Rapid Drought Impact Assessment

El Niño 2015/2016

The Ministry of Agriculture and Fisheries

May 2016

Foreword

The agricultural sector is very important to the economy of Timor-Leste and the livelihood of our people. The mandate of the Ministry of Agriculture and Fisheries (MAF) is to have a competitive and prosperous agricultural sector that will significantly and sustainably contribute to the Gross Domestic Product (GDP), eradication of poverty, food insecurity and undernutrition of the country. However MAF efforts has been challenged by minimum investments and the effects of climate change, including El Niño, that further exacerbated low productivity and production, thus resulted in limited contribution of agriculture to the overall economic growth of the country.

Despite the numbers of assessments conducted, MAF realized that due to the limited statistics and data collected not in a systematic way at the national and sub national levels, the full impact of the drought to the agriculture sector and food security is not well understood.

This particular report highlights the analysis from the rapid assessment conducted by MAF on the impact and losses brought by the El Niño phenomenon in 2015/16 to the agriculture sector and its subsectors (crops, livestock and aquaculture), as well as the cascading negative effect of drought to the livelihoods, food security and nutrition to the rural communities in Timor-Leste.

The evidences gathered from the assessment, provided an indication that drought, affected the households not in the same way, and not at the same extent, therefore, national strategies on the response to drought should support household resilience to climate change and sustainable agricultural development with measure specific to the need of the affected families.

I take this opportunity to express my gratitude to Vice Minister, all Agriculture Extension Officers, Technical Directorates and National Directorate for Food Security and Cooperation for showing their leadership and commitment to carry out the assessment and to help fill some existing evidence gaps on the magnitude of the impact of drought to the agriculture sector and food security.

My sincere appreciation also to the Food and Agriculture Organization of the United Nation, Mercy Corps, Catholic Relief Services and Cruz Vermelha de Timor-Leste for providing the technical and financial support during the assessment and in the preparation of this report.

I hope that the information in this report will inspire national and sub national efforts for joint policies and actions, as well as collaborative efforts for future comprehensive data collections and monitoring system, thereby building resilient livelihoods that helps eradicate food insecurity and malnutrition.

Estanislau Aleixo da Silva
Minister for Agriculture and Fisheries (MAF)

Executive Summary

The impact of the 2015/2016 El Niño is one of the most widespread in the history, with an estimated 60 million people affected by drought, floods and extreme cold weather (FAO, 2016). Those impacted the most are the already vulnerable population, resulting in food insecurity and malnutrition. In Timor-Leste, rainfall has been erratic since May 2015 with an intense dry season from August towards the end of March 2016 and has resulted in serious impact to agriculture, the main income source in the rural communities.

Following the activation of the Human Country Team (HCT) in September 2015, an assessment of the potential impact of El Niño was carried out in November 2015 that included a desk review of the historical events of El Niño and a rapid community assessment in Liquica, one of the badly impacted municipalities. The assessment sited the immediate impact of El Niño such as the drying of springs, animals struggling to find water and fodder, and delayed first cropping season. Also discovered were crops under severe water stress, where rainfall was below 100mm – the threshold mainly for cereal crops to have a minimum yield.

Based on this evidence and to have a better sense of the scale of the El Niño impact, the Ministry of Agriculture and Fisheries (MAF) conducted a nation-wide rapid assessment with the specific objectives to: (i) Assess the impact of the drought on agriculture and household food security; (ii) Identify the most affected populations; and (iii) Provide evidence based recommendations for the Government of Timor-Leste and other stakeholders for immediate assistance and medium to long term actions. The inclusion of households' perceptions on their food security in the survey was specifically done to capture the impact of drought on the majority of rural populations who normally suffer annual food shortages – for at least 2.5 months, concentrated in the lean season from November to March.

The household survey covered 6,919 households in 381 villages (*sucos*) in 12 municipalities except Oecussi, the special economic zone and urban communities in Dili, conducted mainly by the *suco*-based Extension Officers of MAF, with strong monitoring by the Municipal-level of MAF, and with technical assistance by the National Food Security and Cooperation Directorate and the National Technical Directorates.

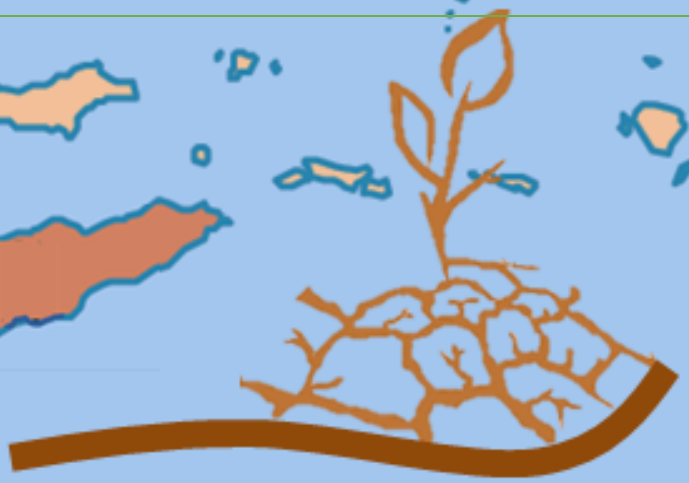
This report offers a picture of the direct impact of the El Niño to the agriculture sector (i.e crop production, livestock and aquaculture) in addition to highlighting the major issues and revealing the vulnerabilities of the drought affected households to food insecurity and malnutrition.

Key findings
2015/2016 El Niño

78 % **households** are negatively impacted by drought

40.6%
households experienced food shortages from December 2015 to Feb/Mar2016

45.9%
households expecting to experience food shortages in Mar/April to June 2016



Poor crop conditions

Maize	51% partially growing 10% failure
Rice	43 % partially growing 6% failure
Vegetables	49% partially growing 4.5% failure

21% of the drought affected households reported with sick animals

48% of the drought affected households reported animal's death

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Background

Despite the fact that the Timor-Leste Government has placed high importance on agriculture and food security in the country and that the majority of its population rely on agriculture as a main livelihood, food production remains low. Timor-Leste imports between 30% to 40% of its food requirements on an annual basis. Nearly two-thirds of the total population of 1.15 million suffer annually with food shortages for at least 2.5 months, with the majority suffering shortages for 3 to 5 months concentrated in the lean season of November to March[1]. The 2015 Global Food Hunger Index (GFHI) of the International Food Policy Institute for Timor-Leste is at an alarming level, with a GFHI score of 40.7 – placing the country at fourth out of the 52 most World Hungry Countries (much higher than the 2010 GFHI score of 25.6).

Timor-Leste cropping pattern[2] is dominated by a single crop in a year and hence the cropping intensity[3] is low and production is mainly subsistence with an average yield ranges between 1.7 to 2.9 tonnes per hectare for maize and 2.1 to 4 tonnes per hectare for rice, with limited livelihood options dependent on agriculture, making the country very vulnerable to slow onset disaster like drought.

Considering the already high cereal deficits in 2014/15 of about 149,000 tonnes, the national and household food security is at high risk. The effect of the El Niño phenomenon will exacerbate the food insecurity and nutrition situation of vulnerable groups, particularly those that are under nourished such as the 50% stunted children under five years and 27% of underweight women and will put more pressure to the already inadequate livelihood resources of the rural households in Timor-Leste.

Due to the limited agricultural data and evidence available, MAF was unable to plan sound interventions particularly in responding to drought, including which areas of the country were most vulnerable.

It is envisioned that the result of this rapid assessment will provide evidence for decision making (qualitative and quantitative informations) and enable MAF to respond to the immediate needs and plan for medium and long-term actions to increase livelihood and food security resilience of the most drought affected households and population in Timor-Leste.

[1] MAF, Seeds of Life / Fini ba Moris, Seeds of Life 3 Mid-Term Survey, Dili, November 2013.
[2] Cropping pattern means the proportion of area under various crops at a point of time.
[3] Cropping intensity is the number of times a crop is planted per year in a given agricultural area. It is the ratio of effective crop area harvested to the physical area.

Data and Methods

The primary data used in assessing the impact of the drought or El Niño to the agriculture and food security in Timor-Leste stem from (i) the household survey and (ii) qualitative information generated from the key informants interviews. Both were conducted from February 23 to March 4, 2016.

The Ministry of Agriculture and Fisheries (MAF) designed the rapid assessment to be representative with 12 targeted municipalities – excluding the autonomous and economic zone of Oecusse and the urban *sucos* in Dili. The survey purposively targeted all 402 rural *sucos* and with 7,498 target respondent households; however only 381 *sucos* were covered with final 6,919 households randomly sampled and participated in the survey. Utilizing the total number of 136,929 rural households from the Census 2010 data as the survey population (N), the sample size (n) provided 1.51% margin of error at 99% confidence level[4]. The guided key informant interviews were conducted with 381 *Chefe de Suco* and *Chefe de Aldeia*, the same Suco and Aldeias where the household surveys were conducted.

The sample size n and margin of error E are given by:

$$x = Z(^{c}/_{100})^{2} r(100-r)$$

$$n = {}^{N\,x}/_{((N-1)E^{2} + x)}$$

$$E = \mathrm{Sqrt}[{}^{(N-n)x}/_{n(N-1)}]$$

where N is the population size, r is the fraction of responses, and $Z(c/100)$ is the critical value for the confidence level c.

Table 1: *Sucos* and surveyed household respondents, by municipality

Municipality	Total Suco (Census 2010)	Target Suco for the Survey	Total Suco Surveyed	Total Household Respondents Surveyed
Aileu	31	31	31	617
Ainaro	21	21	21	631
Baucau	59	59	59	608
Bobonaro	50	50	46	579
Covalima	30	30	30	634
Dili	31	9	8	295
Ermera	52	52	46	484
Lautèm	34	34	34	637
Liquiça	23	23	23	663
Manatuto	29	29	22	483
Manufahi	29	29	29	717
Viqueque	35	35	32	571
Oecussi	18	0	0	0
Total	442	402	381	6,919

The household survey was designed to collect the demographics and primary indicators on food security and agriculture based livelihoods including the

[4] Calculated using online sample calculator of Raosoft, http://www.raosoft.com/samplesize.html

household primary and secondary income sources, food consumption, food sources, agriculture production (maize, rice, vegetables, legumes and tubers), crops conditions, livestock and aquaculture situation. On the other hand, the key informant interviews were to gather general information on crop conditions, food availability, livestock and aquaculture status to validate the information from the household surveys. Both questionnaires (Annex 2) were developed by MAF with technical support from the Food and Agriculture Organization (FAO), Mercy Corps and Catholic Relief Services (CRS), using the 2015/16 El Niño phenomenon that are closely referenced from the earlier drought or El Niño related assessments in Timor-Leste and previous years food security surveys.

Prior to the data gathering, training was conducted by the MAF National Directorate on Food Security to all Extension Coordinators, MAF District staff and Extension Workers on the sampling methodology and how to conduct interviews. The *suco*-based Extension Workers (with supports from the Cruz Vermelha Timor-Leste/CVTL volunteers in several *sucos*) then gathered data; with monitoring performed by the Extension Coordinators. Remote monitoring was also done by the Core Team of the MAF EL Niño Assessment.

In addition, the feed-back and evaluation workshop was conducted from 7th to 11th of March 2016 to collect the completed questionnaires from the Extension Officers and cross check information from different sources. Data cleaning, editing and data entry followed that allowed the processing of data for preliminary key result that was internally presented to and discussed with the higher level officials (i.e Minister, Vice Minister and Director Generals, Directors) of MAF in March 30, 2016.

Limitations

The assessment was conducted over a two weeks period and was done nation-wide. The main survey enumerators were the Extension Officers, of which some have limited technical skills in conducting surveys, and some have to cover two to three villages, which was the main reason 21 *sucos* and 579 respondent households were not completed. The survey was limited to the agriculture sector, although included some aspects of food security particularly on the critical pathways (i.e food production, sources and coping strategies) between food security and agriculture which is the responsibility of MAF, where MAF could provide immediate response and actions.

Considering its purpose and putting into account the 'nature' of such a rapid assessment, questioners were limited to collect information useful in the analysis of the direct impact of drought to crops, livestock and aquaculture. In-depth food security data (i.e. income composition, frequency of consumption) were not

collected, therefore, analysis is limited to the indicative impact of drought to the food security at the *suco* and municipal level and providing the general profile of household food insecurity.

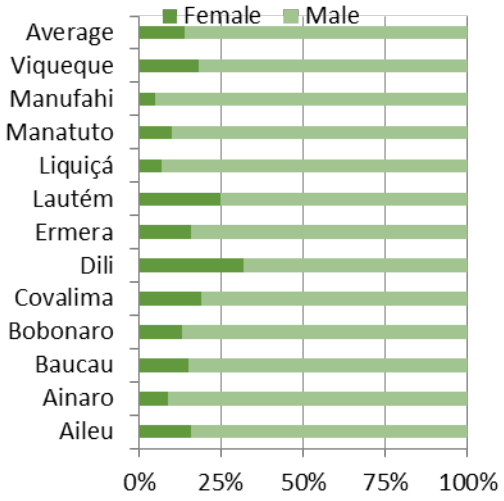
In expanding the data analysis, secondary information such as price of livestock, livestock ownership, crops yield; cultivated and harvested areas were referred from available secondary data sources such as the 2010 population and housing census, MAF Suco Level Food Security Monitoring System (SLMS) and other MAF monitoring tools. In addition, verifying the assessment results was also challenged by the limited baseline data that can be used to calculate losses caused by the El Niño to the livelihoods and food availability of the affected households.

Findings

Respondent's Profile

Among the 6,919 respondents 14% are female and 86% are male. The highest number of female respondents are from the municipalities of Dili (32%), Lautém (25%), Covalima (19%) and Viqueque (18%), while highest number of male respondents were from the municipalities of Manufahi (95%), Liquiçá (93%) and Ainaro (91%).

Graph 1: Respondent's by sex



Women-headed households make up 10% of the total sample. The largest proportions of women-headed households were found in Dili, Lautem and Ermera municipalities, at around 15% to 28%. There is a higher proportion of women-headed households that are food-insecure than male-headed households (44% compared to 36%).

The average household size is 6.9, higher if compared to the national average of 5.8. This shows higher household size in the rural communities particularly the households in the municipalities of Lautém, Ainaro, Aileu and Ermera with the largest average household size and the households in Covalima and Manufahi the smallest. The percentage of households with pregnant and lactating mothers is 30% and 55% of households with children below five years old of age. There are 12% of respondents households with family members living with disability

Table 2: Household Respondent Profile

Municipality	% of women headed households	Average # of members per HH	% of households with pregnant and lactating women	% of households with under 5 children	% of households with members living w/ disability
Aileu	10%	7.4	36%	54%	20%
Ainaro	8%	7.5	41%	61%	14%
Baucau	5%	7.3	23%	56%	17%
Bobonaro	13%	6.5	31%	58%	11%
Covalima	9%	6.1	26%	47%	10%
Dili	28%	7.2	33%	61%	7%
Ermera	15%	7.4	34%	62%	19%
Lautém	16%	7.5	18%	51%	8%
Liquiçá	8%	6.5	26%	59%	11%
Manatuto	5%	6.9	32%	54%	11%
Manufahi	7%	6.2	35%	53%	6%

Viqueque	10%	6.8	26%	52%	15%
Average	10%	6.9	30%	55%	12%

Respondent's Livelihood and Income sources

Table 3 shows that 71% of the surveyed households rely on farming and 46% on animal/livestock rearing for income, while 13% engage in small business activities, 9.3% on paid labour, 7.5% on fisheries and aquaculture and 5% are public servant.

29% of the surveyed households have 1.5 main livelihood sources, farming and animal/livestock rearing being the most common combination. 28% have only farming, especially the households in the municipalities in Aileu and Viqueque, while livestock rearing is more prevalent in Manufahi and Covalima. The municipalities of Liquica and Lautem show a limited number of livelihood options (1.2), while Manufahi (1.9), Dili and Aileu (1.8) are more diverse (Table 3).

