or goods	No. of respondents	Percentage
Fruit or vegetables	69	57%
Roots, tubers or maize	40	33%
Animals or fish	11	9%
Household goods	8	7%
Beetlenut	8	7%
Beans	7	6%
Rice	5	4%
Candlenut	5	4%
Coconut oil or local wine	5	4%
Cake or donuts	3	2.5%
Tais	2	1.6%
Total number of respondents	122	

For 104 of the 122 sales (85%) the amount received was less than \$50, and for about half of these the amount obtained was less than \$13. The three biggest sales were: \$200 from selling fish, \$250 from selling beetlenut, and \$1,200 from selling cattle.

In the week before the interview, in 58% of the households (346 households) someone had been to the market to buy crops or other goods. Of those who went to the market, 33% bought only one type/category of crop or goods (as listed in Table 69), 49% bought two types, 14% bought three types, 4% four types, and one respondent bought five types. The crops or goods that were bought are shown in Table 69.

Table 69. Crops and goods bought the previous week

Goods bought	No. of respondents	Percentage
Oil, seasonings, coffee	255	74%
Rice	120	35%
Fruit or vegetables	118	34%
Soap, washing powder	60	17%
Household items: plates, cups	28	8%
Meat, fish, eggs, chicken	20	6%
Onion/garlic	10	3%
Roots, tubers or maize	9	3%
Beans	8	2.3%
Bread, donuts, biscuits	8	2.3%
Noodles	8	2.3%
Cigarettes	4	1.2%
Formula/commercial cereals/milk	4	1.2%
Flour	3	0.9%
Beetlenut	2	0.6%
Total number of respondents	346	

Nearly all (99%) of the sales were for less than \$100 (with 78% for less than \$25). The five biggest purchases were for: rice and fruits/vegetables (\$120); rice, vegetables, meat, cooking oil and coffee (\$150); rice, oil, sugar and condiments (\$200); rice and other items from a kiosk (\$200); and cooking oil, red beans and vegetables (\$220). When comparing the 122 sellers and 346 buyers, there was an overlap for 91 households (Figure 26).



The respondents were asked what types of food they had eaten in the last seven days, and on how many days (see Figure 27).

Figure 27. Question on food consumption in the CDNIP baseline survey

Analysis of Secondary Data

Table 70. Food items eaten by the respondent in the last seven days (N=595)

Type of food	Days eaten in the last seven days								Total
	0	1	2	3	4	5	6	7	
Rice	1 0.2%	3 0.5%	5 0.8%	4 0.7%	8 1.3%	14 2.4%	10 1.7%	550 92%	595
Corn	162 27%	90 15%	151 25%	52 9%	31 5%	20 3.4%	13 2.2%	76 13%	595
Noodles	218 37%	131 22%	134 23%	55 9%	16 2.7%	10 1.7%	2 0.3%	24 4.1%	590
Cassava, potato, taro	85 14%	54 9%	88 15%	56 9%	31 5%	24 4.0%	35 6%	220 37%	593
Carrot, pumpkin, sweet potato	230 39%	86 14%	80 13%	48 8%	29 4.9%	28 4.7%	16 2.7%	77 13%	594
Other vegetables	125 21%	51 9%	113 19%	32 5%	24 4.0%	28 4.7%	15 2.5%	206 35%	594
Ripe papaya, ripe mango	430 74%	75 13%	55 9%	6 1.0%	5 0.9%	9 1.5%	1 0.2%	2 0.3%	583
Other fruits	463 80%	67 12%	30 5%	9 1.5%	3 0.5%	3 0.5%	3 0.5%	4 0.7%	582
Eggs	272 46%	135 23%	104 18%	36 6%	14 2.4%	9 1.5%	2 0.3%	14 2.4%	586
Dairy	451 78%	65 11%	14 2.4%	10 1.7%	2 0.3%	9 1.6%	1 0.2%	27 4.7%	579
Legumes, nuts	259 44%	106 18%	94 16%	47 8%	28 4.7%	18 3.0%	10 1.7%	29 4.9%	591
Fish	421 73%	86 15%	40 7%	9 1.6%	5 0.9%	7 1.2%	3 0.5%	7 1.2%	578
Beef	294 50%	181 31%	71 12%	24 4.1%	6 1.0%	1 0.2%	3 0.5%	6 1.0%	586
Chicken	370 64%	112 19%	64 11%	12 2.1%	10 1.7%	6 1.0%		6 1.0%	580
Pork	376 64%	125 21%	42 7%	27 4.6%	9 1.5%	1 0.2%	2 0.3%	4 0.7%	586
Other meat	525 90%	34 6%	16 2.7%	4 0.7%	2 0.3%			3 0.5%	584

Some observations:

- Rice is very much the most common staple food in most households and is eaten every day.
- Some 15% of respondents eat maize every, or nearly every day, but a bit more than a quarter of the respondents did not eat it in the last seven days.
- A little over half of the respondents ate noodles on one, two or three days during the last seven days.
- Root crops are clearly an important part of the diet of many households; 86% of the respondents ate them at least once in the last seven days, and 37% ate some every day.
- Orange coloured vegetables are less frequently eaten than other vegetables.
- Only one-in-four or one-in-five respondents ate fruit at least once in the last seven days.
- More than half of the respondents ate one or more eggs in the last seven days, but the majority not more than on one or two days.
- Consumption of meat is more common than fish, but more than half the respondents ate neither one or the other in the last seven days.

4.4. Meat and Fish Consumption in Cases of Shortage, and Foods Eaten by Women and Children

4.4.1. Meat and Fish Consumption when Little is Available

One set of questions in the questionnaire related to the consumption of meat or fish when there was not enough for everybody. The question was asked as shown below (Figure 28).

1. Has there been a time when other household members eat meat or fish but you didn't because there was not enough?	No / Yes →	2. Usually, who gets to eat meat/fish?		
		<input type="checkbox"/> Husband	<input type="checkbox"/> Child	<input type="checkbox"/> Guest
		<input type="checkbox"/> Older man	<input type="checkbox"/> Other male household member	
		<input type="checkbox"/> Older woman	<input type="checkbox"/> Other female household member	
		3. Why do they have priority?		

Figure 28. Question on meat and fish consumption in cases of shortage

Of the 595 respondents, 31 respondents (5%) stated that there had been a time when other household members ate meat or fish, and the respondent not, because there was not enough. Table 71 below shows that most often the children received the meat or the fish.

Table 71. Other household member who eats fish or meat, even when the respondent doesn't

Who ate meat or fish?	No. of respondents
Child	24
Older woman	7
Husband	4
Older man	1
Other man in the household	1

The qualitative answers on why some household members or guests got more meat or fish than the respondent can be summarized as follows:

- The children are young, and for them to be healthy, they should get to eat first.
- The children and/or guest ate first, and as there was only little, we did not get to eat it.
- (In relation to older women or men in the household) They are new to this household, and as we want them to feel welcome and to show our respect to them, we offer them the meat or fish first.

4.4.2. Foods Eaten by Children

For 623 children under age two years, there is data on what foods they ate the previous day. The 623 children, by age and gender, are as follows (Table 72):

Table 72. Children under two years old, by gender

Age in months	Girls	Boys	Total
0 < 6	74	86	160
6 < 9	43	37	80
9 < 12	53	38	91
12 < 24	147	145	292
Total	317	306	623

Table 73 gives the data for breastfeeding of children by age group, and for exclusive breastfeeding of children less than six months old.

Table 73. Breastfeeding and exclusive breastfeeding of children
Number of children, and percentage of children of the same gender in the age group

Breastfeeding				Exclusive breastfeeding			
Age in months	Girls	Boys	Total	Age in months	Girls	Boys	Total
0 < 6	68 92%	86 100%	154 96%	0 < 6	49 66%	65 76%	114 71%
6 < 9	38 88%	33 89%	71 89%	Note: The percentages are calculated against the children of the same gender in that age group			
9 < 12	33 62%	30 79%	63 69%				
12 < 24	53 36%	42 29%	95 33%				
Total	192 61%	191 62%	383 61%				

For the total group of children, there is little difference between boys and girls for breastfeeding, but there is a noticeable difference between breastfeeding for boys and for girls who are less than one year old; boys seem to be more commonly breastfed than girls.

The question was asked what food and drinks the less than two year old children had received in the past 24 hours. The question was asked as shown in Figure 29.

Now I would like to understand about [child]'s activities yesterday and last night (24 hours), especially about what [child] ate and drank yesterday. (If yesterday was a special day, please tell me about the last normal day)

1. Yesterday when [child] woke up, what did he/she do?

Time: eg. early morning	Food/drink type as mentioned e.g. porridge (.... cooked with what?)	Food Group												
		Water, tea, coffee, sweet drinks eg Frutamin, Grase, etc	Breastmilk	Infant formula (Lactogen, Nan, SGM)	Commercial baby food (Sun, Cerelac, Promina)	Dairy, fresh/canned/powdered animal milk, cheese, yoghurt	Grains, white roots/tubers	Legumes, nuts	Flesh foods (meat, fish etc)	Eggs	Orange/yellow fruit/vegetables	Dark green leafy vegetables	Other fruits & vegetables	Other foods
					X	X	X	X	X			X		

Figure 29. Question on foods and drinks consumed by less than two year old children in the past 24 hours

The datafile gives the already processed data, which indicates if any foods belonging to one of the food groups marked by X had been consumed by children. The foods eaten by children in the 24 hours recall period are given in Table 74.

Table 74. Foods eaten by the children in the 24 hours before the interview
Number of children, and percentage of children in age group

Foods eaten by the child	Child's age in months				Total
	0 < 6	6 < 9	9 < 12	12 < 24	
Grains / roots / tubers	38 24%	74 93%	90 99%	291 100%	493 79%
Vitamin A rich fruits and vegetables	7 4%	26 33%	51 56%	206 71%	290 47%
Eggs	1 1%	7 9%	10 11%	30 10%	48 8%
Legumes / nuts			3 3%	13 4%	16 3%
Dairy	6 4%	8 10%	4 4%	22 8%	40 6%
Flesh foods (meat, fish, etc.)			6 7%	34 12%	40 6%
Other fruits and vegetables	1 1%	6 8%	18 20%	61 21%	86 14%
Total # of children in age group	160	80	91	292	623

Some observations:

- After six months, grains, roots and/or tubers become an important part of children's nutrition.
- Vitamin A rich fruits and vegetables are more commonly eaten by children than other fruits and vegetables.
- Eggs, meat or fish, or dairy products are only a small part of the nutrition.

4.4.3. Foods Eaten by the Mothers

The question was asked what food the mothers of the less than two year old children had eaten in the past 24 hours. The question was asked as shown in Figure 30.

1. Now I would like to know about what you (mother of child) at yesterday and overnight (24 hours). (if yesterday was a special day, please tell me about the last normal day)											
Time	Foods	Food Group									
		Water, tea, coffee, sweet drinks eg Frutamin, Grase, etc	Dairy: fresh/canned/powdered animal milk, cheese, yoghurt	Grains, white roots/tubers	Legumes, nuts	Flesh foods (meat, fish etc)	Eggs	Orange/yellow fruit/vegetables	Dark green leafy vegetables	Other fruits & vegetables	Other foods
			X	X	X	X	X	X		X	

Figure 30. Question on foods eaten by the mother in the past 24 hours

The datafile gives the already processed data, which indicates if any foods belonging to one of the food groups marked by X had been consumed by the mothers. The foods eaten by mothers in the 24 hours recall period, and by their children, for comparison, are given in Table 75.

Table 75. Foods eaten by the children and their mothers in the 24 hours before the interview

Foods eaten by the children and their mothers	Children	Mothers
Grains / roots / tubers	493 79%	623 100%
Vitamin A rich fruits and vegetables	290 47%	547 88%
Eggs	48 8%	10 2%
Legumes / nuts	16 3%	54 9%
Dairy	40 6%	16 3%
Flesh foods (meat, fish, etc.)	40 6%	85 14%
Other fruits and vegetables	86 14%	212 34%
Total # of children and mothers	623	623

Two observations:

- Several food groups (such as grains/roots/tubers and Vitamin A rich foods) are more prominent in the food of the mothers than of the children. This is primarily because the younger children – especially those younger than six months – eat fewer of these.
- If the household has eggs or dairy, the children get priority to consume them.

4.5. Difficulties in Access to Rice and Fresh Vegetables

4.5.1. Difficulties in Access to Rice in the Last 12 Months

For 592 households, there is data on whether or not they had experienced difficulties in having rice in the past 12 months. A total of 243 households (41%) said they had experienced difficulties. The question on difficulty in access to rice was asked as shown in Figure 31

10. At any time in the last 12 months, has there been a time when there was difficulty for your household to have rice?												
No												
Yes →	11. In which months did you experience this difficulty?											
	2014: Sep	Oct	Nov	Dec	2015: Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
	12. Why was it difficult for your household to get rice?											
	13. What did your household do during this time? [Particular household member?]											

Figure 31. Question on difficulty in access to rice in the CDNIP baseline survey

Figure 32 shows the number of households that experienced difficulties in obtaining rice between September 2014 and August 2015. The peak period of difficulty in access was in February 2015, when 100 households (17% of the respondents) had difficulties in obtaining rice.

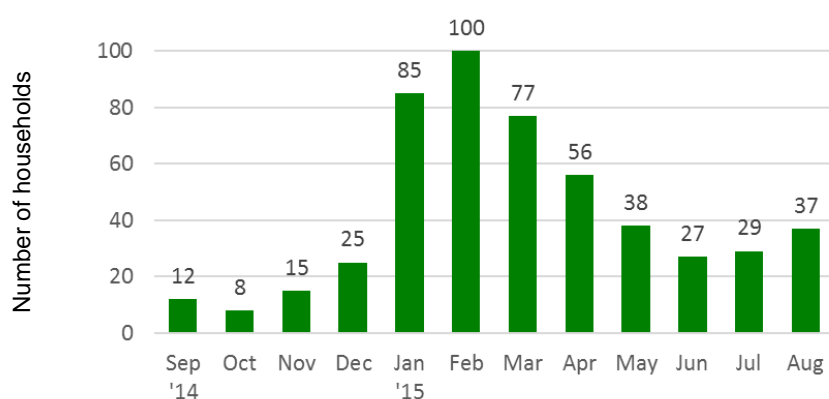


Figure 32. Number of households experiencing difficulties in obtaining rice

The months with the most difficulties coincide largely with the so-called 'hungry season', and the peak of the rainy season. The reasons for the difficulties to obtain rice are shown in Table 76.

Table 76. Reasons of difficulties to obtain rice

Reason of difficulty	Number	Percentage
No money	155	64%
Bad roads / flooding / trucks didn't come	104	43%
Rice did not grow / no water	13	5%
Rice fields not yet ready for harvest	10	4%
Had guests / celebration	5	2%
Total of respondents giving reasons	243	

The coping strategies used to deal with those difficulties in access to rice are shown in Table 77.

Table 77. Coping strategies to deal with the shortage of rice

Coping strategy to deal with rice shortage	Number	Percentage
Ate local foods: cassava, taro	198	81%
Borrowed (money) from the kiosk	33	14%
Borrowed / received from family or friends	18	7%
Sold animals or things to buy rice	11	5%
Travelled to get rice	4	2%
Total of respondents mentioning coping strategies	243	

4.5.2. Difficulties in Access to Fresh Vegetables in the Past 12 Months

For 589 households, there is data on whether or not they had difficulty in having fresh vegetables in the past 12 months. The manner in which this question was asked in the survey is shown in Figure 33. A total of 93 households (16%) said they had experienced difficulties.

20. At any time in the last 12 months, has there been a time when there was difficulty for your household to have fresh vegetables?	
No	
Yes →	21. In which months did you experience this difficulty?
	2014: Sep Oct Nov Dec 2015: Jan Feb Mar Apr May Jun Jul Aug
	22. Why was it difficult for your household to get fresh vegetables?
	23. What did your household do during this time? [Particular household member?]

Figure 33. Question on difficulty in access to fresh vegetables in the CDNIP baseline survey

Figure 34 shows the number of households that experienced difficulties in obtaining fresh vegetables between September 2014 and August 2015. The most difficult period is the middle of the year (July to October) when close to 50 households (8% of the respondents) had difficulties in obtaining fresh vegetables. This period coincides with the peak of the dry season.

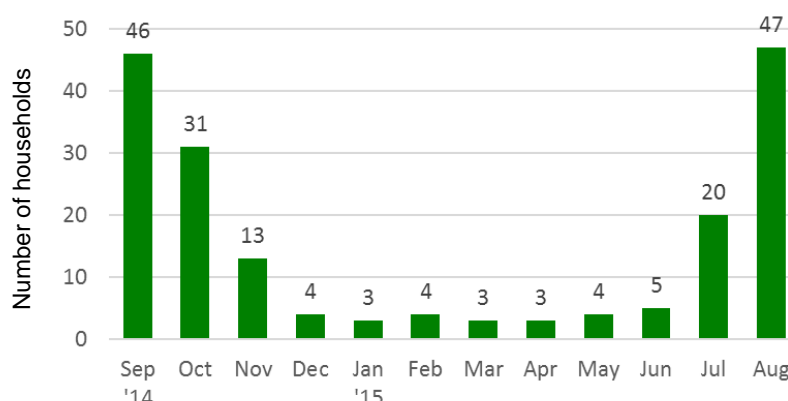


Figure 34. Number of households experiencing difficulties in obtaining fresh vegetables

The reasons of the difficulties in obtaining fresh vegetables are shown in Table 78

Table 78. Reasons of difficulties to obtain fresh vegetables

Reason of difficulty	Number	Percentage
No water	66	71%
No money	33	35%
Crops destroyed by animals or pests	17	18%
Trucks didn't come	2	2%
Field too far	3	3%
Market too far	5	5%
Nobody was selling it	3	3%
Total of respondents giving reasons	93	

The coping strategies used to deal with those fresh vegetables difficulties are shown in Table 79.

Table 79. Coping strategies to deal with the shortage of fresh vegetables

Coping strategy to deal with fresh vegetables shortage	Number	Percentage
Ate plain rice / cassava / corn	52	56%
Bought other foods: noodles, tuna	15	16%
Bought vegetables	14	15%
Went in search of wild meats and vegetables	8	9%
Ate other vegetables (non green-leafy)	8	9%
Received vegetables from family or friends	5	5%
Travel to buy vegetables	4	4%
Sold animals or other crops to buy vegetables	2	2%
Other	2	2%
Total of respondents mentioning coping strategies	93	

4.6. Taboos and Beliefs in Unfit Foods

In the questionnaire section on 'Food in the household', there were five questions that related to food taboos, or food items that were considered unfit for either pregnant women or young children. The questions, and the percentage of respondents who answered affirmatively, were:

- Are there any foods that are taboo for your family? 44% yes
- Are there any foods that are taboo for pregnant women? 21% yes
- Are there any (other) foods that are not good for pregnant women? 16% yes
- Are there any foods that are taboo for a young child, for example a child aged 1 year cannot eat, or a breastfeeding mother cannot eat? 10% yes
- Are there any foods that are not good for a young child, for example a child aged 1 year should not eat, or a breastfeeding mother should not eat? 20% yes

Based on the above, it follows that:

- 60% of the households mentioned a belief about foods
- 29% of the households have a belief about foods that applies to pregnant women
- 25% of the households have a belief about foods that applies to young children

Table 80 shows for each of the suku in the survey the number and percentage of respondents who expressed beliefs about foods. The suku that are in the TOMAK focus area are given a yellow background.