Table 3: Income sources of the surveyed households

Municipality	Average # of main sources of income	% of households with main source(s) of income						
		Farming	Fisheries/ aqua-culture	Animals/ livestock	Micro/ small business	Labor/ paid job	Public officials	Others
Aileu	1.76	86.7%	7.5%	47.5%	14.3%	12.6%	4.7%	2.4%
Ainaro	1.61	75.6%	8.9%	46.1%	14.9%	7.1%	6.3%	2.2%
Baucau	1.49	72.0%	11.2%	35.5%	14.0%	7.7%	4.8%	3.9%
Bobonaro	1.51	61.0%	6.4%	49.6%	14.5%	11.1%	5.4%	3.5%
Covalima	1.59	73.2%	5.4%	56.9%	10.1%	6.8%	5.4%	1.6%
Dili	1.81	74.2%	28.5%	38.6%	12.5%	12.2%	9.8%	5.4%
Ermera	1.52	72.0%	8.7%	32.7%	18.6%	13.0%	2.9%	4.1%
Lautém	1.22	67.0%	3.0%	32.5%	6.8%	7.5%	3.3%	2.2%
Liquiçá	1.24	54.3%	3.9%	44.2%	9.0%	8.0%	3.3%	1.5%
Manatuto	1.35	69.1%	2.7%	42.3%	8.5%	6.6%	3.7%	2.5%
Manufahi	1.91	69.9%	7.9%	67.5%	18.8%	13.0%	3.8%	10.6%
Viqueque	1.60	80.4%	6.1%	46.3%	13.3%	7.2%	4.2%	2.5%
Average	1.55	71.0%	7.5%	45.9%	13.0%	9.3%	4.6%	3.5%

Additional household income sources were from the government social support (56%), construction work (11%) and remittances (5%). 3 to 4% households have access to credit from the Micro Finance Institutions (MFI), savings and credit groups and from family and friends (Table 4).

Municipalities with the highest proportion of households receiving government social support are from Dili, Baucau and Covalima, while the municipalities of Ermera and Baucau have highest number of households received remittances from December 2015 to March 2016, to complement household finances.

Temporary employment from construction also contributed as additional sources of household income across the surveyed communities, with the highest in the municipality of Aileu.

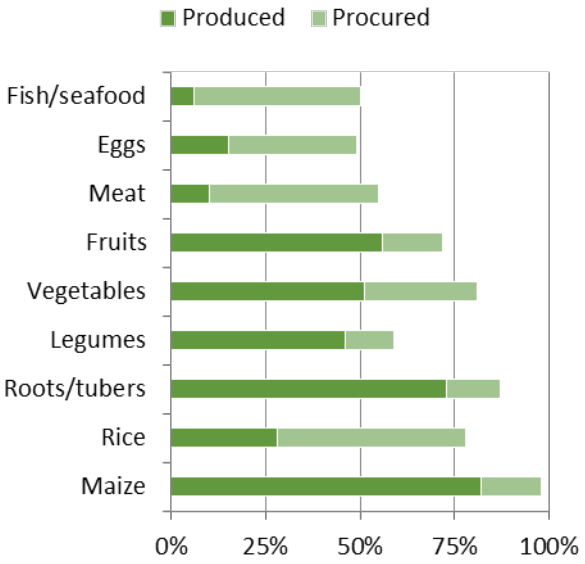
Table 4: Surveyed Households other income sources

	Remit-tance	Government Safety Nets					Short-term labor	Credit			
		Vete-rans	*Bolsa da mai*	Elderly	Disabi-lity	Others		Savings-Credit Groups	Micro-finance	Bank	Family/ Friends
Aileu	4%	11%	34%	15%	1%	1%	22%	4%	5%	4%	0%
Ainaro	4%	14%	20%	19%	2%	2%	8%	3%	3%	2%	2%
Baucau	10%	14%	19%	23%	5%	3%	9%	3%	1%	1%	1%
Bobonaro	4%	10%	12%	19%	2%	2%	9%	5%	7%	1%	1%
Covalima	6%	13%	22%	24%	2%	3%	10%	2%	3%	2%	1%
Dili	4%	8%	44%	21%	1%	1%	13%	3%	12%	4%	1%
Ermera	10%	19%	13%	14%	1%	1%	14%	5%	5%	2%	3%
Lautém	4%	8%	19%	14%	1%	2%	8%	2%	2%	1%	2%
Liquiçá	3%	9%	19%	16%	1%	1%	7%	3%	3%	2%	0%
Manatuto	4%	17%	29%	14%	1%	0%	8%	5%	4%	1%	2%
Manufahi	4%	16%	10%	21%	1%	2%	14%	2%	4%	2%	1%
Viqueque	2%	13%	20%	22%	3%	4%	5%	3%	2%	1%	4%
Avearage	5%	13%	21%	19%	2%	2%	11%	3%	4%	2%	4%

Food sources and consumption

A large portion of the household diet is dominated by cereals or energy food (i.e maize, rice and root crops) with some households introducing consumption of vegetable from their own production. Buying meat, eggs and fish is by far the most common source to most of the surveyed households.

Graph 2: Household food sources



In most of the municipalities, maize remained the main staple food for 84% of the survey respondents, with 74% of the households supplementing diets with root crops or tubers (i.e sweet potato, taro, cassava). Households consuming rice accounted for 56% with high proportion of household eating rice in Viqueque and Dili, mainly relying on rice imports due to huge local production deficits, the same way with meat (i.e chicken and eggs) and fish (Table 5).

Meat, fish and eggs, the essential sources of protein are less consumed. This means poor household diet diversity and a diet that clearly lacks sufficient nutrition.

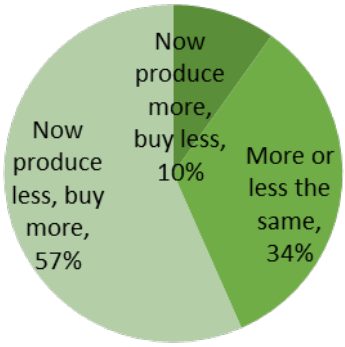
Vegetables and fruits are commonly consumed by 60% of the households, while meat, eggs and fish are consumed by the 22 to 25% of the households, particularly in the municipality of Ermera and Lautem (11 to 13%). High consumption of meat, eggs, fish, vegetables and fruits occurs in the municipalities of Dili, Bobonaro and Aileu (Table 5).

Table 5: Type of food consumed per municipality

Municipality	Maize	Rice	Roots/ tubers	Legume beans	Vege-tables	Fruit	Meat	Egg	Fish/ seafood
Aileu	93%	44%	86%	78%	75%	82%	31%	35%	33%
Ainaro	90%	50%	84%	63%	64%	53%	31%	29%	17%
Baucau	81%	76%	69%	38%	60%	57%	27%	33%	17%
Bobonaro	89%	64%	77%	64%	72%	70%	40%	40%	33%
Covalima	91%	67%	70%	48%	63%	42%	19%	16%	18%
Dili	87%	79%	84%	66%	69%	71%	23%	37%	63%
Ermera	90%	40%	81%	47%	63%	57%	19%	14%	11%
Lautém	76%	54%	54%	19%	36%	39%	16%	17%	13%
Liquiçá	63%	34%	58%	28%	42%	51%	13%	14%	26%
Manatuto	65%	52%	55%	40%	50%	48%	26%	22%	23%
Manufahi	91%	39%	91%	67%	63%	80%	25%	20%	16%
Viqueque	86%	84%	85%	50%	69%	68%	26%	29%	21%
Average	84%	56%	74%	50%	60%	60%	25%	25%	22%

The food consumption pattern showed in this survey demonstrates the importance of crop production on household food security. With the impact of drought from the El Niño phenomenon, households have to rely mainly on eating less preferred foods from their own production like tubers and root crops, skipping meals and reducing meal portions to cope with food shortages. Considering the effect of drought to farming and livestock which are the main sources of livelihood of most of the affected families, access to animal protein (i.e meat, eggs and fish) is becoming intensely challenging, worsening the household food insecurity and undernutrition. In fact, 57% of the respondent households are perceived to have less production in 2016, thus relying to buy their food from the market.

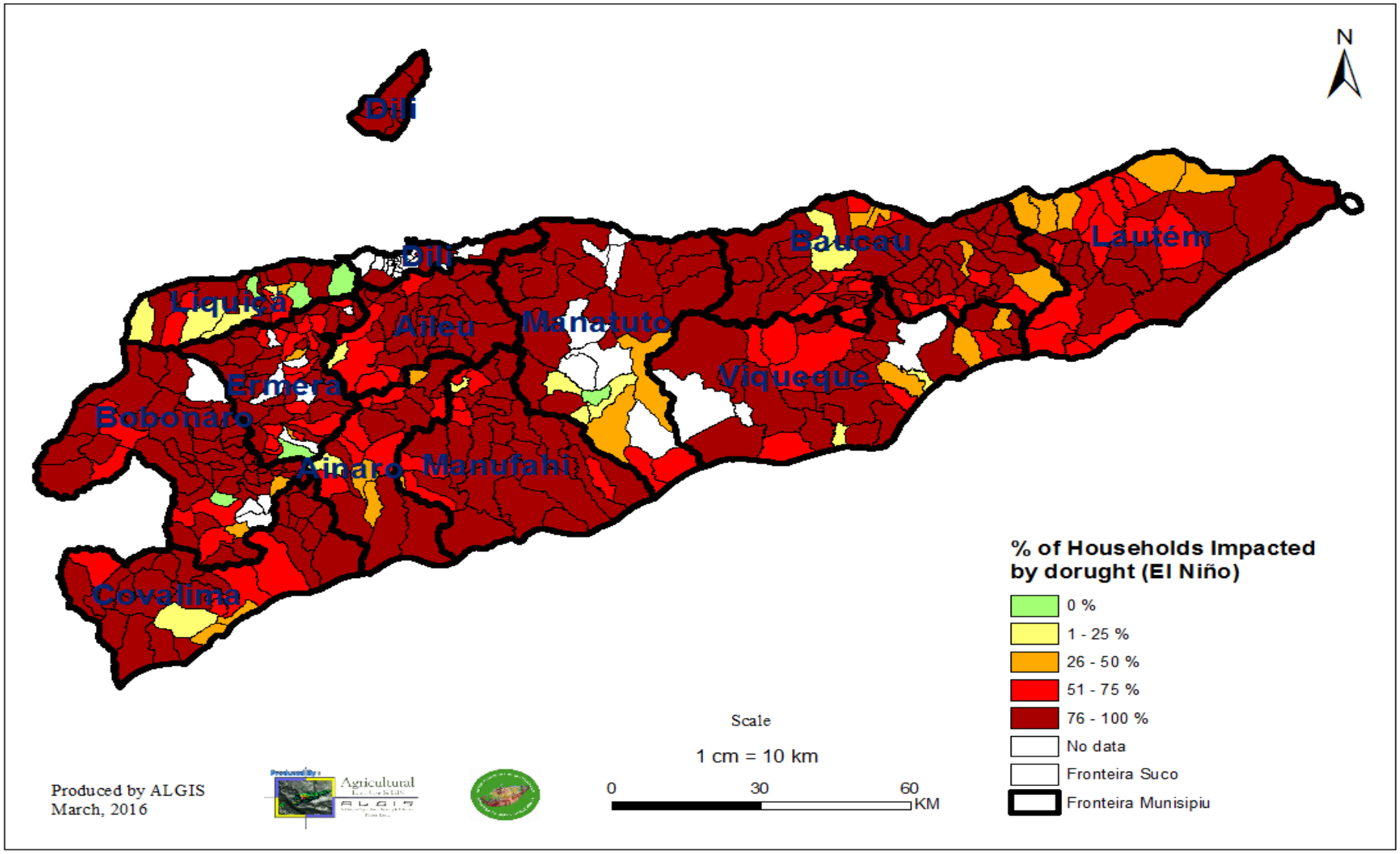
Graph 3: Situation right now compare to last year?



Impact of Drought (El Niño) to Agriculture

78% (estimated at 122,345 households) are negatively impacted by the drought either through households experiencing delayed planting, crops not growing, or some sick and dying animals due to difficulty in accessing water and fodder, thus, the main source of livelihoods have been constrained (Figure 1).

Figure 1: Drought affected areas, by percentage of households impacted per *suco*

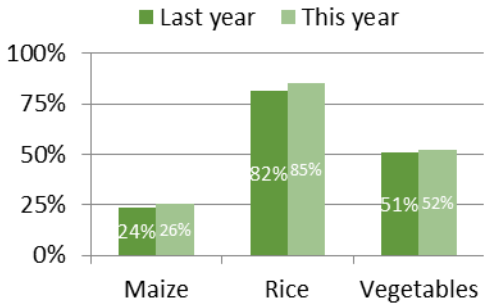


The highest relative number of households affected by drought was in Dili (rural communities only), while highest absolute numbers of the affected households were in Bacau and Ermera (Table 7).

Table 7: Drought Impact to Municipalities

Municipality	Household Number (Census 2015)	Population Number (Census 2015)	% of HH Respondents impacted by Drought	Number of HHs impacted by Drought	Number of People Impacted by Drought
Aileu	7,832	48,554	86%	6,740	41,786
Ainaro	11,058	66,397	71%	7,798	46,825
Baucau	23,195	124,061	84%	19,533	104,472
Bobonaro	18,192	98,932	87%	15,874	86,325
Covalima	13,285	64,550	85%	11,235	54,588
Dili	2,610	14,792	93%	2,433	13,789
Ermera	21,069	127,283	83%	17,492	105,674
Lautém	11,969	64,135	75%	9,000	48,227
Liquiçá	12,800	73,027	56%	7,221	41,195
Manatuto	7,796	45,541	70%	5,467	31,935
Manufahi	9,257	52,246	80%	7,437	41,972
Viqueque	15,589	77,402	78%	12,116	60,156
Average				122,345	676,945

Graph 4: Percentage of drought impacted farming households did not plant maize, rice, vegetables



The survey shows a decreasing trend of the drought impacted farming households engage in staple crop production with an increased in the number of households did not plant rice and maize (3% and 2% respectively) this year compared to last year, with most farmers planted crops not more than a hectare (Graph 4). Whilst the increase could be associated with other factors, the primary reason reported in this survey is the impact of drought to crop production situation. Areas where huge increase in the proportion of farmers decided of not planting maize and rice this year compared to last year are in the municipalities of Viqueque, Baucau, Manatuto and Manufahi, while significant number of farmers reduced their planted area to less than a hectare are in the municipalities of Bobonaro, Viqueque and Manufahi (Table 8).

Table 8: Percentage of drought impacted farming households who did not plant maize, rice, vegetables, by municipality

		Aileu	Ainaro	Baucau	Bobonaro	Covalima	Dili
Maize	Last year	11%	10%	28%	28%	13%	13%
	This year	12%	10%	32%	30%	14%	14%
Rice	Last year	91%	99%	68%	80%	75%	99%
	This year	92%	99%	76%	86%	78%	95%
Vegetables	Last year	20%	19%	41%	44%	39%	88%
	This year	21%	21%	49%	50%	39%	62%

(Continued)

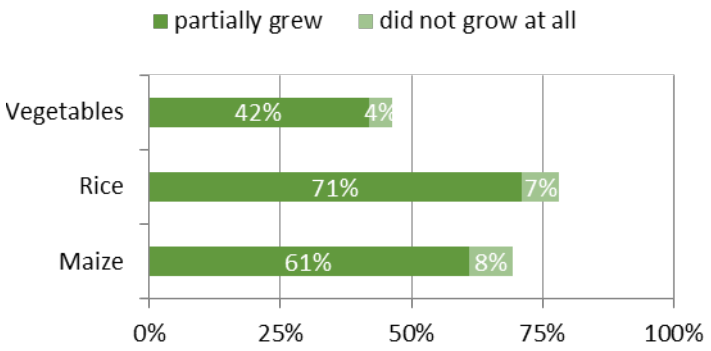
		Ermera	Lautém	Liquiçá	Manatuto	Manufahi	Viqueque
Maize	Last year	18%	39%	53%	49%	15%	23%
	This year	21%	43%	54%	57%	17%	23%
Rice	Last year	98%	94%	54%	64%	95%	60%
	This year	98%	99%	55%	70%	96%	71%
Vegetables	Last year	87%	90%	55%	76%	40%	58%
	This year	87%	99%	55%	77%	43%	59%

Survey result also shows that almost in all land size categories, there are reductions of percentage of drought impacted farming households who planted maize, rice or vegetables (Table 9).

Table 9: Percentage of drought impacted farming households engage in staple crop production

Land size	When?	Maize	Rice	Vegetables
0.01 - 0.25 ha	Last year	24%	5%	34%
	This year	22%	4%	32%
0.26 - 0.50 ha	Last year	31%	6%	10%
	This year	31%	5%	11%
0.51 - 1.00 ha	Last year	16%	5%	4%
	This year	15%	5%	4%
>1.00 ha	Last year	5%	3%	1%
	This year	5%	1%	1%

Graph 5: Percentage of drought impacted farming households who planted maize, rice, vegetables but only partially grew or did not grow at all



Generally, staple crops (maize and rice) and vegetables condition this year observed to be partially growing with some totally failing, even after replanting once or twice. Graph 5 shows the percentage of drought impacted households who planted maize, rice, vegetables and reported that their crops only partially grew or did not grow at all. The detail of each crop condition is presented below.

Rice Production

As presented in the Graph 4 above, the Percentage of households that cultivated rice in the 2015/16 main season has been reduced to 3%, compared to the last year. The 85% of the surveyed households have not planted rice during the 2015/16 main season against the 82% in the 2014/15 main season. The decreased trend in planted area are observed in most municipalities (Table 8) with an exception in Dili (rural areas only) that shows a significant increase of the number

of households planted rice in an area between 0.25 to 0.50 hectares when compared to last year (Table 10). Municipalities with the most significant reduction in area planted are in Lautem, Bacau, Ainaro, Viqueque and Bobonaro, the same municipalities that have significant number of households, at 78% to 87% reported that their livelihoods were negatively impacted by the drought, and therefore expected to have less income for this cropping season.