Table 80. Number and percentage of respondents expressing beliefs about foods

Municipality, administrative post, suku	Number of respondents with beliefs	Total number of respondents	Percentage
Baucau	122	224	54%
Baguia	22	43	51%
Alaua Leten	9	21	43%
Uacala	13	22	59%
Laga	31	61	51%
Libagua	13	28	46%
Samalari	18	33	55%
Quelicai	32	69	46%
Bualale	15	21	71%
Guruca	9	24	38%
Waitame	8	24	33%
Venilale	37	51	73%
Bado Ho'o	19	26	73%
Uaiolo	18	25	72%
Viqueque	237	371	64%
Lacluta	48	76	63%
Ahic	20	30	67%
Laline	11	22	50%
Uma Tolu	17	24	71%
Ossu	61	97	63%
Builale	17	26	65%
Liaruca	18	25	72%
Nahareca	12	21	57%
Uagua	14	25	56%
Uatucarbau	42	76	55%
Afaloicai UC	15	27	56%
Bahatata	15	24	63%
Irabin de Cima	12	25	48%
Uatulari	48	74	65%
Afaloicai UL	15	24	63%
Babulo	14	24	58%
Vessoru	19	26	73%
Viqueque	38	48	79%
Bibileo	18	24	75%
Luca	20	24	83%
Total	359	595	60%

5. Food and Nutrition Survey (2013)

5.1. Background

The fieldwork of the 2013 Timor-Leste Food and Nutrition Survey (TLFNS) was conducted between May and September 2013. It was the first comprehensive food and nutrition survey carried out in the country, and gathered data from children aged 0-59 months and their non-pregnant mothers (aged 14 – 60 years). The survey assessed the risk factors for undernutrition based on UNICEF's Conceptual Framework of Malnutrition, and assessed the prevalence of micronutrient deficiencies (vitamin A, iron, zinc, and iodine deficiency), and the iodine content of household iodised salt and aflatoxin exposure among children (aged 6 – 59 months) and their nonpregnant mothers.

The data was collected from 9,460 households in 128 suku in all 13 municipalities. The survey sampling design was to randomly select 10 suku in each municipality, with four aldeias in each of these suku. In each aldeia 18 households were selected. The selection of the aldeias in each municipality was also done in such a way that there would be a minimum specified number of households with children less than two years old, and with children between the ages of two and five.

As there were only four of the TOMAK focus areas suku in the survey, the analysis below will be done in general, not for the TOMAK focus areas specifically.

5.2. Food Consumption Scores

The Final Report of the TLFNS gives the following explanation on how the Food Consumption Score (FCS) for each interviewed household was determined.

Food consumption of the households was assessed using the Food Consumption Score (FCS), which was developed by World Food Programme. The FCS is a composite score based on food frequency, dietary diversity and relative nutrition importance of different food groups. Dietary diversity was based on the number of individual foods or food groups consumed over the past seven days. The food groups included:

- (1) staples consisting of maize, rice, cassava, potatoes, bread/biscuit, other cereals/tubers and noodle;
- (2) pulses consisting of beans/ lentils/nuts;
- (3) vegetables e.g. cassava leaves and other vegetables;
- (4) fruit;
- (5) meat and fish e.g. aquatic animals, meat and egg;
- (6) milk group;
- (7) sugar made up from sugar, jam, honey;
- (8) oil/fat; and
- (9) condiments.

Food frequency was based on the number of days (in the past seven days) that a household had consumed a specific food item. The relative nutrition importance was indicated by the relative weight of a food group. For this purpose, staples were assigned a weight of 2, pulses 3, meat and fish 4, milk 4, vegetables 1, fruit 1, and oil/fat, condiment and sugar 0.5 each. The number of days (the maximum score is set at 7 for each food group) of the food groups consumed was multiplied with the assigned weight. The total sum of the scores makes up the FCS, and categorized into three groups, namely:

- > poor (score 0-28),
- > borderline (28.5 – 42) and
- > good/acceptable (>42)

For 9,380 respondents, there is information on the FCS. Table 81 shows the number of respondents, and the percentages of the respondents in that livelihood zone, which have poor, acceptable and adequate

consumption scores. The livelihood zones are ranked from highest to lowest for their percentage of respondents with poor FCS.

Table 81. Categorisation of Food Consumption Scores by livelihood zone

Livelihood zone	Food Consumption Score			Total
	Poor	Borderline	Acceptable	
Mid altitude uplands	290 15%	655 33%	1,043 52%	1,988
South coast irrigated areas	85 14%	214 36%	297 50%	596
Southern rain-fed areas	225 13%	471 27%	1,039 60%	1,735
Northern rain-fed areas	187 12%	432 28%	934 60%	1,553
Mid altitude irrigated areas	95 9%	286 27%	665 64%	1,046
High altitude uplands	94 9%	334 31%	653 60%	1,081
North coast irrigated areas	31 8%	79 21%	264 71%	374
Urban	63 6%	184 18%	760 75%	1,007
Total	1,070 11%	2,655 28%	5,655 60%	9,380

Figure 35 shows the same information visually. Compared to the rainfed livelihood zones, respondents living in the mid-altitude irrigated areas show slightly better FCSs.

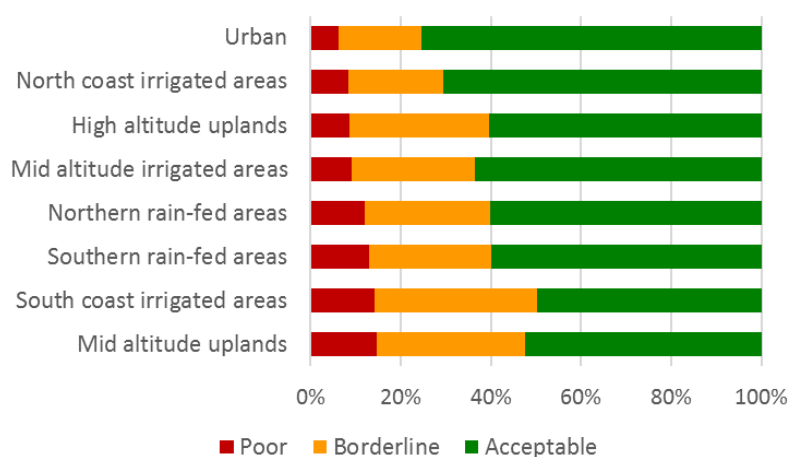


Figure 35. Food Consumption Scores by Livelihood Zone

The TLFNS also has a ranking of the households in quintiles, by wealth. Figure 36 shows the FCS categorisation for each of the quintiles, Quintile 1 being the poorest and Quintile 5 the wealthiest. The graph shows that, even if there are some wealth differences between households in Quintile 1 and those in Quintile 2, such wealth differences do not show in differences for FCSs; the Quintile 2 households score slightly worse for FCSs.

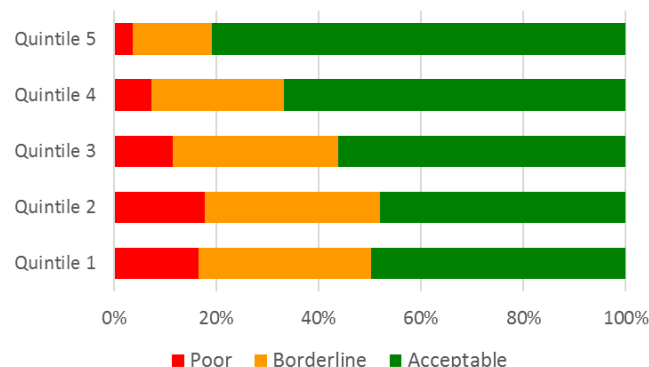


Figure 36. Food Consumption Scores by household wealth quintiles

5.3. Household Livelihood Activities

The TLFNS respondents were asked what their four most important livelihood activities were. Figure 37 shows how the question was asked, and which options were provided for the livelihood activities. For each of the livelihood activities, the respondents were also asked whether it was done mainly by men, women, or both.

Activities	L3. What are your household activities throughout the last year? Rank up to 4 main income activities (use activity code)	L4. For each activities, please indicate whether it is done mainly by male, mainly by female or roughly by both male and female.
L.3.1. First	<input type="text"/> <input type="text"/> [I31]	Circle one: M F B [I31]
L.3.2. Second	<input type="text"/> <input type="text"/> [I32]	Circle one: M F B [I32]
L.3.3. Third	<input type="text"/> <input type="text"/> [I33]	Circle one: M F B [I33]
L.3.4. Fourth	<input type="text"/> <input type="text"/> [I34]	Circle one: M F B [I34]

Livelihood activity codes

1 = Production and sale of agricultural crops	10 = Collection and/or sale of Forest Products (NTFPs) (plants)
2 = Livestock rearing and/or selling	11 = Hunting (including birds)
3 = Brewing	12 = Petty trading
4 = Fishing	13 = Seller, commercial activity
5 = Collection of aquatic animal resources other than fish	14 = Remittances
6 = Unskilled wage labour – agriculture	15 = Salaries, Wages (employees, longer-term)
7 = Unskilled wage labour – non-agriculture	16 = Collecting scrap metal/explosive powder
8 = Skilled wage labour	17 = Government allowance (pension, disability benefit)
9 = Handicrafts /Artisan	18 = Others, specify _____

Figure 37. Question on household livelihood activities

Table 82 gives the number of main income activities of the surveyed households by livelihood zone. Only in the urban areas do more than half of the households rely on one main income activity. Overall, 78% of the households rely on one or two main sources of income.

Table 82. Number of main income activities by livelihood zone

Livelihood zone	Number of main income activities				Total
	One	Two	Three	Four	
High altitude uplands	307 29%	429 40%	248 23%	80 8%	1,064
Mid altitude irrigated areas	287 28%	478 47%	207 20%	48 5%	1,020
Mid altitude uplands	635 33%	839 43%	351 18%	106 5%	1,931
North coast irrigated areas	111 30%	178 49%	70 19%	8 2%	367
Northern rain-fed areas	546 36%	626 41%	271 18%	75 5%	1,518
South coast irrigated areas	274 48%	210 37%	66 12%	17 3%	567
Southern rain-fed areas	628 37%	704 41%	250 15%	126 7%	1,708
Urban	597 60%	268 27%	78 8%	51 5%	994
Total	3,385 37%	3,732 41%	1,541 17%	511 6%	9,169

Table 83 gives the number and percentage of households by their main source of income²². 'Production and sale of agricultural crops' is with 59% the most important source of income for the surveyed households, with 'salaries and wages' from longer term employment coming second with 17%. 'Livestock rearing and/or selling' is the most quoted secondary source of income (for 42% of the households listing a second source of income), with 19% mentioning 'production and sale of agricultural crops' as their second most important source of income.

Of the 9,460 households surveyed, 6,836 (72%) listed 'production and sale of agricultural crops', 'livestock rearing and/or selling' and/or 'unskilled wage labour – agriculture' as one of their sources of household income.

²² The analysis has been done on the data as provided in the datafile, without attempting reconciliation of conflicting data. So e.g. there are 345 households that reported "Production and sale of agricultural crops" as both their first and second main source of income. For some respondents, a second, third or fourth source of income is provided, but with a higher order choice left blank. Also, some of the sources of income were categorised as "Other", but could have been redefined to one of the other categories.

Table 83. Number and percentage of main income activities by order of importance

Livelihood activities categories	Main source of household income							
	First		Second		Third		Fourth	
01 production and sale of agricultural crops	5,364	59.1%	1,082	19.0%	174	8.1%	66	10.8%
02 livestock rearing and/or selling	306	3.4%	2,373	41.7%	276	12.9%	28	4.6%
03 brewing	66	0.7%	119	2.1%	65	3.0%	7	1.1%
04 fishing	129	1.4%	68	1.2%	40	1.9%	9	1.5%
05 collection of aquatic animal resources other than fish	18	0.2%	13	0.2%	10	0.5%	8	1.3%
06 unskilled wage labour-agriculture	213	2.3%	209	3.7%	121	5.7%	60	9.8%
07 unskilled wage labour-non agriculture	82	0.9%	43	0.8%	20	0.9%	19	3.1%
08 skilled wage labour	276	3.0%	123	2.2%	63	2.9%	14	2.3%
09 handicrafts/artisan	78	0.9%	117	2.1%	74	3.5%	9	1.5%
10 collection and/or sale of forest products (ntfps) (plants)	66	0.7%	248	4.4%	409	19.1%	72	11.7%
11 hunting (including birds)	14	0.2%	25	0.4%	39	1.8%	14	2.3%
12 petty trading	394	4.3%	512	9.0%	386	18.0%	72	11.7%
13 seller, commercial activity	83	0.9%	97	1.7%	64	3.0%	54	8.8%
14 remittances	32	0.4%	8	0.1%	5	0.2%		
15 salaries, wages (employees, longer-time)	1,543	17.0%	303	5.3%	214	10.0%	129	21.0%
16 collecting scrap metal/explosive powder	6	0.1%	2	0.0%	2	0.1%		
17 government allowance (pension, disability benefit)	84	0.9%	81	1.4%	96	4.5%	27	4.4%
18 other (specify)	321	3.5%	264	4.6%	83	3.9%	25	4.1%
Total	9,075		5,687		2,141		613	

If one looks at the first, second, third and fourth sources of household income combined, and leaving out the records for which there is no information on whether it was mostly done by men, women or both²³, there are 17,369 records of gender involvement in the implementation of activities. The results are presented in Table 84²⁴. 'Production and sale of agricultural crops' and 'livestock rearing and/or selling' take up first and second positions, with salaried employment coming in third place.

²³ This amounted to 0.8% of all records.

²⁴ In this analysis, the ranking of the income activity, and the combination with other activities, is not taken into account. If one of the main income earners in the household is in full-time wage employment, s/he is less likely to be involved in other household income activities as well.

Table 84. Gender involvement in the implementation of the main income activities

Livelihood activities categories	Gender involvement in activity implementation			Total
	Men	Women	Both	
01 production and sale of agricultural crops	2,811	1,112	2,701	6,624
02 livestock rearing and/or selling	940	495	1,520	2,955
15 salaries, wages (employees, longer-time)	1,760	203	212	2,175
12 petty trading	315	383	654	1,352
10 collection and/or sale of forest products (ntfps) (plants)	129	100	560	789
18 other (specify)	389	99	191	679
06 unskilled wage labour-agriculture	286	12	304	602
08 skilled wage labour	461	3	10	474
13 seller, commercial activity	104	75	117	296
17 government allowance (pension, disability benefit)	178	71	38	287
09 handicrafts/artisan	140	126	12	278
03 brewing	178	32	47	257
04 fishing	229	4	11	244
07 unskilled wage labour-non agriculture	141	9	13	163
11 hunting (including birds)	81	4	7	92
05 collection of aquatic animal resources other than fish	26	6	15	47
14 remittances	29	8	8	45
16 collecting scrap metal/explosive powder	8	1	1	10
Total	8,205	2,743	6,421	17,369

For the activities for which there are at least 100 records, Figure 38 shows whether these were mostly implemented by men, women, or both.

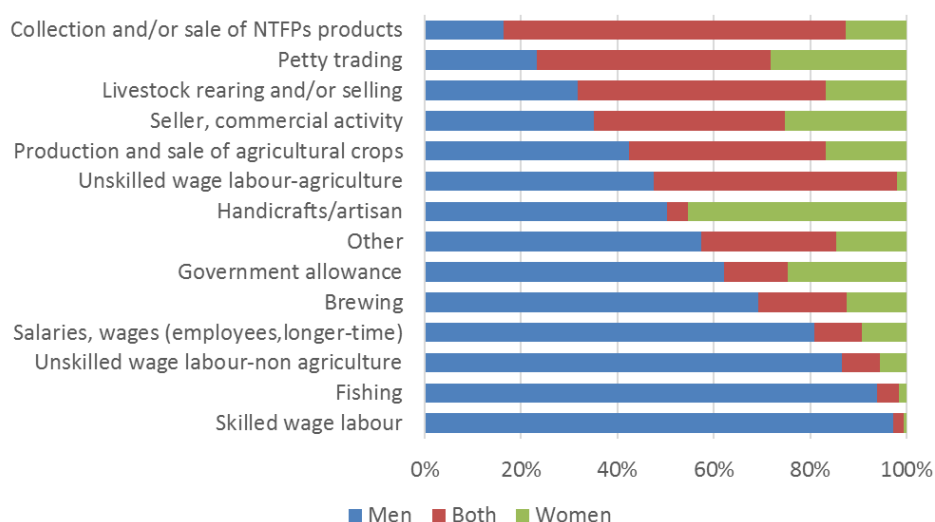


Figure 38. Gender involvement in the implementation of income activities

The figure shows that in several areas the activities are overwhelmingly implemented by men (e.g. skilled wage labour, fishing, unskilled non-agriculture labour, and salaried employment). The areas where women are most involved in, albeit for a good part together with men, are: the collection of non-timber forest products (NTFPs); petty trading; and livestock rearing and selling.

Appendices

Appendix 1: Synopsis of the 2015 Census Data Spreadsheets

As part of the assignment, several spreadsheets were prepared of 2015 census data to facilitate further data checking and data analysis. These spreadsheets are available from the TOMAK office. In this appendix, a brief overview is given from what data is provided in these spreadsheets. The sections below are named after the spreadsheets.

A. 2015 Census – Population, totals

This spreadsheet has five worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for this was obtained in both the 2015 and the 2010 Population and Housing Censuses.
- **Timor-Leste 2015**, which is the main 2015 population census data available in a single worksheet (more detail below).
- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.
- **Timor-Leste 2010**, which is the main 2010 population census data, but presented in the same order as the 2015 census data (the 2010 order of districts, subdistricts and suku was somewhat different from the 2015 order of municipalities, administrative posts and suku).
- **Data by suku**, gives a comparison of the 2015 and 2010 data, with some calculated variables, in a one-row-per-suku format. This makes it easier to do follow-up analysis with the data.

In the worksheet **Timor-Leste 2015**, the data is displayed as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
3		Timor-Leste			Population						Private Households			Other
4		Municipality												Households
5		Administrative Post			Total	Male	Female	Sex Ratio	Area	Density	Total	Male	Female	
6		Suco							(Sq. km)		Headed	Headed	Headed	
7		(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
8														
9		TIMOR-LESTE			1,183,643	601,112	582,531	103.19	14,918.72	79.3	204,597	172,256	32,341	764
10														
11		AILEU			48,837	25,183	23,654	106.46	735.94	66.4	7,598	6,589	1,009	21
12														
13		Aileu Vila			24,049	12,539	11,510	108.94	320.99	74.9	3,846	3,361	485	19
14		Aissirimou			2,206	1,098	1,108	99.10	31.02	71.1	326	286	40	-
15		Bandudato			1,138	604	534	113.11	14.17	80.3	204	180	24	-
16		Fahiria			1,823	962	861	111.73	33.03	55.2	301	257	44	-
17		Fatubossa			2,033	1,074	959	111.99	23.14	87.8	357	323	34	-
18		Hoholau			1,365	705	660	106.82	27.10	50.4	218	197	21	-
19		Lahae			698	369	329	112.16	4.45	156.9	119	99	20	-

In the worksheet **TOMAK**, the data is displayed in a similar manner, but limited to the 75 suku that make up the TOMAK focus area. Collated data is also given for the administrative post and municipal levels.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
3		Timor-Leste			Population						Private Households			Other Households
4		Municipality												
5		Administrative Post			Total	Male	Female	Sex Ratio	Area (Sq. km)	Density	Total	Male Headed	Female Headed	
6		Suco												
7		(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
8														
9		TOMAK focus area			165,730	83,417	82,313	101.34	2,979.77	55.6	31,279	26,086	5,193	133
10														
11		AINARO			4,018	2,020	1,998	101.10	102.04	39.4	692	606	86	-
12														
13		Ainaro			4,018	2,020	1,998	101.10	102.04	39.4	692	606	86	-
14		Cassa			2,916	1,455	1,461	99.59	70.42	41.4	508	449	59	-
15		Mau-Nuno			1,102	565	537	105.21	31.63	34.8	184	157	27	-

In the worksheet **Data by suku**, data is displayed in a one-suku-per-row manner, without sub-totals for administrative post or municipal levels. The screenshots below show what data is provided in the worksheet. The second, third and fourth columns of the worksheet give the suku codes as defined by the Ministry of State Administration (MAE) – which is also how the data is ranked –, the codes which the Statistics Office used previously (DGE), and an indication of which are the TOMAK focus area suku.