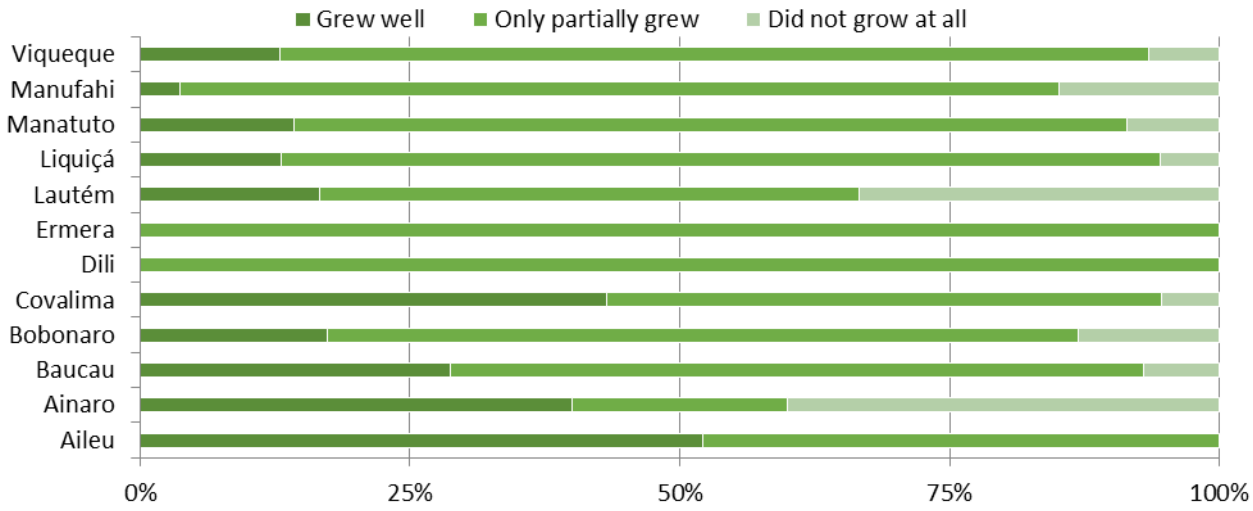
Table 10: Percentage of drought impacted farming households engage in rice production by land sizes and municipality

Land size	When?	Aileu	Ainaro	Baucau	Bobonaro	Covalima	Dili
0.01 - 0.25 ha	Last year	5%	0%	7%	1%	2%	0%
	This year	5%	0%	7%	1%	1%	0%
0.26 - 0.50 ha	Last year	4%	1%	8%	5%	13%	0%
	This year	3%	1%	7%	4%	10%	3%
0.51 - 1.00 ha	Last year	0%	0%	9%	8%	9%	1%
	This year	0%	0%	8%	7%	9%	2%
>1.00 ha	Last year	0%	0%	8%	6%	1%	0%
	This year	0%	0%	2%	2%	1%	0%
		Ermera	Lautém	Liquiçá	Manatuto	Manufahi	Viqueque
0.01 - 0.25 ha	Last year	0%	2%	16%	9%	2%	13%
	This year	0%	1%	16%	8%	2%	11%
0.26 - 0.50 ha	Last year	0%	1%	14%	5%	1%	12%
	This year	0%	0%	14%	3%	1%	9%
0.51 - 1.00 ha	Last year	2%	2%	15%	8%	1%	13%
	This year	2%	0%	14%	6%	1%	8%
>1.00 ha	Last year	0%	1%	1%	14%	0%	3%
	This year	0%	0%	0%	13%	0%	1%

It is expected that the harvest of 2015/16 main season will be largely reduced due to the reduction of area planted and poor growing condition in most municipalities, mostly in large planted areas that accounted for 71% of the surveyed households. 7% of the surveyed households already reported that rice failed to grow after several re-planting due to prolonged dry spell, thus, equated as drought production losses (Graph 5). Graph 6 presents the rice condition during the 2015/16 main season compared to the previous year by municipality in which rice plant condition is reported worse than last year in all surveyed municipalities.

With the initial losses of 7% and low yield forecast as well as the drought impact to rice planting, it is expected that the main season production is very low to meet the country's rice consumption requirements. Therefore, it is very important that the potential of the second season particularly in areas with bimodal rains and access to irrigation schemes should be maximized, otherwise an enormous rice import is expected to cover the deficit.

Graph 6: Rice condition during the 2015/16 main season compare to previous year, by municipality



Maize Production

Fewer households are planting maize in the 2015/16 main season compared to the 2014/15 main season, with 26% of the households not planted compared to last year 24% (Graph 4). This reduction mostly comes from the municipalities of Manatuto, Baucau and Lautem (Table 8).

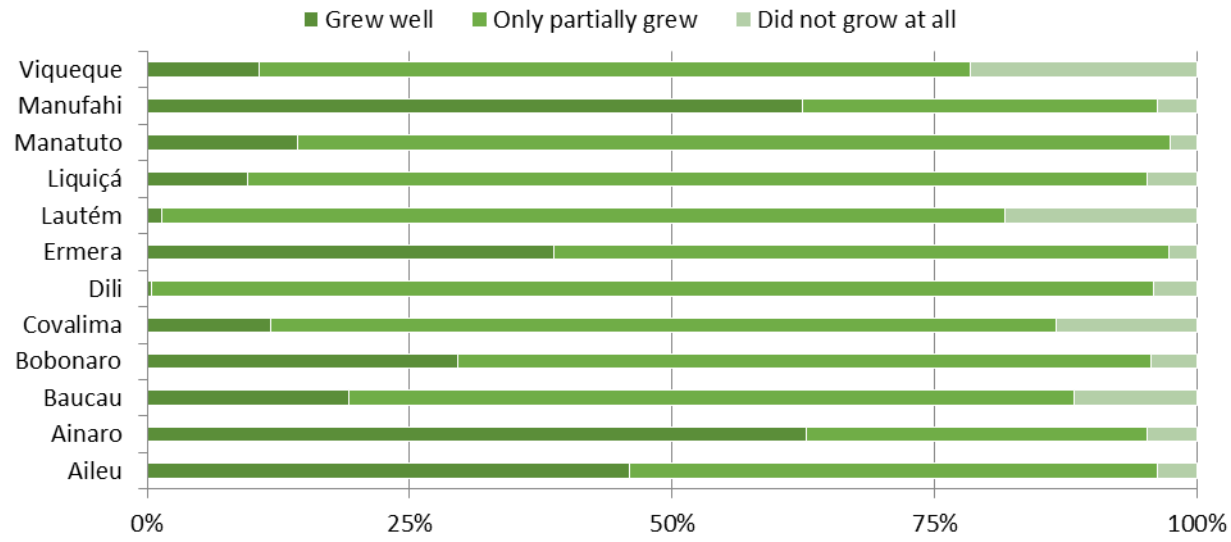
Table 11: Percentage of drought impacted farming households engage in maize production by land sizes and municipality

Land size	When?	Aileu	Ainaro	Baucau	Bobonaro	Covalima	Dili
0.01 - 0.25 ha	Last year	36%	22%	28%	22%	12%	9%
	This year	32%	22%	28%	21%	11%	10%
0.26 - 0.50 ha	Last year	33%	47%	24%	21%	36%	42%
	This year	34%	46%	25%	28%	38%	42%
0.51 - 1.00 ha	Last year	16%	17%	13%	21%	32%	32%
	This year	13%	17%	10%	15%	32%	30%
>1.00 ha	Last year	5%	3%	7%	8%	7%	5%
	This year	9%	5%	4%	7%	6%	4%

		Ermera	Lautém	Liquiçá	Manatuto	Manufahi	Viqueque
0.01 - 0.25 ha	Last year	44%	15%	18%	8%	33%	30%
	This year	42%	17%	21%	1%	25%	30%
0.26 - 0.50 ha	Last year	27%	31%	20%	20%	38%	30%
	This year	25%	28%	19%	21%	35%	30%
0.51 - 1.00 ha	Last year	10%	14%	3%	19%	8%	13%
	This year	11%	11%	2%	18%	12%	13%
>1.00 ha	Last year	1%	2%	5%	4%	6%	5%
	This year	1%	1%	4%	4%	12%	4%

61% of households reported to have poor maize yield conditions (maize is growing partially) due to water stress, and expected to have lower yield compared to the five years average of 2.3 tonne per hectare, particularly in the areas of Covalima, Dili, Lautem, Bobonaro and Baucau (Graph 7).

Graph 7: Maize condition during the 2015/16 main season compare to previous year, by municipality



Vegetable Production

52% of the surveyed households did not grow vegetables from November to March 2016, compared to last year 51% (Graph 4), with significant decreases in the municipalities of Lautem, Baucau, Bobonaro and Manufahi at 10% less farmers that planted vegetables this season (Table 8).

The planted area is 2% lower this year compared to last year, with relative and absolute acreage reduction in the municipalities of Bacau, Lautem and Bobonaro, but a 27% increase in the rural communities in Dili. 28% of households are growing in smaller land parcel not more than 0.25 hectares, with 12% planted vegetables to a land area of 0.50 hectares and 4% to a hectare, particularly households in the municipalities of Aileu, Ainaro, Manufahi and Baucau (Table 12).

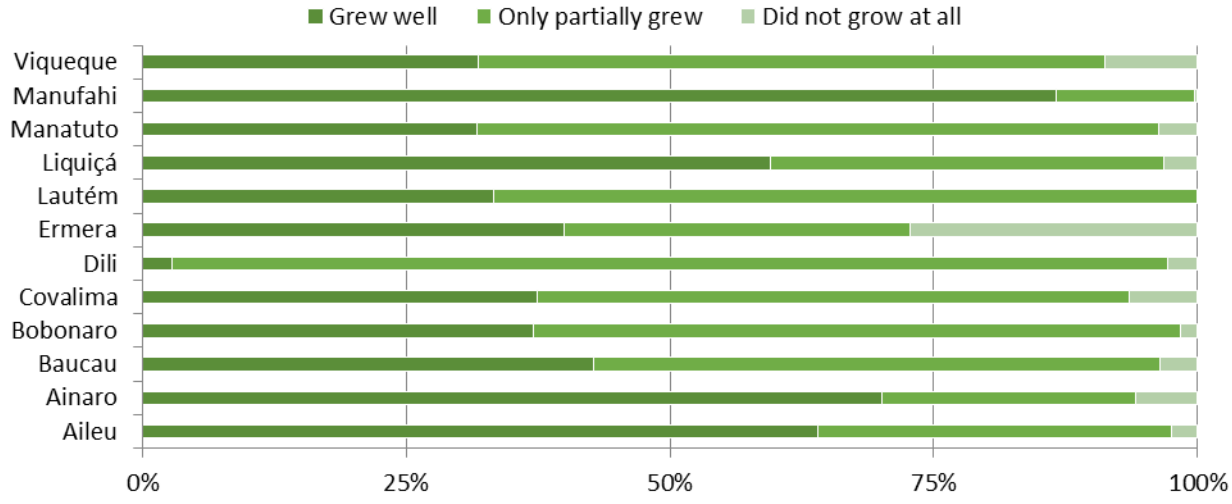
4% of the surveyed households reported total crop failure, most significantly in the municipalities of Ermera and Covalima, while across the country, 42% of the households reported to have vegetables only partially growing, particularly in the municipalities of Dili, Lautem, Viqueque, Bobonaro and Manatuto (Graph 8).

Table 12: Percentage of drought impacted farming households engage in vegetable production by land sizes and municipality

Land size	When?	Aileu	Ainaro	Baucau	Bobonaro	Covalima	Dili
0.01 - 0.25 ha	Last year	61%	66%	37%	47%	36%	0%
	This year	62%	61%	32%	44%	30%	0%
0.26 - 0.50 ha	Last year	19%	14%	11%	5%	16%	0%
	This year	17%	17%	11%	4%	19%	27%
0.51 - 1.00 ha	Last year	0%	1%	9%	2%	9%	9%
	This year	0%	1%	8%	1%	9%	9%
>1.00 ha	Last year	0%	0%	3%	1%	0%	2%
	This year	0%	0%	1%	1%	3%	2%

		Ermera	Lautém	Liquiçá	Manatuto	Manufahi	Viqueque
0.01 - 0.25 ha	Last year	87%	90%	55%	76%	40%	58%
	This year	87%	99%	55%	77%	43%	59%
0.26 - 0.50 ha	Last year	0%	2%	16%	9%	57%	29%
	This year	0%	1%	16%	8%	54%	29%
0.51 - 1.00 ha	Last year	10%	6%	14%	15%	2%	7%
	This year	11%	0%	14%	14%	2%	6%
>1.00 ha	Last year	1%	1%	0%	0%	1%	1%
	This year	0%	0%	0%	0%	0%	1%

Graph 8: Vegetable crops condition during the 2015/16 main season compare to previous year, by municipality



Livestock Condition

Livestock mortality increased as a result of drought that almost 1 in 2 surveyed households reported animal death and 1 in 5 households have sick animals.

48% of the drought affected households (estimated to 60, 382 households) reported an animal death, while 21% (estimated to 29,050 households) reported sick animals.

An estimated of 70,017 animals, consisting of buffalos, cattle, goats and sheep, pigs, horses and chicken reported died (Table 13). Higher estimated number in the municipalities of Baucau (19%), Ermera (15%) and Viqueque (12%) of which 38% of the surveyed households source of their income, with total losses estimated to USD 13,101,373[5].

69,921 animals were sick (Table 14). Amongst the most affected animals were pig and chicken, 31% was still sick during the survey, while 13% are buffalos, 11% are goats and sheep and 8% are cows, the highest in the municipalities of Baucau (27%), Ermera (15%) and Bobonaro (14%), with possible losses estimated to USD13, 083,412 if no immediate treatment provided.

Livestock rearing being the second most important source of income to most drought affected households, it is important to have timely and adequate interventions to restore this particular livelihood through the up scaling of the vaccination program efficiently reaches the poorest and most needy households and establishment of water harvesting to collect rain water or dig wells, as well as distribute feeds and silages, otherwise, there is a great a possibility for households sliding into debt to ensure family members are fed which could further result to poverty trap.

Table 13: Estimated number of Died Animals

	Buffalo	Cattle	Goat/sheep	Pig	Horse	Chicken	Total
Aileu	581	326	489	1,306	279	1,363	4,343
Ainaro	581	325	488	1,304	278	1,361	4,338
Baucau	1,734	972	1,459	3,895	832	4,066	12,958
Bobonaro	904	507	760	2,031	434	2,120	6,755
Covalima	903	506	759	2,028	433	2,117	6,745
Dili	264	148	222	594	127	620	1,975
Ermera	1,375	770	1,156	3,088	659	3,223	10,271
Lautém	857	480	721	1,925	411	2,010	6,405
Liquiçá	403	226	339	906	193	945	3,013
Manatuto	365	205	307	820	175	856	2,729
Manufahi	279	156	235	627	134	654	2,086
Viqueque	1,124	630	946	2,525	539	2,636	8,400
Total	9,370	5,251	7,881	21,049	4,494	21,972	70,017

[5] MAF Suco Level Food Security Monitoring System (SLMS), 2015 monthly average price of $9/chicken, $434/Buffalo, $400/cow, $272/pig, $62/goat &sheep, $116/horse.

Table 14: Estimated number of Sick Animals

	Buffalo	Cattle	Goat & sheep	Pig	Horse	Chicken	Total
Aileu	314	176	264	706	151	737	2,348
Ainaro	320	179	269	718	153	749	2,388
Baucau	2,482	1,391	2,087	5,575	1,190	5,819	18,544
Bobonaro	1,285	720	1,081	2,886	616	3,012	9,599
Covalima	629	353	529	1,413	302	1,475	4,700
Dili	211	118	177	473	101	494	1,574
Ermera	1,405	787	1,181	3,155	674	3,294	10,496
Lautém	635	356	534	1,426	304	1,488	4,743
Liquiçá	317	178	266	712	152	743	2,367
Manatuto	370	208	311	832	178	868	2,767
Manufahi	278	156	234	625	133	652	2,079
Viqueque	1,113	624	936	2,500	534	2,610	8,316
Total	9,358	5,244	7,870	21,020	4,487	21,942	69,921

Aquaculture Condition

With the current unpredictable rainfall patterns it is important that for future interventions fish pond locations should be reviewed taking into consideration access to sustainable water sources and also adoption of sustainable aquaculture system.