	A	B	C	D	E	F	G	H	I	J	K
	No..	MAE suco code	DGE suco code	TOMAK	Municipality	Administrative Post	Suco	Total population 2015	Total population 2010	Δ total population 2015-2010	% change in total pop. s. 2010
1											
2	1	010101	020101		Aileu	Aileu Vila	Aissirimou	2,206	2,192	14	1%
3	2	010102	020102		Aileu	Aileu Vila	Bandudato	1,138	1,426	-288	-20%
4	3	010103	020103		Aileu	Aileu Vila	Fahiria	1,823	854	969	113%
5	4	010104	020104		Aileu	Aileu Vila	Fatubossa	2,033	1,750	283	16%
6	5	010105	020107		Aileu	Aileu Vila	Hoholau	1,365	766	599	78%

	L	M	N	O	P	Q	R	S	T	U	V	W
	Male 2015	Male 2010	Δ male population 2015-2010	Female 2015	Female 2010	Δ female population 2015-2010	Sex Ratio 2015	Sex Ratio 2010	Area (Km2) 2015	Area (Km2) 2010	Density 2015	Density 2010
1												
2	1,098	1,080	18	1,108	1,112	-4	99.10	97.12	31.02	29.81	71.1	73.53
3	604	738	-134	534	688	-154	113.11	107.27	14.17	30.65	80.3	46.53

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
	Total private HHs 2015	Total private HHs 2010	Δ total private HHs 2015-2010	Male headed private HHs 2015	Male headed private HHs 2010	Δ male headed private HHs 2015-2010	Female headed private HHs 2015	Female headed private HHs 2010	Δ female headed private HHs 2015-2010	Other HHs 2015	Other HHs 2010
1											
2	326	319	7	286	264	22	40	55	-15	-	-
3	204	234	-30	180	194	-14	24	40	-16	-	-

B. 2015 Census – Aldeia population

This spreadsheet has four worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for this was obtained in both the 2015 and the 2010 Population and Housing Censuses.
- **Timor-Leste 2015**, which is the main 2015 population census data, down to aldeia level, available in a single worksheet. The data is provided in the following format.

	A	B	C	D	E	F	G	H	I
4		Municipality							
5		Administrative Post				Total	Male	Female	Private Households
6		Suco							
7		Aldeia							
8		(1)				(2)	(3)	(4)	(5)
9									
10		TIMOR-LESTE				1,183,643	601,112	582,531	204,597
11									
12		AILEU				48,837	25,183	23,654	7,598
13									
14		Aileu Vila				24,049	12,539	11,510	3,846
15									
16		Aissirimou				2,206	1,098	1,108	326
17		Aituhularan				600	297	303	89
18		Bercati				322	165	157	49
19		Bessilau				373	187	186	57

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas, and with the aldeia population data from the 2010 census, for comparison. The data is displayed as follows.

	A	B	C	D	E	F	G	H	I	J	K	L	M
3		Timor-Leste				2015 Census				2010 Census			
4		Municipality				Population			Private Households	Population			Private Households
5		Administrative Post											
6		Suco				Total	Male	Female		Total	Male	Female	
7		Aldeia											
8		(1)				(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9													
10		TOMAK focus area				165,730	83,417	82,313	31,279	148,651	74,644	74,007	29,181
11													
12		AINARO				4,018	2,020	1,998	692	4,937	2,501	2,436	796
13													
14		Ainaro				4,018	2,020	1,998	692	4,937	2,501	2,436	796
15													
16		Cassa				2,916	1,455	1,461	508	3,386	1,712	1,674	554
17		Boltama				571	274	297	103	451	232	219	80
18		Civil				604	302	302	106	586	289	297	99

- **Data by aldeia**, gives the aldeia population data from 2015 in a one-row-per-aldeia format. This makes it easier to do follow-up analysis with the data.

	A	B	C	D	E	F	G	H	I	J	K	L
		MAE Aldeia code	DGE Aldeia code	TOMAK focus Sucos	Municipality	Administrative Post	Suco	Aldeia	Total population	Male population	Female population	Private Households
1	No.											
2	1	01010101	02010102		Aileu	Aileu Vila	Aissirimou	Aituhularan	600	297	303	89
3	2	01010102	02010103		Aileu	Aileu Vila	Aissirimou	Bercati	322	165	157	49
4	3	01010103	02010105		Aileu	Aileu Vila	Aissirimou	Bessilau	373	187	186	57

The 'data by aldeia' worksheet only gives the data for 2015. The data on the aldeia of the respondent was provided by the respondent her- or himself, and was not verified on a map. The aldeia population figures are therefore somewhat less reliable than the suku population data.

C. 2015 Census – Level of agricultural activity

This spreadsheet has four worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for this was obtained in the 2015 Population and Housing Census. The same question was not asked in the 2010 census.
- **Timor-Leste**, which shows the level of agricultural activity carried out by private households during the 12 months before the census. The data is provided in the following format:

	A	B	C	D	E	F	G	H
1	Level of agricultural activity carried out by private households during the 12 months before the Census							
2								
3	Timor-Leste			Private Households	Level of Agricultural Activity			
4	Municipality				Only minor agriculture activity (backyard)	Producing mainly for home consumption with some sales	Producing mainly for sale with some home consumption	
5	Administrative Post							
6	Suco							
7	(1)			(2)	(3)	(4)	(5)	
8								
9	TIMOR-LESTE			204,597	84,217	94,159	5,257	
10								
11	AILEU			7,598	3,472	3,837	180	
12								
13	Aileu Vila			3,846	1,906	1,724	124	
14			Aissirimou	326	251	65	4	
15			Bandudato	204	96	95	13	

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.
- **Data by suku**, gives the same data from 2015 in a one-row-per-suku format. This makes it easier to do follow-up analysis with the data.

	A	B	C	D	E	F	G	H	I	J
1	MAE Suco code	DGE Suco code	TOMAK focus Sucos	Municipality	Administrative Post	Suco	Private Households	Only minor agriculture activity (backyard)	Producing mainly for home consumption with some sales	Producing mainly for sale with some home consumption
2	010101	020101		Aileu	Aileu Vila	Aissirimou	326	251	65	4
3	010102	020102		Aileu	Aileu Vila	Bandudato	204	96	95	13
4	010103	020103		Aileu	Aileu Vila	Fahiria	301	121	163	17

D. 2015 Census – Livestock

This spreadsheet has five worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for livestock was obtained in both the 2015 and the 2010 Population and Housing Censuses.
- **Timor-Leste 2015**, which is the data from the 2015 census related to livestock, available in a single worksheet. The data is provided in the following format:

	A	B	C	D	E	F	G	H	I	J	K	L
3	Timor-Leste			Private Households	Private Households involved in Livestock Rearing							
4	Municipality					Chickens		Pigs		Sheep		
5	Administrative Post					Private Households	Number Chickens	Private Households	Number Pigs	Private Households	Number Sheep	
6	Suco											
7	(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
8												
9	TIMOR-LESTE			204,597	178,363	146,158	928,806	146,449	419,169	7,885	40,498	
10												
11	AILEU			7,598	7,344	5,831	30,482	6,402	14,555	316	918	
12												
13	Aileu Vila			3,846	3,672	2,766	14,551	3,183	7,214	191	561	
14			Aissirimou	326	314	252	1,144	269	487	22	80	
15			Bandudato	204	201	129	462	178	334	1	2	

	A	B	C	D	M	N	O	P	Q	R	S	T	U	V
3		Timor-Leste			Type of livestock reared									
4		Municipality			Goats		Cattle/Cows		Buffaloes		Horses		Other	
5		Administrative Post			Private	Number	Private	Number	Private	Number	Private	Number	Private	Number Other
6		Suco			Households	Goats	Households	Cattle/Cows	Households	Buffaloes	Households	Horses	Households	Livestock
7		(1)			(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
8														
9		TIMOR-LESTE			46,154	158,467	52,864	221,767	26,324	128,262	27,339	50,751	46,818	121,069
10														
11		AILEU			2,850	6,883	2,788	7,099	1,053	2,438	1,799	2,602	687	1,647
12														
13		Aileu Vila			1,088	2,289	1,504	3,754	518	1,186	1,033	1,560	171	452
14		Aissirimou			74	109	97	196	44	109	58	67	77	152
15		Bandudato			80	174	58	115	48	113	88	132	5	11

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.
- **Timor-Leste 2010**, which is the 2010 census data on livestock, but presented in the same order as the 2015 census.
- **Data by suku**, gives a comparison of the 2015 and 2010 livestock data, with some calculated variables, in a one-row-per-suku format. This makes it easier to do follow-up analysis with the data. For some variables, the data is only available for 2015.

	A	B	C	D	E	F	G	H	I	J	K	L
1	No..	MAE suco code	DGE suco code	TOMAK	Municipality	Administrative Post	Suco	Private households 2015	Total households 2010	Difference in households 2015-2010	% change HHs since 2010	HHs rearing livestock 2015
2	1	010101	020101		Aileu	Aileu Vila	Aissirimou	326	319	7	2%	314
3	2	010102	020102		Aileu	Aileu Vila	Bandudato	204	234	-30	-13%	201

	M	N	O	P	Q	R	S	T	U	V	W	X
1	HHs with chickens 2015	HHs with chickens 2010	Δ HHs w chickens 2015-2010	% change HHs w chickens s. 2010	No. of chickens 2015	No. of chickens 2010	Δ # of chickens 2015-2010	% change # of chickens s. 2010	HHs with pigs 2015	HHs with pigs 2010	Δ HHs w pigs 2015-2010	% change HHs w pigs s. 2010
2	252	228	24	11%	1,144	1,375	-231	-17%	269	229	40	17%
3	129	184	-55	-30%	462	809	-347	-43%	178	202	-24	-12%

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1	No. of pigs 2015	No. of pigs 2010	Δ # of pigs 2015-2010	% change # of pigs s. 2010	HHs with sheep 2015	HHs with sheep 2010	Δ HHs w sheep 2015-2010	% change HHs w sheep s. 2010	No. of sheep 2015	No. of sheep 2010	Δ # of sheep 2015-2010	% change # of sheep s. 2010
2	487	730	-243	-33%	22	30	-8	-27%	80	260	-180	-69%
3	334	385	-51	-13%	1	2	-1	-50%	2	3	-1	-33%

	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
1	HHs with goats 2015	HHs with goats 2010	Δ HHs w goats 2015-2010	% change HHs w goats s. 2010	No. of goats 2015	No. of goats 2010	Δ # of goats 2015-2010	% change # of goats s. 2010	HHs with cattle 2015	HHs with cattle 2010	Δ HHs w cattle 2015-2010	% change HHs w cattle s. 2010
2	74	78	-4	-5%	109	176	-67	-38%	97	87	10	11%
3	80	66	14	21%	174	128	46	36%	58	117	-59	-50%

	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
1	No. of cattle 2015	No. of cattle 2010	Δ # of cattle 2015-2010	% change # of cattle s. 2010	HHs with buffaloes 2015	HHs with buffaloes 2010	Δ HHs w buffaloes 2015-2010	% change HHs w buffaloes s. 2010	No. of buffaloes 2015	No. of buffaloes 2010	Δ # of buffaloes 2015-2010	% change # of buffaloes s. 2010
2	196	198	-2	-1%	44	24	20	83%	109	64	45	70%
3	115	256	-141	-55%	48	24	24	100%	113	39	74	190%

	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR
1	HHs with horses 2015	HHs with horses 2010	Δ HHs w horses 2015-2010	% change HHs w horses s. 2010	No. of horses 2015	No. of horses 2010	Δ # of horses 2015-2010	% change # of horses s. 2010	HHs with other animals 2015	No. of other animals 2015
2	58	59	-1	-2%	67	96	-29	-30%	77	152
3	88	52	36	69%	132	76	56	74%	5	11

E. 2015 Census – Agriculture crops

This spreadsheet has five worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for crops produced was obtained in both the 2015 and the 2010 Population and Housing Censuses.
- **Timor-Leste 2015**, which is the data from the 2015 census related to crops, available in a single worksheet. The data is provided in the following format:

	A	B	C	D	E	F	G	H	I	J	K	L
3		Timor-Leste			Private Households	Type of crop produced						
4		Municipality										
5		Administrative Post				Rice	Maize	Cassava	Sweet potato	Vegetables	Beans	Coffee
6		Suco										
7		(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8												
9		TIMOR-LESTE			204,597	71,541	142,361	130,670	112,425	106,435	103,034	76,848
10												
11		AILEU			7,598	2,586	7,039	6,885	6,520	6,015	5,648	6,244
12												
13		Aileu Vila			3,846	1,806	3,482	3,258	3,199	3,191	2,474	3,095
14		Aissirimou			326	216	283	286	283	273	266	266
15		Bandudato			204	70	195	159	186	187	130	147

	A	B	C	D	M	N	O	P	Q
3		Timor-Leste							
4		Municipality							
5		Administrative Post			Coconut	Fruith (permanent)	Fruit (temporary)	Timber trees	Others
6		Suco							
7		(1)			(10)	(11)	(12)	(13)	(14)
8									
9		TIMOR-LESTE			103,334	100,716	100,881	76,304	48,504
10									
11		AILEU			3,245	5,399	5,609	2,457	1,650
12									
13		Aileu Vila			1,103	2,476	2,541	990	613
14		Aissirimou			176	269	269	184	158
15		Bandudato			70	115	116	75	62

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.
- **Timor-Leste 2010**, which is the 2010 census data on crops produced, but presented in the same order as the 2015 census.
- **Data by suku**, gives a comparison of the 2015 and 2010 crops data, with some calculated variables, in a one-row-per-suku format. This makes it easier to do follow-up analysis with the data. For some variables, the data is only available for 2015.

	A	B	C	D	E	F	G	H	I	J	K
1	No..	MAE sucro code	DGE sucro code	TOWAC	Municipality	Administrative Post	Suco	Private households 2015	Total households 2010	Difference in households 2015-2010	% change HHs since 2010
2	1	010101	020101		Aileu	Aileu Vila	Aissirimou	326	319	7	2%
3	2	010102	020102		Aileu	Aileu Vila	Bandudato	204	234	-30	-13%

	L	M	N	O	P	Q	R	S	T	U	V	W
1	Rice growing HHs 2015	Rice growing HHs 2010	Δ HHs growing rice 2015-2010	% change in rice growing HHs s. 2010	Maize growing HHs 2015	Maize growing HHs 2010	Δ HHs growing maize 2015-2010	% change in maize growing HHs s. 2010	Cassava growing HHs 2015	Cassava growing HHs 2010	Δ HHs growing cassava 2015-2010	% change in cassava growing HHs s. 2010
2	216	119	97	82%	283	244	39	16%	286	244	42	17%
3	70	75	-5	-7%	195	217	-22	-10%	159	216	-57	-26%

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	Sweet potato growing HHs 2015	Vegetables growing HHs 2015	Vegetables growing HHs 2010	Δ HHs growing vegetables 2015-2010	% change in vegetables growing HHs s. 2010	Beans growing HHs 2015	Coffee growing HHs 2015	Coffee growing HHs 2015	Δ HHs growing coffee 2015-2010	% change in coffee growing HHs s. 2010
2	283	273	237	36	15%	266	266	193	73	38%
3	186	187	198	-11	-6%	130	147	129	18	14%

	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
1	Coconut growing HHs 2015	Coconut growing HHs 2015	Δ HHs growing coconut 2015-2010	% change in coconut growing HHs s. 2010	Fruits (permanent) growing HHs 2015	Fruits (permanent) growing HHs 2010	Δ HHs growing fruits (perm) 2015-2010	% change in fruits (perm) growing HHs s. 2010	Fruit (temporary) growing HHs 2015	Fruit (temporary) growing HHs 2010	Δ HHs growing fruits (temp) 2015-2010	% change in fruits (temp) growing HHs s. 2010
2	176	59	117	198%	269	239	30	13%	269	240	29	12%
3	70	74	-4	-5%	115	125	-60	-34%	116	200	-84	-42%

	AT	AU	AV	AW
1	Timber trees growing HHs 2015	Other crops growing HHs 2015	Other temporary crops 2010	Other permanent crops 2010
2	184	158	241	240
3	75	62	168	122

F. 2015 Census – Agriculture technology

This spreadsheet has four worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for farming technologies was obtained in the 2015 Population and Housing Census.
- **Timor-Leste 2015**, which is the 2015 census data on farming technologies, available in a single worksheet. The data is provided in the following format:

	A	B	C	D	E	F	G	H	I	J	K	L	M
3		Timor-Leste			Private Households	Type of farmi							
4		Municipality				Mulching		Inorganic fertilizer (Industrial)		Organic fertilizer (Natural)		Organic pesticides	
5		Administrative Post											
6		Suco				Yes	No	Yes	No	Yes	No	Yes	No
7		(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8													
9		TIMOR-LESTE			204,597	13,544	149,262	15,948	146,858	22,900	139,906	13,347	149,459
10													
11		AILEU			7,598	1,053	6,332	1,569	5,816	2,783	4,602	1,216	6,169
12													
13		Aileu Vila			3,846	418	3,264	842	2,840	1,669	2,013	756	2,926
14		Aissirimou			326	10	295	38	267	42	263	37	268
15		Bandudato			204	9	195	62	142	119	85	101	103

	A	B	C	D	N	O	P	Q	R	S	T	U
3		Timor-Leste			Farming technology							
4		Municipality			Chemical pesticides		Herbicides		Improved seeds		Irrigation	
5		Administrative Post										
6		Suco			Yes	No	Yes	No	Yes	No	Yes	No
7		(1)			(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
8												
9		TIMOR-LESTE			11,612	151,194	11,973	150,833	25,145	137,661	12,734	150,072
10												
11		AILEU			557	6,828	631	6,754	1,999	5,386	664	6,721
12												
13		Aileu Vila			342	3,340	356	3,326	901	2,781	452	3,230
14		Aissirimou			34	271	38	267	40	265	28	277
15		Bandudato			51	153	79	125	99	105	102	102

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.
- **Data by suku**, gives the 2015 farming technology data, with some calculated variables, in a one-row-per-suku format.