Table 15: Percentage of households with dried fish ponds due to drought

	Aileu	Ainaro	Baucau	Bobonaro	Covalima	Dili
% of households affected by drought reported with dried fish pond	3%	5%	4%	2%	2%	2%
Number of dried Fish ponds	19	32	27	12	15	5
	Ermera	Lautém	Liquiçá	Manatuto	Manufahi	Viqueque
% of households affected by drought reported with dried fish pond	6%	1%	1%	0%	1%	4%
Number of dried Fish ponds	27	5	9	0	10	23

Impact of El Niño to Food Security and Coping Mechanisms

Food Security and Coping Mechanisms

Around 40.6% of the households (estimated to 62,717 households) said that they do not have enough food since the drought/El Niño peaked in December 2015. The figure is significantly greater in the municipalities of Viqueque (53%) and Lautem (51%), with a staggering 70% in the off grid areas of Dili, although the

severity of food insecurity varies substantially from one suco to the other with some sucos having 100% food insecure households while other with none (Figure 2).

With the current crop condition and losses from drought, an additional 5% of households expect to experience further food shortages. Around 45.9% of the households (estimated to 68,183 households) anticipating that they will not be able to meet their food needs until June 2016. Higher proportion of households anticipating food shortages in the municipalities of Covalima (68%), Aileu (58%), Manufahi (56%), Ainaro (52%) and off grid areas of Dili (62%) as well as the communities in the northern lowland and highlands with monomodal rainfall patterns that mainly relying to the main season harvest are more vulnerable (Figure 3). On the other hand, food security improvement is being anticipated by some households in the municipalities of Lautem, Viqueque and Baucau, with a significant decrease in the number of households claimed of having to experience food shortages.

The result of the survey revealed that during difficult situation were food is not available, families usually eat the less preferred foods (33%), sell their animals or other assets to buy food (27%) and reduce the meal portion and or male frequencies (18%), otherwise, families have to eat the saved seeds (7%), borrow money or food from others (12%) and asked some help from the government or to families (4%) as their last options in meeting daily food needs (Graph 9). For families that anticipated to have further food shortages until June expressed to use the same coping mechanisms.

Graph 9: Commonly used coping mechanism by the drought affected households

Figure 2: Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*

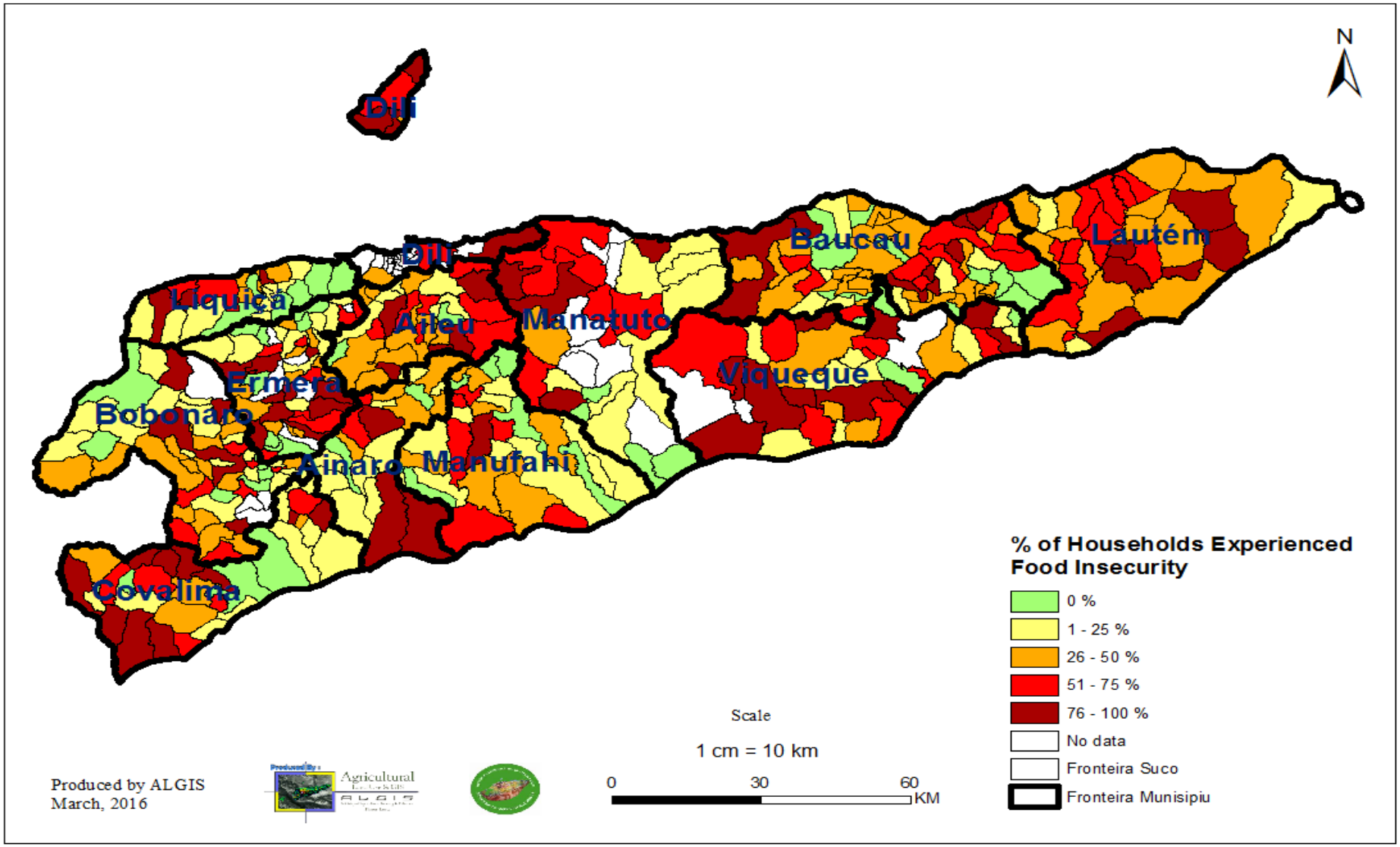
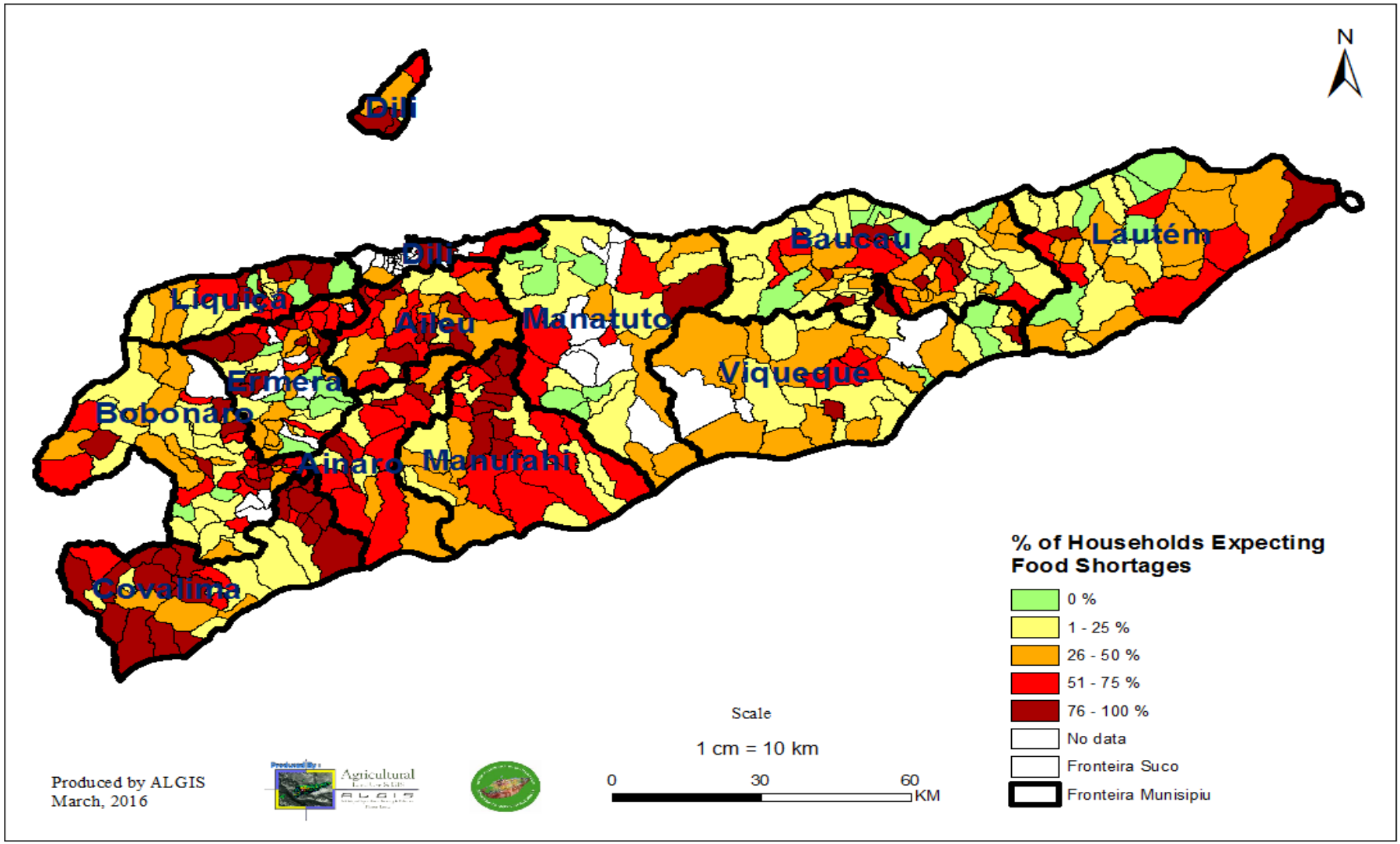


Figure 3: Food Security Situation from March/April to June 2016, by *suco*



Food Availability, Sources and Outlook

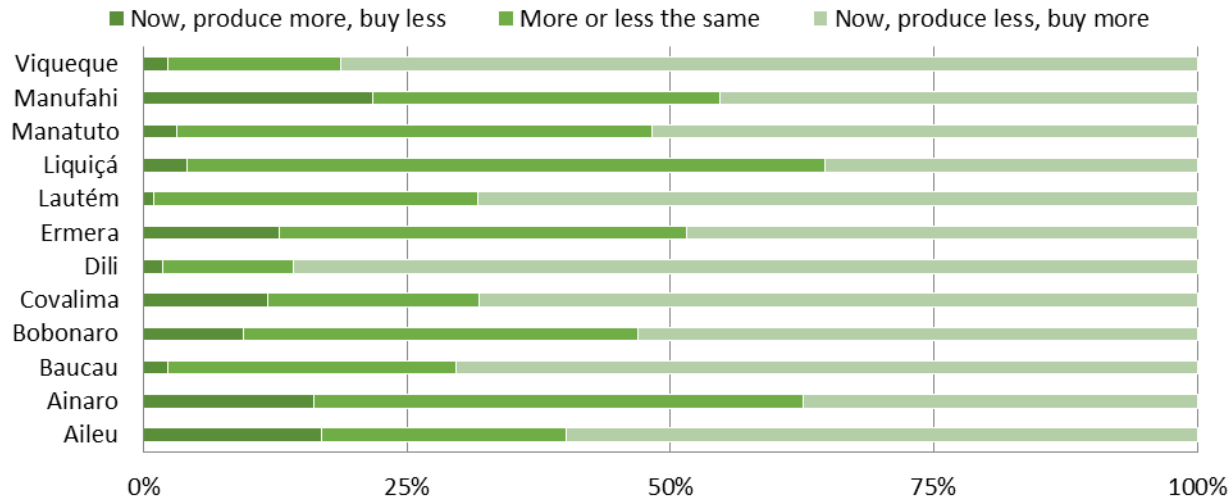
Most parts of Timor-Leste have only one cropping season except areas with bimodal rainfall patterns that allowed second cropping, thus, 90% of the total national production is from the main season.

90% of the key informants confirmed that most of the farming households experienced at least 3 to 4 weeks delayed planting in the 2015/16 main season maize and rice, resultin drought affected households facing longer lean season from the normal November to March.

54% of the surveyed households claimed producing less food this year and therefore will purchase more food this year, while 34% of the households estimated that their supply of food will be more or less the same as last year (Graph 10).

10% of the households assured that their food will be enough with the increase in the production and most likely will reduce their spending on food purchase especially on cereals.

Figure 10: Food availability and sources compared to 2015



47% of the surveyed households are dependent on their own crop production as their primary source of food particularly staples such as maize, tubers, but also legumes and vegetables, while 24% of the households are significantly buying rice, meat and fish from the markets. Particularly the communities in the municipalities of Covalima, Ainaro, Lautem and the off grid areas of Dili with more than 50% of households relying rice from the market.

As mentioned above that 29% of the surveyed households have either one or two main sources of income (farming and animal/livestock rearing), while 28% have only farming. Considering that the huge impact of El Niño was to farming and

livestock, the purchasing power particularly for less resilient households where livelihoods options are very limited was seriously eroded, thus struggle to purchase sufficient basic and nutritious food items. Table 16 is the list of *sucos* where 76 to 100% of the households reported to have serious food shortages from December 2015 to February/March 2016, as well as anticipated that food will not last up to June 2016.

Table 16: Lists of *sucos* with 100% respondents reported of experienced food shortages from December 2015 to February/March 2016

Municipality	Administrative Post	Suco
Aileu	Lequidoe	Bereleu
		Betulau
		Manukasa
Baucau	Quelicai	Afaca
		Guruca
		Letemuno
Bobonaro	Bobonaro	Atu Aben
	Cailaco	Daudo
Covalima	Fatululic	Fatululic
		Taroman
	Fatumean	Beluluik_Leten
	Fohorem	Dato_Rua
	Maucatar	Belecasac
		Holpilat
	Tilomar	Beiseuc
		Casabauc
		Lalawa
		Maudemo
	Zumalai	Lour
		Mape
Dili	Atauro	Biqueli
		Macadade
		Maquili
	Cristo_Rei	Hera
Ermera	Ermera	Humboe
Manufahi	Fatuberlio	Bubususu
		Fahinehan

2.6% of the surveyed households from all municipalities, except for Lautem and Manufahi, expressed positive intention to plant rice within the next three months, with the highest interested households in the municipalities of Viqueque, Bobonaro and Bacau (Table 18). Meanwhile 9.6% doesn't have intention to plant more maize due to water and labor is not available. Among those that intended to plant, 1.1% of them need seeds.

On the other hand, due to water and labor availability 35.9% of the surveyed households do not have an intention to replant. 9% have positive intention to plant maize within the next three months, although 5% of them need seed support particularly the communities in the municipalities of Manufahi, Covalima,

Viqueque and Ainaro (Table 17). In addition, 12% of the surveyed households are planning to plant vegetables, but 8.25 do not have seeds.

Insufficient water and labor are the most common reasons for the households across the country not planning to plant more crops (i.e maize, rice and vegetables), with highest proportion of households mentioning these reasons in the municipalities of Baucau, Bobonaro, Aileu and the off grid areas of Dili.

Given the huge cereal deficit in 2014/15 and additional deficit forecast in the 2015/16 main season, it is suggested that cereals or crop production for the second season should be increased by maximizing areas that have bimodal rainfall, such as areas in the southern highlands and southern lowlands (like in the municipalities of Covalima, Ainaro, Viqueque) and southern lowland areas (Manatuto and Lautem). Other areas to focus on increasing cereal or crop production are areas in the irrigation schemes where the water is available all throughout the year such as the following (Table 17).

Table 17: Lists of irrigation schemes in Timor-Leste

Municipality	Name of Irrigation Schemes	Pottential Area that could be covered (ha)	Estimated area covered for the first season (ha)	% of area that could be covered for the second season rice	Remarks
Ainaro	Raibere	225	100	100%	potential to have 3 cropping
Baucau	Seical	2000	2000	2%	some areas can be maximized for legumes and maize
Bobonaro	Maina I	1000	1000	40%	reduced water volume
	Maina II	1500	1500	2%	some areas can be maximized for plating legumes and maize
	Atabae	180	180	40%	reduced water volume
Covalima	Oebaba (Suai)	2263	300	60%	newly built in 2015
Manatuto	Laclo	500	500	50%	
Manufahi	Caraulun	1030	100	60%	newly built in 2015
Viqueque	Bebui+Belia	1000	1000	30%	

Source: National Directorate on Irrigation and Water Management

Moreover, intensifying crop production during second season and areas where water is available is equivalent to providing more support to farmers particularly on extension services on the right and improved technology, climate change resistant seeds and other inputs to be able to maximize the second season potentials to address the huge deficit and production losses from drought that negatively affected the main season harvest.