	A	B	C	D	E	F	G	H	I	J	K	L
	No..	MAE suco code	DGE suco code	TOMAK	Municipality	Administrative Post	Suco	Private households 2015	Mulching Yes	Mulching No	Mulching % Yes	Mulching % No
1												
2	1	010101	020101		Aileu	Aileu Vila	Aissirimou	326	10	295	3%	97%
3	2	010102	020102		Aileu	Aileu Vila	Bandudato	204	9	195	4%	96%

	M	N	O	P	Q	R	S	T	U	V	W	X
	Inorganic fertilizer (Industrial)	Inorganic fertilizer (Industrial)	Inorganic fertilizer (Industrial)	Inorganic fertilizer (Industrial)	Organic fertilizer (Natural)	Organic fertilizer (Natural)	Organic fertilizer (Natural)	Organic fertilizer (Natural)	Organic pesticides	Organic pesticides	Organic pesticides	Organic pesticides
1	Yes	No	% Yes	% No	Yes	No	% Yes	% No	Yes	No	% Yes	% No
2	38	267	12%	88%	42	263	14%	86%	37	268	12%	88%
3	62	142	30%	70%	119	85	58%	42%	101	103	50%	50%

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
	Chemical pesticides	Chemical pesticides	Chemical pesticides	Chemical pesticides	Herbi-cides	Herbi-cides	Herbi-cides	Herbi-cides	Improved seeds	Improved seeds	Improved seeds	Improved seeds
1	Yes	No	% Yes	% No	Yes	No	% Yes	% No	Yes	No	% Yes	% No
2	34	271	11%	89%	38	267	12%	88%	40	265	13%	87%
3	51	153	25%	75%	79	125	39%	61%	99	105	49%	51%

	AK	AL	AM	AN
	Irriga-tion	Irriga-tion	Irriga-tion	Irriga-tion
1	Yes	No	% Yes	% No
2	28	277	9%	91%
3	102	102	50%	50%

G. 2015 Census – Agriculture land tenure

This spreadsheet has four worksheets.

- **Census questionnaire**, which gives a screenshot of how the data for access to land and land ownership of agriculture land was obtained in the 2015 Population and Housing Census.
- **Timor-Leste 2015**, which is the 2015 census data on access to land and land ownership in a single worksheet. The data is provided in the following format:

	A	B	C	D	E	F	G	H	I	J	K	L	M
3		Timor-Leste			Private Households	Type of Land Tenure							
4		Municipality				Rent and share product	Lease/rent for fixed value		Rent free		Owned without número referênsia or certificate		
5		Administrative Post											
6		Suco				Yes	No	Yes	No	Yes	No	Yes	No
7		(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8													
9		TIMOR-LESTE			204,597	13,141	149,665	8,231	154,575	81,710	81,096	49,302	113,504
10													
11		AILEU			7,598	220	7,165	214	7,171	5,593	1,792	3,070	4,315
12													
13		Aileu Vila			3,846	103	3,579	71	3,611	2,915	767	1,496	2,186
14		Aissirimou			326	3	302	6	299	275	30	133	172
15		Bandudato			204	5	199	2	202	91	113	53	151

	A	B	C	D	N	O	P	Q	R	S	T	U
3		Timor-Leste			Land Tenure							
4		Municipality			Owned with número referênsia		Owned, certificate from Portuguese		Owned, certificate from Indonesia		Communal land	
5		Administrative Post										
6			Suco		Yes	No	Yes	No	Yes	No	Yes	No
7		(1)			(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
8												
9		TIMOR-LESTE			27,932	134,874	10,741	152,065	17,208	145,598	17,903	144,903
10												
11		AILEU			1,349	6,036	179	7,206	168	7,217	245	7,140
12												
13		Aileu Vila			897	2,785	60	3,622	58	3,624	42	3,640
14		Aissirimou			239	66	8	297	8	297	14	291
15		Bandudato			67	137	1	203	-	204	1	203

- **TOMAK**, which is a subset of the data from the previous worksheet, but limited to the 75 suku that make up the TOMAK focus areas.

- **Data by suku**, gives the agriculture land tenure data from 2015 in a one-row-per-suku format.

	A	B	C	D	E	F	G	H	I	J	K	L
1	No...	MAE suco code	DGE suco code	TDWAK	Municipality	Administrative Post	Suco	Private households 2015	Rent and share product Yes	Rent and share product No	Rent and share product % Yes	Rent and share product % No
2	1	010101	020101		Aileu	Aileu Vila	Aissirimou	326	3	302	1%	99%
3	2	010102	020102		Aileu	Aileu Vila	Bandudato	204	5	199	2%	98%

	M	N	O	P	Q	R	S	T	U	V	W	X
1	Lease/rent for fixed value Yes	Lease/rent for fixed value No	Lease/rent for fixed value % Yes	Lease/rent for fixed value % No	Rent free Yes	Rent free No	Rent free % Yes	Rent free % No	Owned without No. referênsia or certificate Yes	Owned without No. referênsia or certificate No	Owned without No. referênsia or certificate % Yes	Owned without No. referênsia or certificate % No
2	6	299	2%	98%	275	30	90%	10%	133	172	44%	56%
3	2	202	1%	99%	91	113	45%	55%	53	151	26%	74%

	Y	Z	AA	AB	AC	AD	AE	AF
1	Owned with número referênsia Yes	Owned with número referênsia No	Owned with número referênsia % Yes	Owned with número referênsia % No	Owned, Portuguese certificate Yes	Owned, Portuguese certificate No	Owned, Portuguese certificate % Yes	Owned, Portuguese certificate % No
2	239	66	78%	22%	8	297	3%	97%
3	67	137	33%	67%	1	203	0%	100%

	AG	AH	AI	AJ	AK	AL	AM	AN
1	Owned, Indonesian certificate Yes	Owned, Indonesian certificate No	Owned, Indonesian certificate % Yes	Owned, Indonesian certificate % No	Communal land Yes	Communal land No	Communal land % Yes	Communal land % No
2	8	297	3%	97%	14	291	5%	95%
3	-	204	0%	100%	1	203	0%	100%

Appendix 2: Building of the ‘Agricultural Assets Score’ in the Seeds of Life End-of-Program Survey

This section is taken from Seeds of Life (2016), End-of-Program Survey, 2016 – Volume 1: Main Report.

The ‘agricultural assets score’ was created in order to summarize into a single value all the information collected about agricultural assets owned by the households (from land to agricultural equipment/tools and livestock).

Methodology

The methodology followed is very simple. For each category of assets, a rank was given to each asset according to its “economic value”. For example, for agricultural equipment, a hoe was given the rank 1 and a drum was given the rank 4.

Secondly, each category/type of assets were given a weight, also according to their economic value. For example, ‘agricultural equipment’ was given a weight 1, while the ‘area cultivated’ was given a weight 3. Ranks and weights used are presented in Table 85.

Table 85. Variables used in the agricultural assets score – weights and ranks

Category of assets	Possible choices	% of total sample / average # owned	Rank	Weight
Agricultural equipment	Hoe	81 % / 1.8	1	1
	Shovel	79% / 1.6	1	
	Axe	58% / 1.1	1	
	Water can	26% / 1.4	2	
	Wheelbarrow / pushcart	21% / 1.1	3	
	Drum	48% / 2	4	
	Hand-operated sprayer	4% / 1.1	4	
	Silo	7% / 1.4	5	
	Hand tractor	2% / 1	6	
	Ox cart	0.4% / 3.3	6	
	Rice thresher	1% / 1	7	
	Rice hulling machine/husker	0.7% / 1	7	
	Big tractor	0.1% / 1	8	
Livestock	Chicken	85% / 6	1	2
	Pig	90% / 3	2	
	Cow	41% / 5	3	
	Goat	40% / 3	4	
	Sheep	2% / 4	4	
	Horse	21% / 4	5	
	Buffalo	16% / 2	6	
Land ownership	No	4%	0	2
	Yes, some	4%	1	
	Yes, all	92%	2	
Area cultivated	1 to 1,499 m ²	7%	1	3
	1,500 to 2,999 m ²	11%	2	
	3,000 to 9,999 m ²	30%	3	
	10,000 to 19,999 m ²	28%	4	
	20,000 to 29,999 m ²	12%	5	
	30,000 to 49,999 m ²	10%	6	
	50,000 m ² or more	2%	7	

Finally, for each respondent, the above data was computed into one single data, the “agricultural assets score”, by summing the result of multiplication of ranks by weights for each category of assets. For example, if a respondent owns one hoe, two shovels, one drum, one ox cart, ten chickens, two pigs, that the land he cultivates is his own and is about 2ha, the score obtained for the agricultural assets score will be:

$$(1*1 + 2*1 + 1*4 + 1*6)*1 + (10*1 + 2*2)*2 + 2*2 + 5*3 = 60.$$










Across the Seeds of Life end-of-program survey sample, agricultural assets scores ranged from 5 to 721 with an average of 92. The higher the score, the more or the more expensive assets owns the family, so in other terms, the more oriented/active is the family in agriculture.

Note that this indicator wasn't designed to reflect the situation of this sample within the country or even within sampled suku. Its use should be limited to comparing groups of respondents.


Appendix 3: List of Spreadsheets

This appendix lists the spreadsheets that were prepared as part of the assignment. The spreadsheets are available upon request from the TOMAK program office²⁵. For these spreadsheets, only their titles, and the titles of the worksheets contained in them, are given. The spreadsheets mentioned in Appendix 1 are also included.