Table 18: Seed needs for farmers planning for replanting or plant crops for the next 3 months

Municipality	Not sure			No plan to plant, because no seeds			No plan to plant, because no money to buy seeds			No plan to plant, because of lack of water			No plan to plant, because no time/labor			No plan to plant, other reasons			Has a plan to plant		
	Maize	Rice	Veg	Maize	Rice	Veg	Maize	Rice	Veg	Maize	Rice	Veg	Maize	Rice	Veg	Maize	Rice	Veg	Maize	Rice	Veg
Aileu	4.4%	0.5%	2.3%	0.5%	0.2%	5.5%	1.0%	0.2%	2.9%	54.5%	4.1%	28.8%	4.4%	0.5%	5.8%	14.6%	0.2%	6.5%	1.6%	0.8%	20.3%
Ainaro	8.6%	2.5%	9.0%	1.7%	0.2%	12.4%	1.4%	0.0%	11.1%	27.4%	0.5%	10.1%	1.7%	0.3%	3.5%	16.2%	0.0%	5.7%	11.7%	0.5%	14.3%
Baucau	8.6%	3.6%	4.1%	4.1%	3.6%	4.1%	4.1%	0.7%	4.8%	49.8%	24.0%	26.6%	2.6%	1.8%	2.1%	6.4%	3.3%	2.8%	6.4%	5.4%	14%
Bobonaro	4.4%	1.2%	2.1%	3.4%	0.5%	5.1%	4.2%	1.2%	5.1%	41.1%	16.3%	30.6%	7.4%	5.1%	5.0%	12.4%	4.4%	6.4%	9.4%	6.0%	14.9%
Covalima	20.9%	3.0%	12.6%	4.6%	1.1%	3.8%	3.9%	1.1%	5.2%	20.9%	10.2%	14.3%	2.8%	1.1%	2.7%	7.7%	4.6%	4.3%	16.5%	2.7%	14%
Dili	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	3.1%	0.3%	1.0%	49.8%	4.7%	46.8%	4.7%	0.0%	4.4%	14.9%	0.3%	5.1%	11.9%	0.7%	11.2%
Ermera	6.6%	1.4%	3.5%	3.9%	0.2%	3.1%	5.0%	0.0%	4.3%	41.8%	7.5%	29.0%	5.2%	1.0%	4.1%	7.0%	0.4%	2.7%	5.6%	0.4%	9.5%
Lautém	13.3%	2.4%	5.8%	0.8%	0.2%	1.4%	0.0%	0.0%	0.8%	22.9%	2.2%	15.1%	2.2%	0.8%	0.2%	7.2%	0.8%	2.0%	1.9%	0.0%	1.7%
Liquiçá	16.1%	0.0%	4.1%	1.1%	0.0%	1.4%	3.8%	0.0%	5.6%	22.2%	0.0%	11.3%	2.3%	0.0%	2.4%	8.6%	0.3%	3.8%	4.2%	0.3%	3.3%
Manatuto	7.1%	4.8%	3.1%	6.0%	1.9%	5.0%	4.4%	0.4%	5.4%	27.8%	16.8%	16.8%	9.8%	1.0%	5.8%	5.6%	4.1%	3.1%	6.4%	3.3%	10%
Manufahi	1.8%	0.3%	0.6%	0.4%	0.0%	0.4%	0.4%	0.0%	0.8%	5.6%	1.4%	5.3%	2.6%	0.0%	1.7%	17.6%	0.1%	2.9%	19.5%	0.0%	23.2%
Viqueque	10.4%	3.9%	5.8%	2.6%	1.2%	3.0%	1.9%	0.4%	3.2%	36.5%	18.2%	25.3%	5.1%	1.4%	2.5%	10.0%	4.2%	9.3%	13.0%	11.8%	4.6%
All municipalities	9%	2%	4.7%	2.4%	0.8%	3.9%	2.6%	0.3%	4.3%	31.9%	8.5%	20%	4%	1.1%	3.2%	10.7%	1.9%	4.5%	9.1%	2.6%	12%

Conclusion and Recommended Actions

The key findings of the survey highlighted here include some of the recommended collaborative actions that the government, its partners and other stakeholders should consider to immediately provide targeted and efficient responses to the affected families.

Immediate Needs

Table 19: Actions required addressing the immediate needs of the affected households in order not to further deteriorate household livelihoods and food security.

Key Findings	Immediate Response Needed
78 % (estimated to 122,345 households) of the households are negatively impacted by drought	Maintain the inter-ministerial coordination to intensively monitor the impact of the El Niño and potential impact of La Niña to all communities and households food security
40.6% (estimated to 62,717 households) experienced food shortages from December 2015 to Feb/Mar2016 45.9% (estimated to 68,183 households) expecting to experience food shortages in Mar/April to June 2016	Immediate Food basket (nutritious food) distribution targeted to households already experienced food shortages in December 2015 and further experience food shortages until June 2016 Timely delivery of the existing government social protection mechanisms that is already in place that can be supported by the humanitarian agencies either for renewed financial assistance and technical assistance for proper targeting such as the elderly, bolsa da mae, veterans, people with disability payments. Ensure that school feeding is operational by the timely release of funds to all schools in the country.
21% (estimated to 29,050 households) of the drought affected households reported with sick animals 48% (estimated to 60,382 households) of the drought affected households reported animal's death	To conduct further investigation to the household with sick animals as target to receive immediate response on water, feeds and vaccination as well as target beneficiaries for improve livestock/animal husbandry system and management Establish water harvesting/ reservoir to collect rain water or dig wells in the drought affected areas.
9% (estimated 11,000 households) of the drought affected households intended to plant more maize and rice for the next months to	Immediate Seed distribution to farmers who do not have seeds and money to buy seeds but intends to do replanting, and for the

come, but lack seeds.	second season
Poor crop conditions (Maize: 51% partially growing & 10% failure; Rice: 43 % partially growing & 6% failure; Vegetables: 49% partially growing & 4.5% failure)	Expand and intensify planting in areas with second season and areas with available water (i.e utilize the existing irrigation system that has water) Continuous monitoring and publication of agrometeorological information (i.e precipitation, winds) targeting farmer.

Medium and Long term actions required to restore household livelihoods and increase communities' resilience.

With the visible changing climate pattern in Timor-Leste, there is an urgent need to seriously promote sustainable household level food and production and water usages. Therefore the following actions are recommended:

- Expand the promotion of climate smart agriculture practices and appropriate water conservation systems (i.e conservation agriculture, rain water harvesting, keyhole gardening, permaculture/permagardening);
- A shift towards a use of drought resistant seed and crops that require less water (i.e *batar lais, batar ain naruk*);
- Implement the seed system to secure seed availability and access by the communities through private sector;
- To promote or upscale nutrition sensitive agriculture through provision of support for diversified household food production especially increasing production of protein based food; implement the Social Behaviour Change Communication (SBCC) activities;
- Promote improved animal husbandry system and management targeting households with main sources of income was from livestock;
- Develop private sector to invest in input supply (i.e seeds, feed, vaccines, medicines, market) for agriculture and animal husbandry;
- Review and promote water reservoir system to harvest rain water to ensure that local food production and livestock will not jeopardized;
- Protection of water sources and water systems to improve household sustainable access to clean water;
- Review areas that are still has potential for fish farming (i.e areas with good access to water) and promote sustainable aquaculture system.

For early response and actions it is important to consider preparedness related actions such as:

- Establish or strengthen coordinated monitoring and early warning system to regularly monitor and assess impact of the changing climate pattern to the food and nutrition security in Timor-Leste, this include the strengthening of the agrometeorological data collection and utilization to better alert farmers.

- Review the food basket distribution system to possibly consider most efficient and mechanism to boast local markets (i.e cash transfer, food vouchers)
- Given the important role of women in agriculture, it is important that their empowerment as producers is also considered in future planning to address food insecurity and undernutrition.

Annex 1: Summary Findings at Municipality Level

Aileu

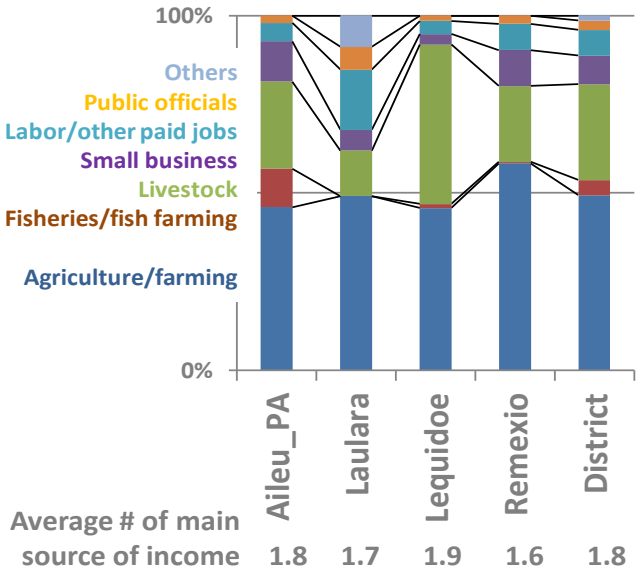
General Information

# surveyed households	617
% women headed households	9%
# sucos	31
% surveyed suco	100%

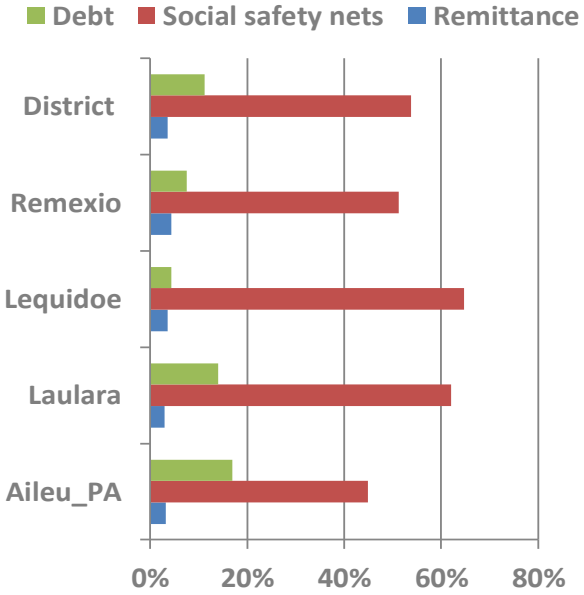
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Aileu_PA	7.7	0.5	1.2	0.2
Laulara	7.3	0.3	0.5	0.1
Lequidoe	7.0	0.4	1.1	0.2
Remexio	6.2	0.6	1.3	0.6
District	7.1	0.4	1.1	0.3

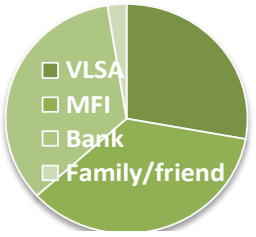
Main source of income



Access to other income/cash

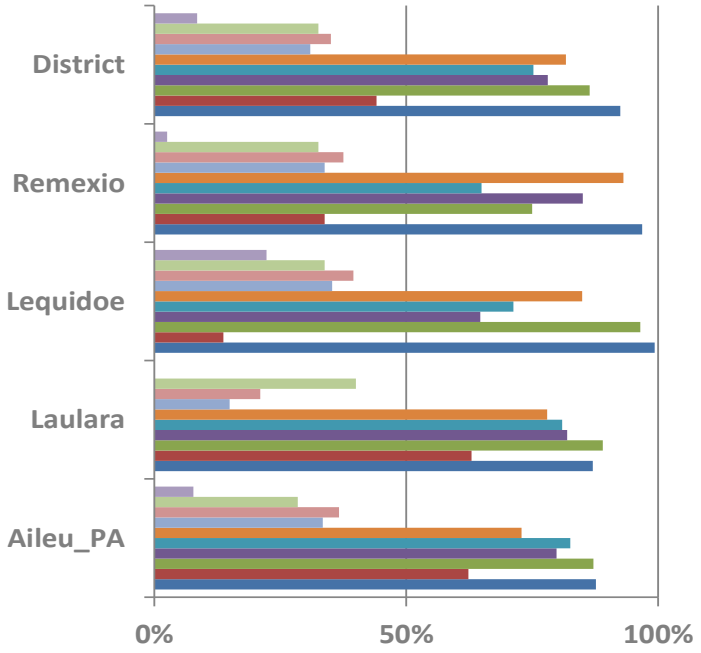


Social safety nets



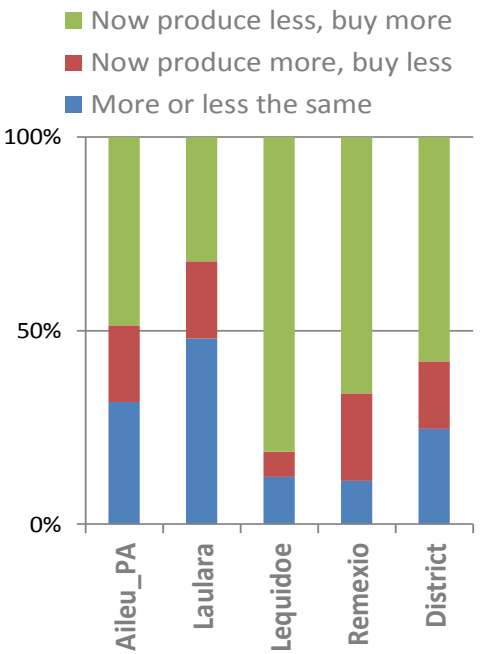
Sources of Credit

Foods consumed and sources



	% HH Produced	Procured
Others	4%	31%
Fish/seafoods	20%	70%
Eggs	29%	70%
Meats	25%	70%
Fruits	82%	31%
Vegetables	82%	38%
Legume beans	78%	30%
Roots/tubers	92%	27%
Rice	33%	49%
Maize	92%	25%

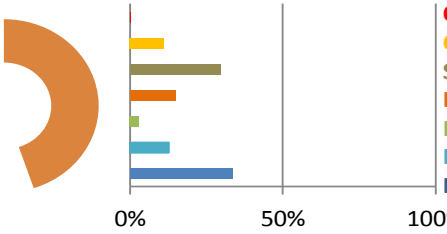
Compare to last year..



% HHs reporting impacted by drought

% HHs reporting of experienced food insecurity

Past 3-months

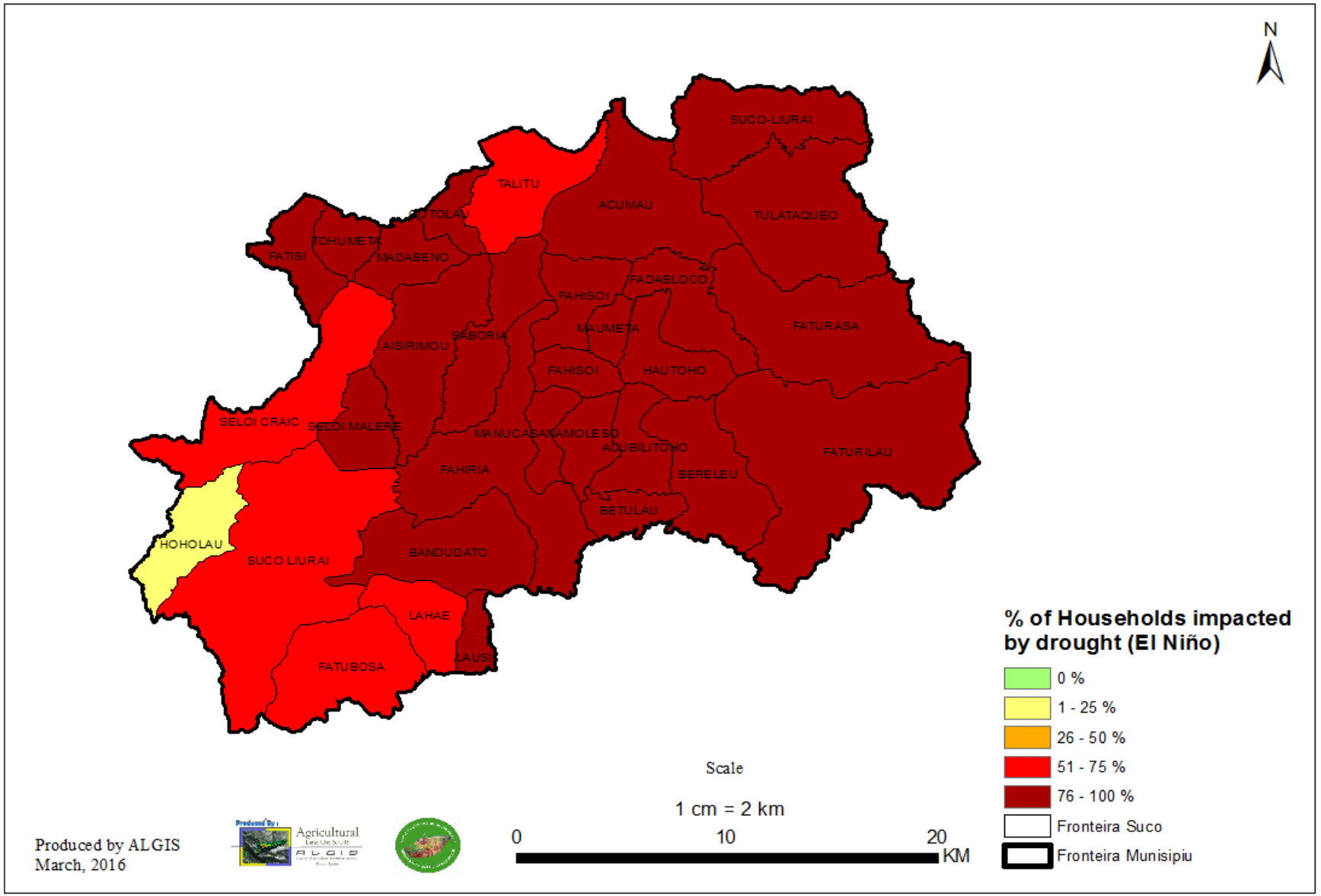


Coping strategy

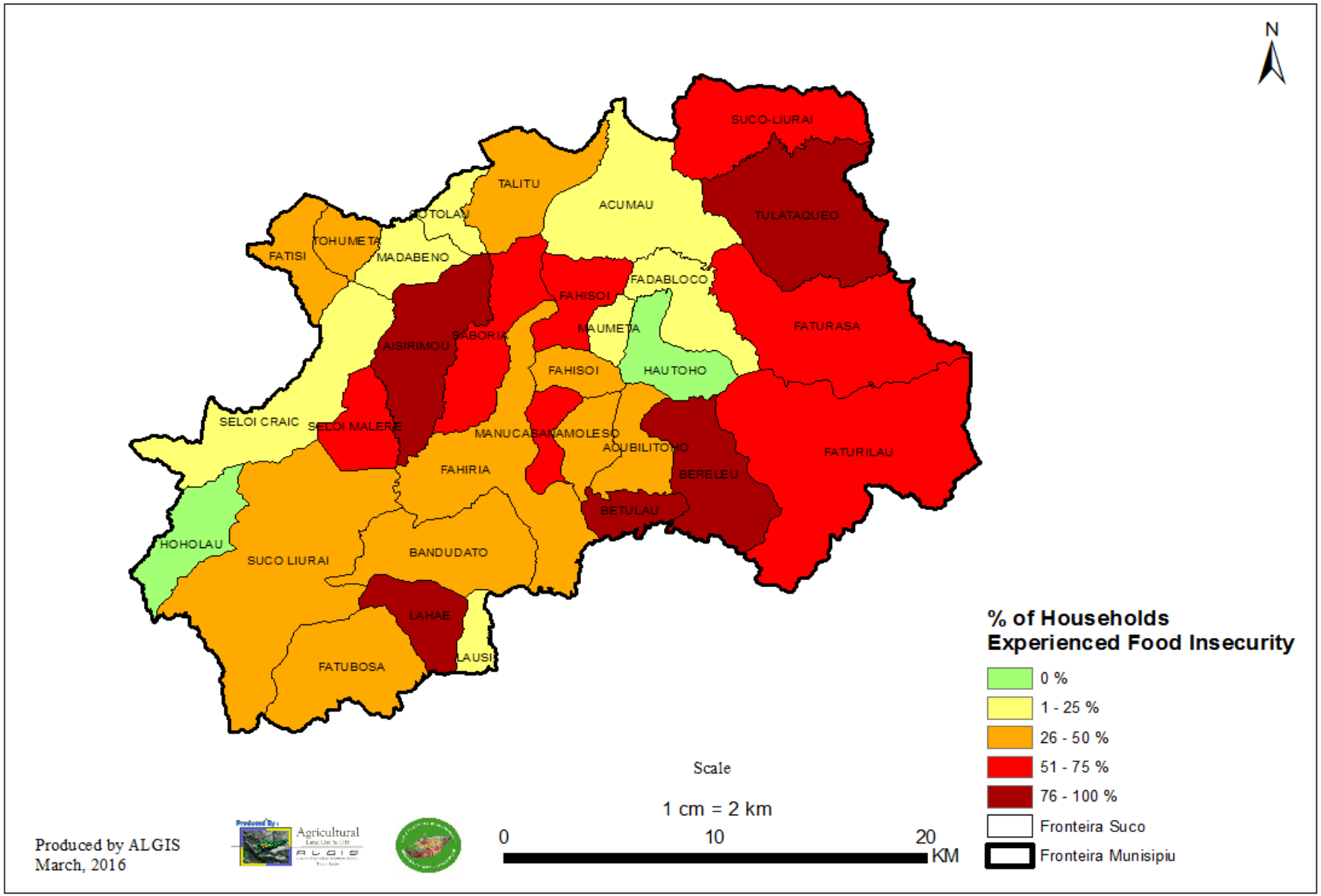
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

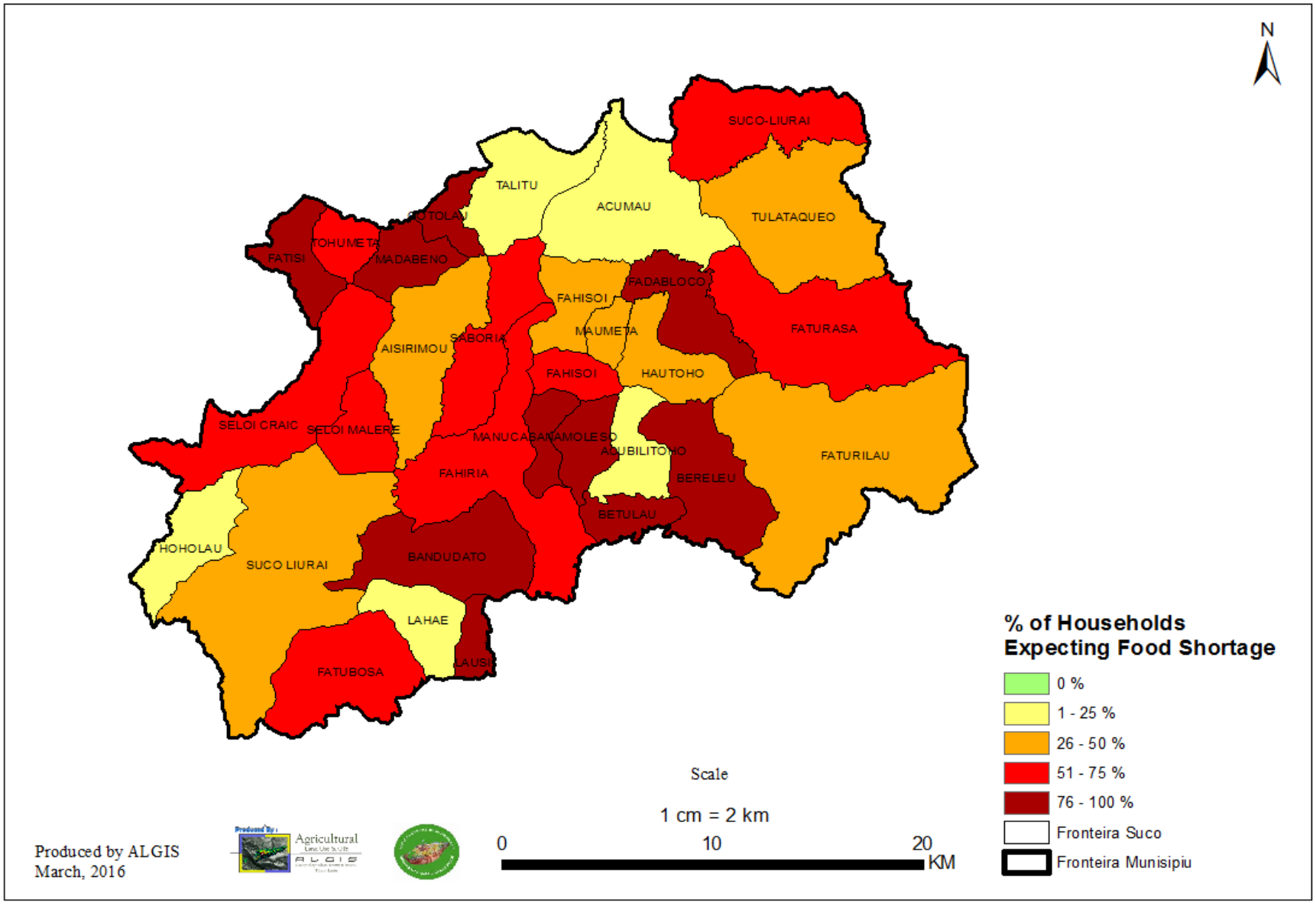
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



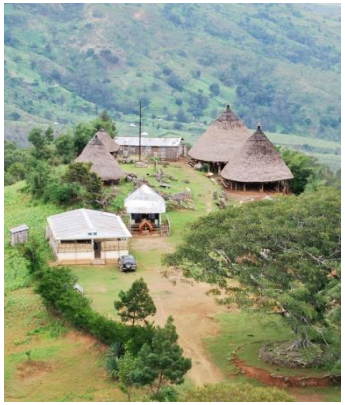
Ainaro

General Information

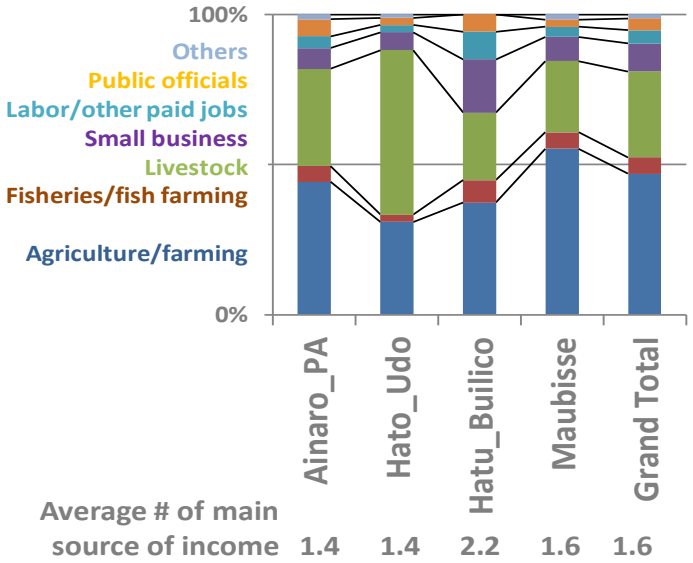
# surveyed households	631
% women headed households	7%
# sucos	21
% surveyed suco	100%

Profile respondent HHs

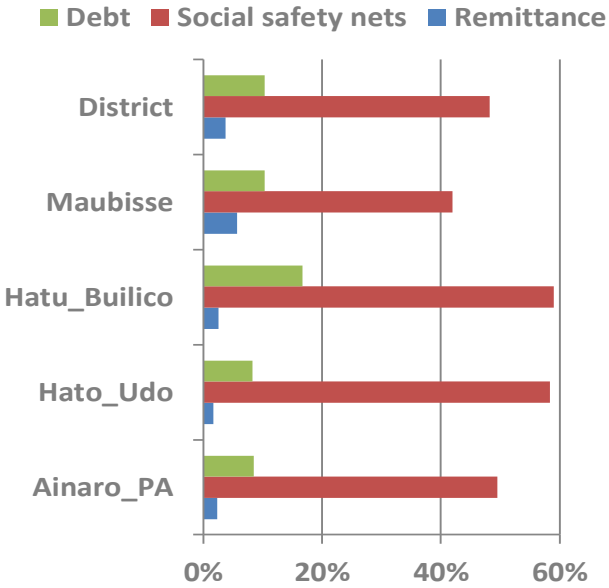
	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Ainaro_PA	7.0	0.3	1.3	0.4
Hato_Udo	7.1	0.4	0.9	1.0
Hatu_Builico	8.0	0.5	1.5	0.3
Maubisse	7.1	0.6	1.5	0.2
District	7.2	0.5	1.4	0.4

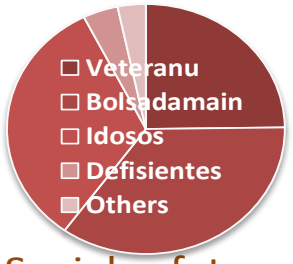


Main source of income

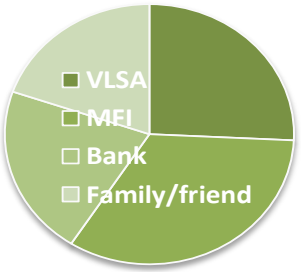


Access to other income/cash



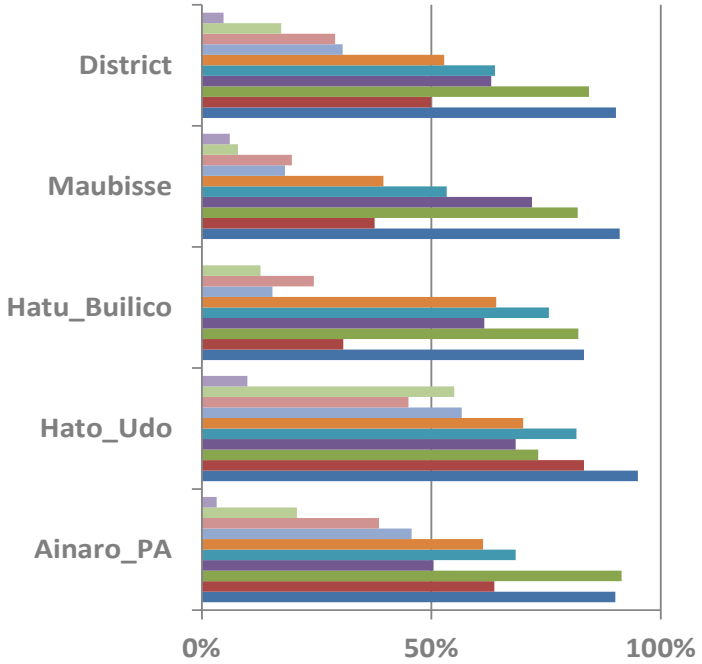


Social safety nets



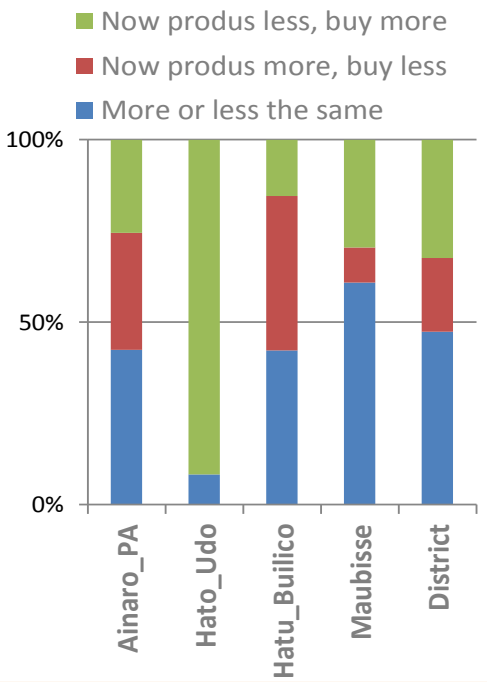
Sources of Credit

Foods consumed and sources



	% HH Produced	% HH Procured
Others	3%	10%
Fish/seafoods	6%	33%
Eggs	22%	27%
Meats	9%	57%
Fruits	50%	20%
Vegetables	58%	32%
Legume beans	57%	17%
Roots/tubers	85%	19%
Rice	10%	54%
Maize	85%	23%

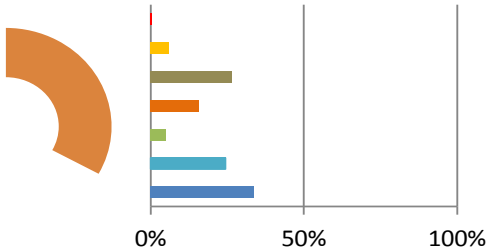
Compare to last year..