2010 Census

-  2010 Census data on agriculture and LHZs (+ crop growing HHs)
Census data on agriculture
Crop growing HHs (Sub-District)
-  2010 Census data on livestock and LHZs
Census 2010 data on livestock
-  2010 Census data on population and LHZs
Census 2010 data on population
-  ADB Least Developed Sucos - Living standards by Suco & LHZ, and for TOMAK
Suco living standards data 2010
TOMAK Focus Areas sucos
-  Population (HHs) in TOMAK focus areas suku - 2010 Census data - Relative rating
Pivot Table [on the number of suku in 'living standard groups']
Population (HHs) in TOMAK Focus
-  Population (HHs) in TOMAK focus areas suku - 2010 Census data
Pivot table population [on count of suku by living standard group]
Population (HHs) in TOMAK suku
-  TOMAK focus areas suku - 2010 Census data on agriculture
Census agriculture data - TOMAK
-  TOMAK focus areas suku - 2010 Census data on livestock
Census livestock data - TOMAK
-  TOMAK focus areas suku - 2010 Census data on population
Census population data - TOMAK









2013 TLFNS

-  2013 TLFNS – FCS
Explanation variables
PT1 [Pivot Table 1, on FCSs by livelihood zone]
PT2 [On FCSs by wealth quintile group]
Data FNS

²⁵ Except for those that relate to the Community-Driven Nutrition Improvement Project Survey, for which a non-disclosure agreement was signed.

-  2013 TLFNS – Main household activities
 - Explanation variables*
 - PT1 [On the number of main livelihood income sources of households]*
 - PT2 [On frequencies of livelihood activities as 1st, 2nd, 3rd and 4th ranked source]*
 - Data FNS*
 - PT3 [On activity implementation by men, women or both]*
 - MF involvement in activities (male & female involvement)*

2015 Census

-  2015 and 2010 censuses – Crop production by administrative post
 - 2015 by administrative post [2015 agriculture data, by administrative posts]*
 - 2010 by administrative post [2010 agriculture data, by administrative posts]*
 - 2015-2010 comparison [Table comparing changes 2015-2010 for the crops]*
-  2015 and 2010 censuses - Livestock by administrative post
 - 2015 by administrative post [2015 livestock data, by administrative posts]*
 - 2010 by administrative post [2015 livestock data, by administrative posts]*
 - 2015-2010 comparison [Table comparing changes 2015-2010 for livestock]*
-  2015 and 2010 censuses - Population by administrative post
 - Timor-Leste 2015 [key 2015 population data, by administrative posts]*
 - Timor-Leste 2010 [key 2010 population data, by administrative posts]*
-  2015 Census – Agriculture crops
 - Census questionnaire [for agriculture]*
 - Timor-Leste 2015 [Suku-level agriculture data combined in one file]*
 - TOMAK [Sub-set of agriculture data for the suku in the TOMAK focus areas]*
 - Timor-Leste 2010 [Suku-level agriculture data from 2010 census]*
 - Data by suku [2015-2010 comparisons by suku, for easy analysis]*
-  2015 Census – Agriculture land tenure
 - Census questionnaire [for agriculture land tenure]*
 - Timor-Leste 2015 [Suku-level agriculture land tenure data combined in one file]*
 - TOMAK [Sub-set of agriculture land tenure data for the suku in the TOMAK focus areas]*
 - Data by suku [2015 data by suku, for easy analysis]*
-  2015 Census – Agriculture technology
 - Census questionnaire [for agriculture technology]*
 - Timor-Leste 2015 [Suku-level agriculture technology data combined in one file]*
 - TOMAK [Sub-set of agriculture technology data for the suku in the TOMAK focus areas]*
 - Data by suku [2015 data by suku, for easy analysis]*
-  2015 Census – Aldeia population
 - Census questionnaire [for information on the aldeia]*
 - Timor-Leste 2015 [Aldeia-level data on population combined in one file]*
 - TOMAK [Sub-set of population data for the suku and aldeias in the TOMAK focus areas]*
 - Data by aldeia [2015 data by suku, for easy analysis]*
-  2015 Census – Level of agricultural activity
 - Census questionnaire [for level of agricultural activity]*
 - Timor-Leste 2015 [Suku-level data on agricultural activity combined in one file]*

*TOMAK [Sub-set of agricultural activity data for the suku in the TOMAK focus areas]
Data by suku [2015 data by suku, for easy analysis]*



2015 Census – Level of education

*Census questionnaire [for level of education]
Timor-Leste 2015 [Suku-level data on level of education combined in one file]
TOMAK [Sub-set of level of education data for the suku in the TOMAK focus areas]
Data by suku [2015 data by suku, for easy analysis]*



2015 Census – Livestock

*Census questionnaire [for livestock]
Timor-Leste 2015 [Suku-level livestock data combined in one file]
TOMAK [Sub-set of livestock data for the suku in the TOMAK focus areas]
Timor-Leste 2010 [Suku-level livestock data from 2010 census]
Data by suku [2015-2010 comparisons by suku, for easy analysis]*



2015 Census –Population, totals

*Census questionnaire [for population]
Timor-Leste 2015 [Suku-level population data combined in one file]
TOMAK [Sub-set of population data for the suku in the TOMAK focus areas]
Timor-Leste 2010 [Suku-level population data from 2010 census]
Data by suku [2015-2010 comparisons by suku, for easy analysis]*



2015 Census – Rural and urban areas

*Read this first
Rural and urban areas [info on which areas were designated as rural and urban in the census]*



2015 Census – School attendance

*Census questionnaire [for school attendance]
Timor-Leste 2015 [Suku-level data on school attendance combined in one file]
TOMAK [Sub-set of school attendance data for the suku in the TOMAK focus areas]
Data by suku [2015 data by suku, for easy analysis]*



2015 Census – Urban and rural agriculture data (by municipality)

*Livestock raising crop growing [data on these activities with urban/rural separation for each municipality, and the percentages for the whole municipality]
Level agricultural activity [data on these activities with urban/rural separation for each municipality, and the percentages for the whole municipality]
Crop growers [data on these activities with urban/rural separation for each municipality]*



Population (HHs) in TOMAK focus areas suku - 2015 Census data - Relative rating

*Pivot table [of number of suku from the TOMAK focus areas by living standard group in each municipality]
Population (HHs) in TOMAK Focus [population and living standard group ranking of the 75 suku in the TOMAK focus areas]*



Summary comparison 2015-2010 censuses - Population, totals

2015-2010 comparison [of population and households for municipalities]

2016 SoL EoPS



Agricultural assets indicators

PT1 [on counting no. of records and average agriculture assets scores by livelihood zone]

PT2 [on the spread of agricultural assets by asset wealth categories by livelihood zone]
 PT3 [on male and female scores for agricultural assets]
 PT4 [on the distribution of agriculture plot sizes, by livelihood zone]
 PT5 [on minimum, maximum and average agriculture plot sizes for male and female farmers]
 PT6 [on animal ownership of households, by livelihood zone]
 Fig1 [percentage distribution of number of types of livestock kept by households, by livelihood zone]
 PT7 [on average number of animals held by households, by livelihood zone]
 PT8 [on average number of animals held by male and female headed households, by livelihood zone]
 Data for pivot tables
 List of variables [description of the variables in the data file]
 EoPS data [on agricultural assets]



Crop use

PT1 [on percentage of maize stored by maize harvest category]
 PT2 [on percentage of maize eaten by maize harvest category]
 PT3 [on percentage of maize sold by maize harvest category]
 PT4 [on percentage of rice stored by rice harvest category]
 PT5 [on percentage of rice eaten by rice harvest category]
 PT6 [on percentage of rice sold by rice harvest category]
 PT7 [on percentage of peanuts stored by peanuts harvest category]
 PT8 [on percentage of peanuts eaten by peanuts harvest category]
 PT9 [on percentage of peanuts sold by peanuts harvest category]
 PT10 [on percentage of cassava eaten and sold by households]
 PT11 [on percentage of sweet potato eaten and sold by households]
 PT12 [on rice buying by rice growing farmers]
 EoPS [data on rice buying and PPI scores/quintiles]
 List of variables [explanation on the variables]



Crops grown

Pivot table [on number of farmers growing crops, by livelihood zone]
 Crops grown [sub-set of the EoPS data which relates to crops]
 List of variables [explanation on the variables]



Income

PT0 [on the distribution of households in the survey suku, and in the TOMAK areas]
 PT1 [on percentage of households deriving an income from different categories of activities, by livelihood zone]
 PT2 [on sources of income of households by poverty quintiles]
 Fig2 [data for the Venn diagram on crops – plantations – livestock]
 Fig3 [data on chicken, pig and other animals held by households]
 FigX [data on sheep, goats, cattle, buffaloes and horses]
 PT3 [data on number of sources of household income by poverty quintiles]
 Fig1 [on number of sources of household income by poverty quintiles]
 PT4 [on importance ranking of sources of household income]
 PT5 [on percentage of households selling crops, by livelihood zone]
 PT6 [on percentage of households selling crops, by poverty quintiles]
 PT7 [on money made by crop sales, by poverty quintiles]
 PT8 [on importance of income earned by selling own grown crops, by poverty quintiles]
 PT9 [on number of households, and average amounts of maize, peanuts and rice harvested, by livelihood zone]

Fig4 [on maize, peanut and rice growing farmers]
EoPS [sub-set of EoPS data used for this analysis]
List of variables [explanation on the variables]



PPI

Graphs [data used for two graphs]
Pivot table 2 [on PPI calculations of male and female headed households in the survey, by livelihood zone]
Pivot table 1 [PPI calculations for EoPS data]
EoPS [sub-set of the EoPS data used in this analysis]
List of variables [explanation on the variables]



Triangular diagram Livelihoods Zone 2

SIZE [Triangular diagram for the 127 records in the mid-altitude irrigated areas livelihood zone]
LHZ2 [the data on agricultural assets in the mid-altitude irrigated areas livelihood zone]



Tri-plot_v1-4-2

TRI-PLOT [explanation on the triangular diagram]
SHAPE [template for plotting of soil particles by Sneed and Folk classes]
SIZE [template for a standard triangular diagram for representation of particle sizes]