% HHs reporting impacted by drought

% HHs reporting of experienced food insecurity

Past 3-months

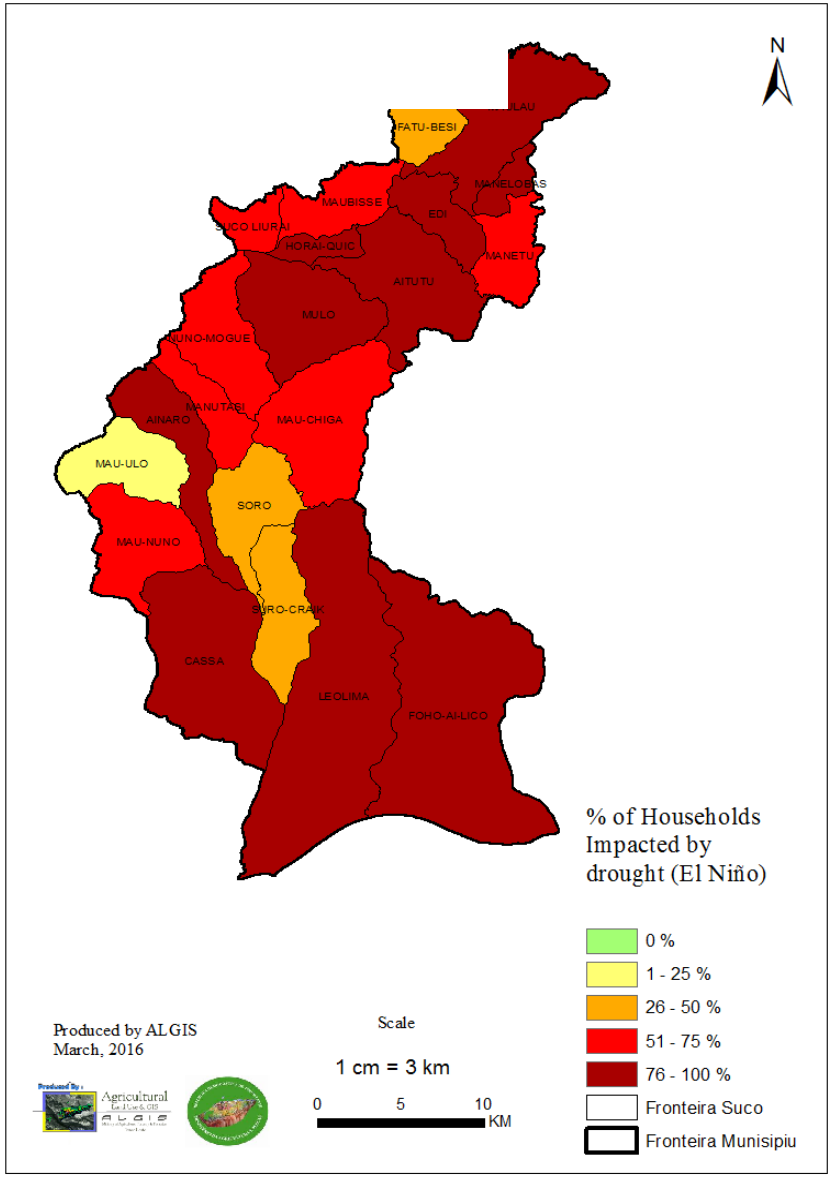


Coping strategy

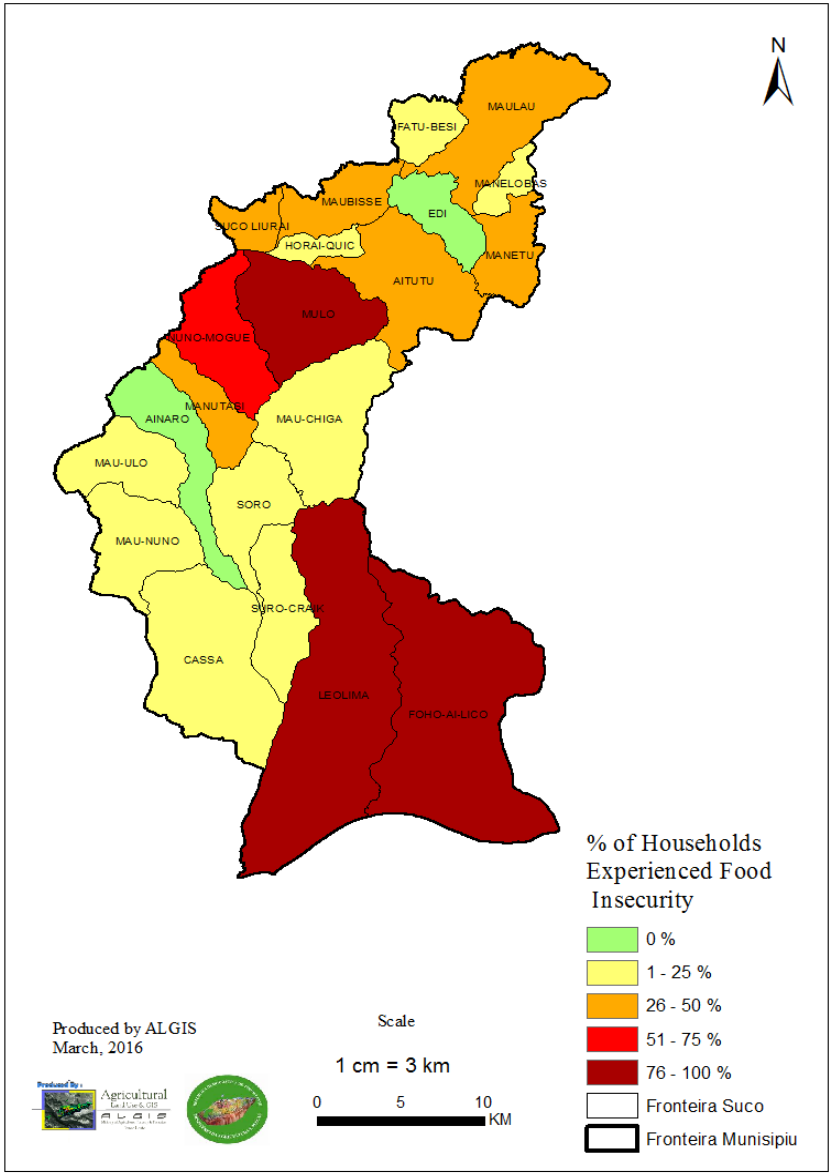
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

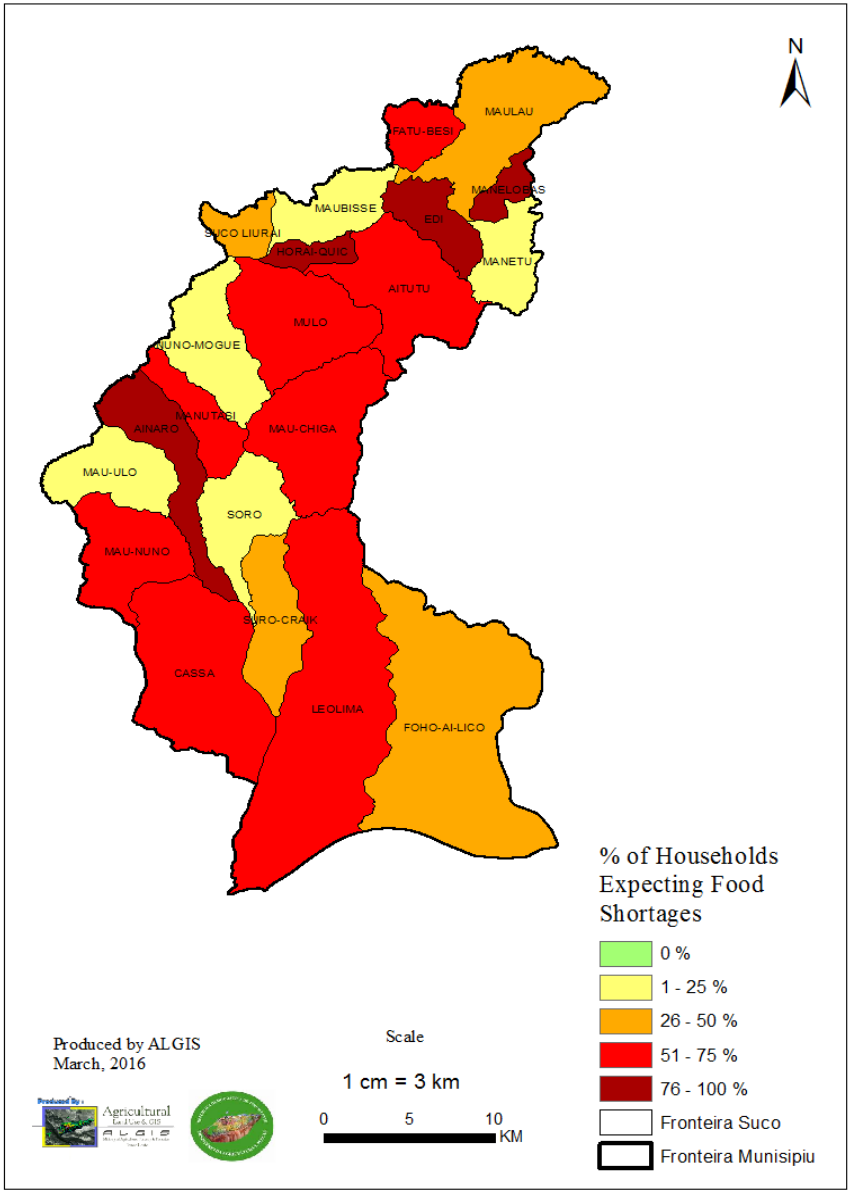
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Baucau

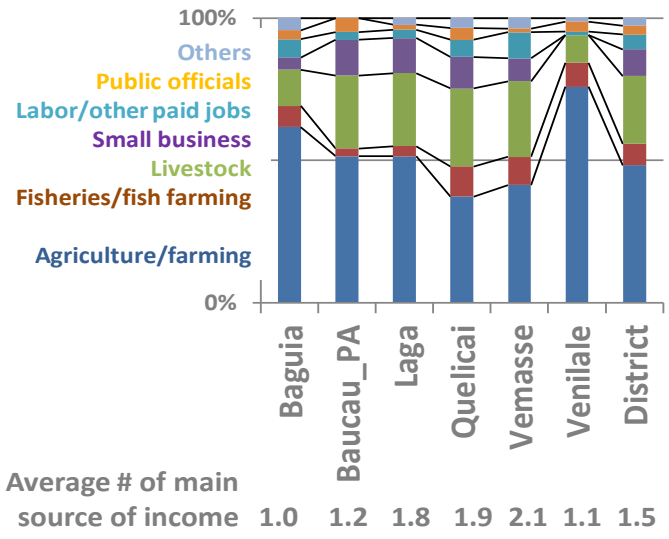
General Information

# surveyed households	608
% women headed households	5%
# sucos	59
% surveyed suco	100%

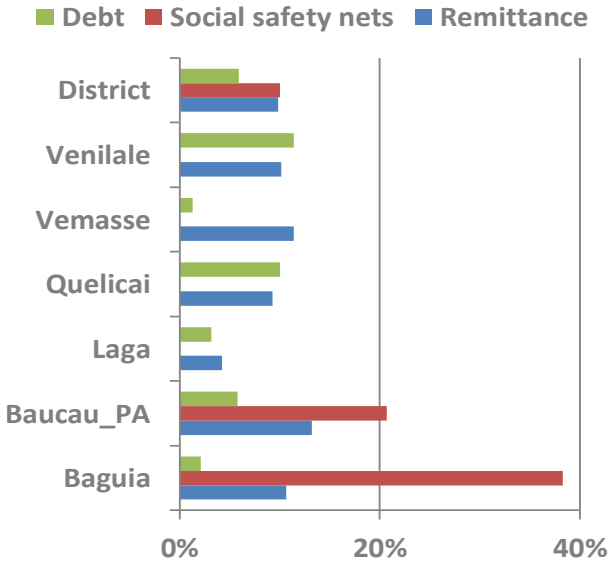
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Baguia	6.4	0.3	1.3	0.2
Baucau	7.2	0.3	1.3	0.2
Laga	7.0	0.2	1.0	0.2
Quelicai	7.2	0.3	1.1	0.3
Vemasse	7.1	0.3	1.6	1.1
Venilale	6.8	0.3	1.2	0.1
District	7.0	0.3	1.2	0.3

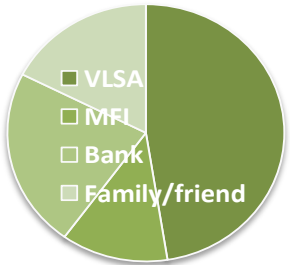
Main source of income



Access to other income/cash

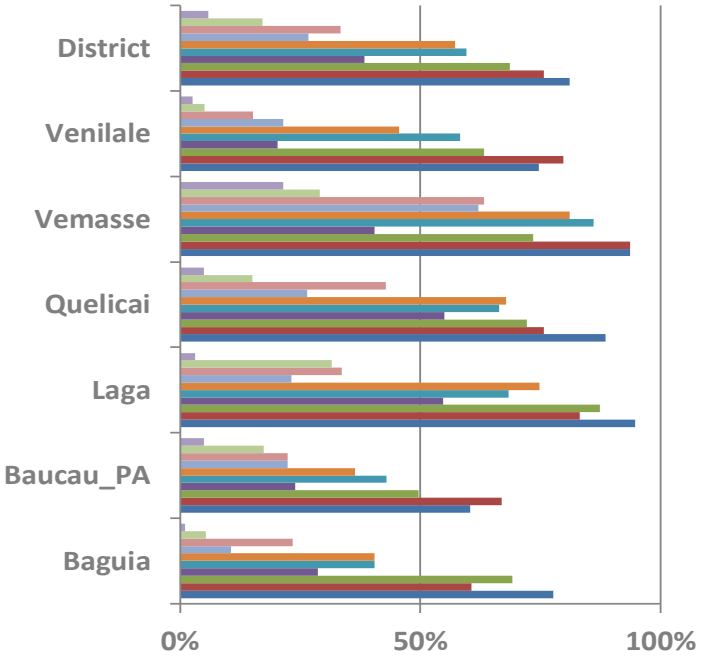


Social safety nets



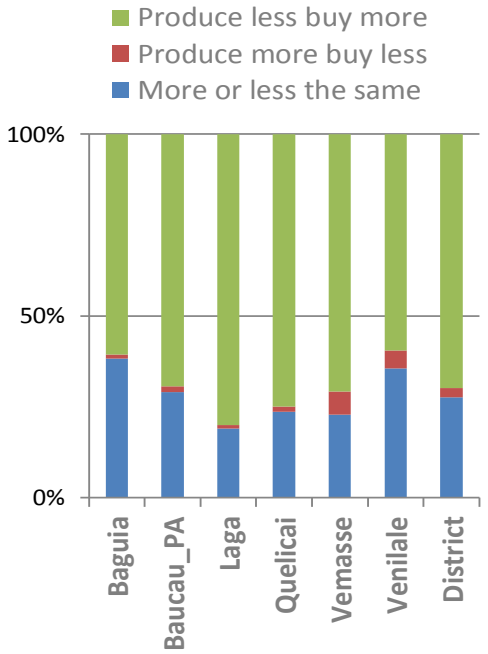
Source of Credit

Foods consumed and sources

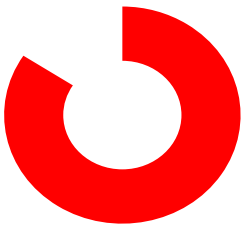


	% HH	
	Produced	Procured
Others	4%	16%
Fish/seafoods	5%	50%
Eggs	23%	38%
Meats	12%	51%
Fruits	51%	20%
Vegetables	45%	36%
Legume beans	34%	14%
Roots/tubers	62%	15%
Rice	62%	37%
Maize	80%	20%

Compare to last year..

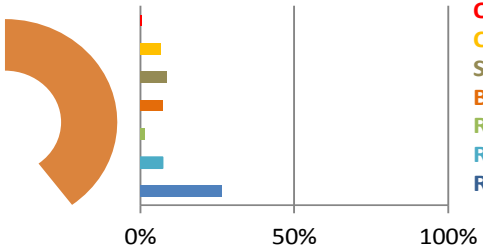


% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

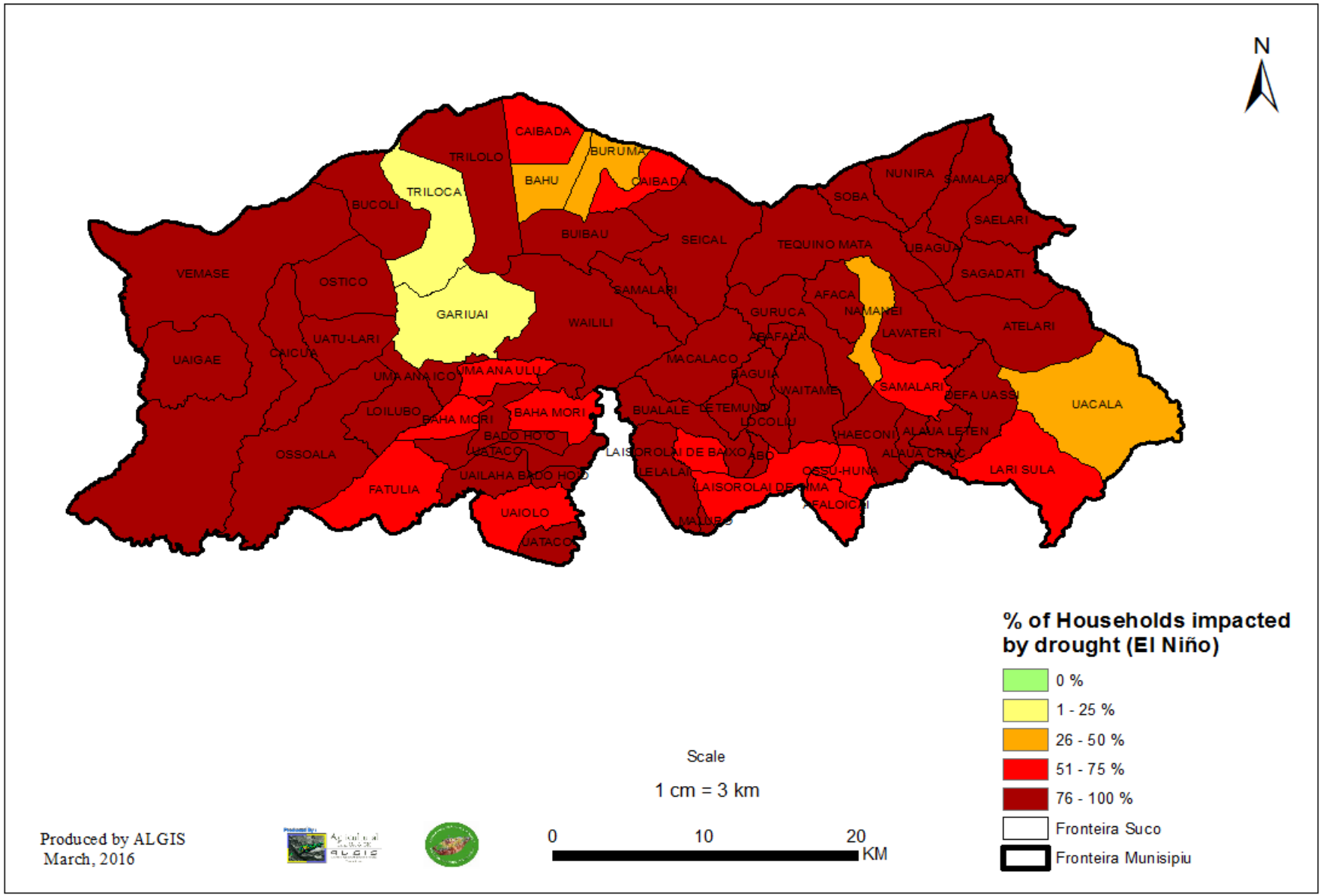


Coping strategy

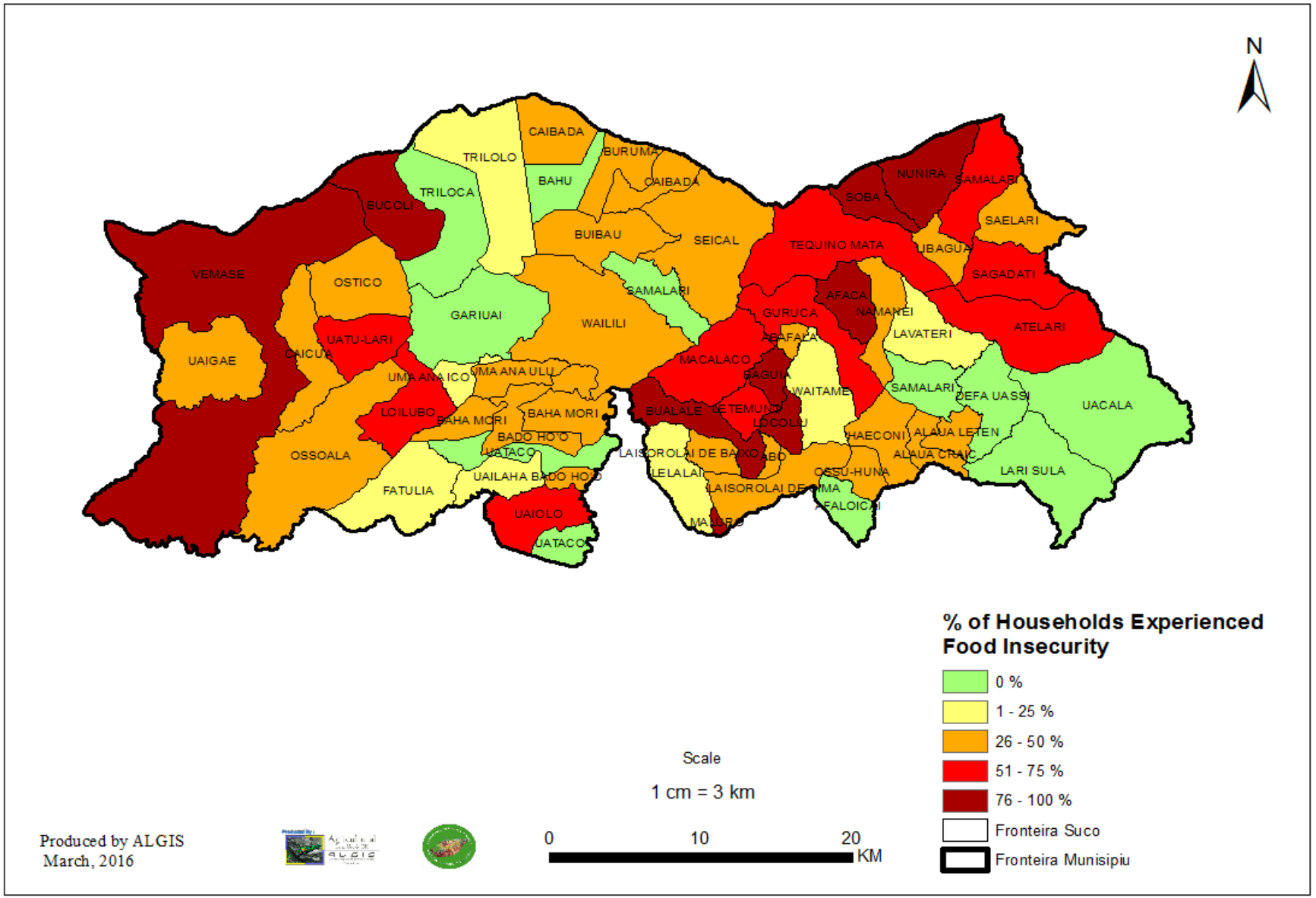
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

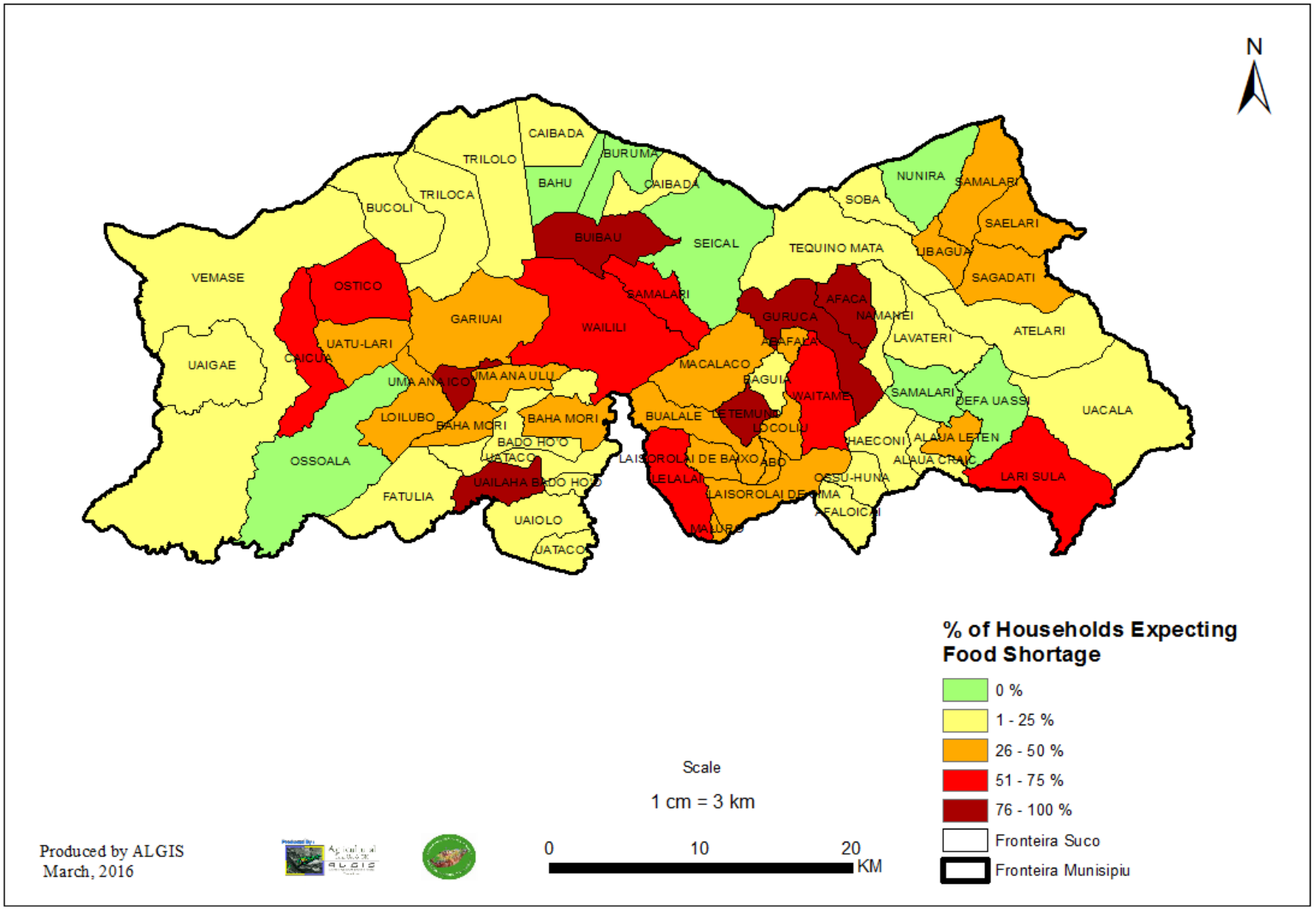
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Bobonaro

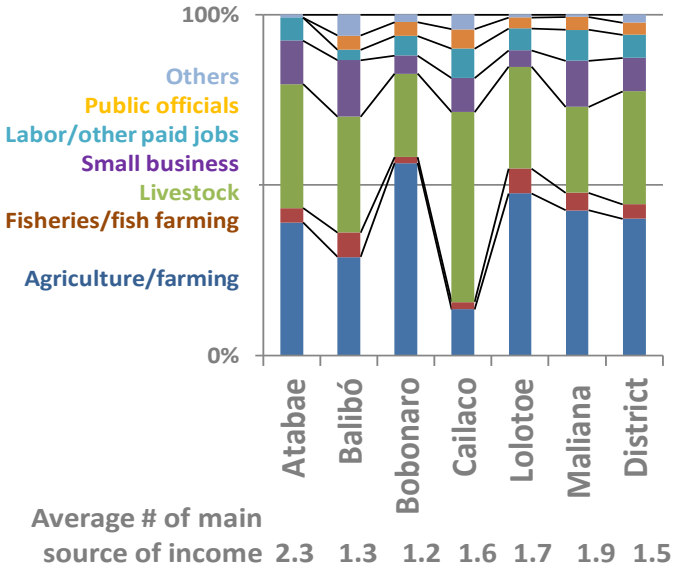
General Information

# surveyed households	579
% women headed households	13%
# sucos	50
# (%) surveyed suco	46 (92%)

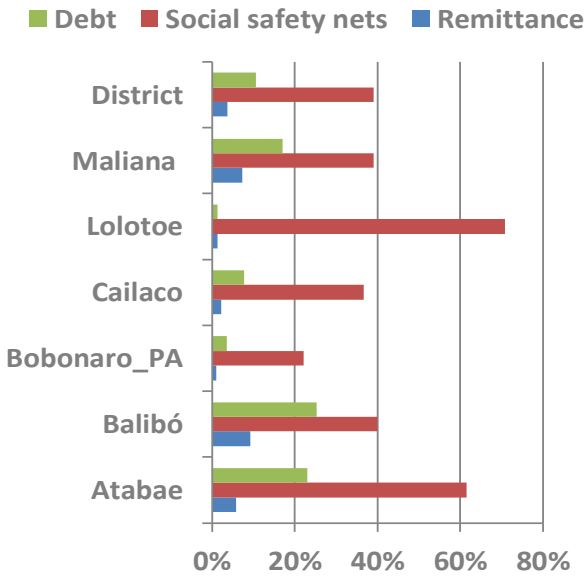
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Atabae	5.9	0.6	1.1	0.1
Balibó	5.7	0.2	0.8	0.0
Bobonaro	6.4	0.4	1.1	0.1
Cailaco	6.5	0.3	1.3	0.2
Lolotoe	6.4	0.3	0.9	0.2
Maliana	6.3	0.2	1.0	0.2
District	6.3	0.4	1.0	0.1

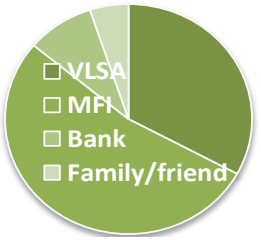
Main source of income



Access to other income/cash

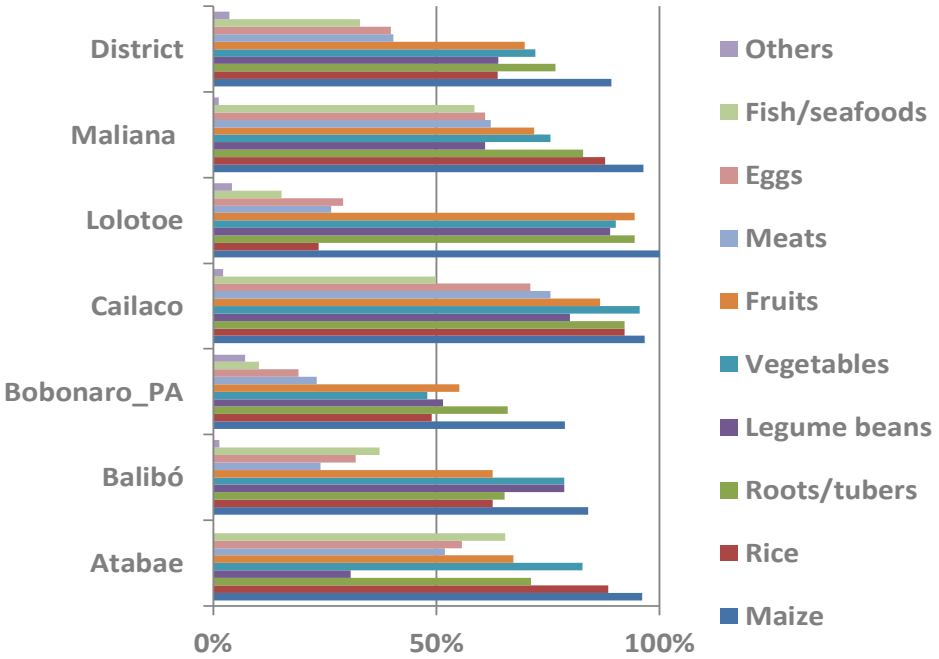


Social safety nets



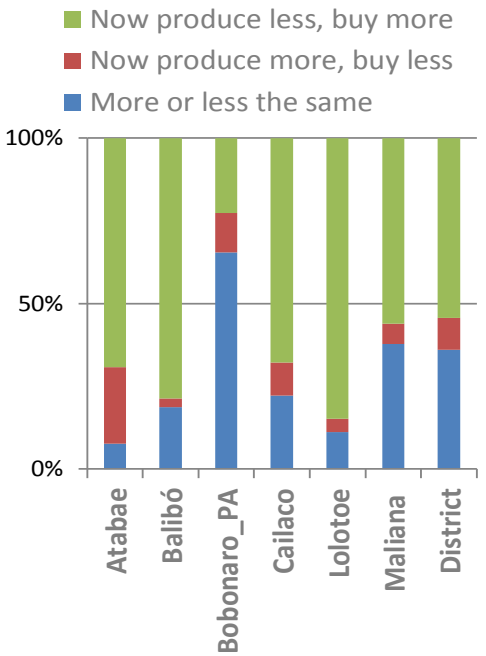
Source of Credit

Foods consumed and sources



	% HH	
	Produced	Procured
Others	2%	11%
Fish/seafoods	7%	55%
Eggs	30%	35%
Meats	23%	47%
Fruits	65%	15%
Vegetables	67%	27%
Legume beans	62%	10%
Roots/tubers	75%	11%
Rice	39%	44%
Maize	88%	16%

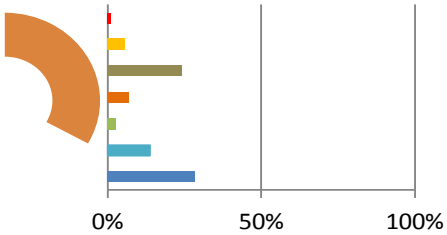
Compare to last year..



% HHs reporting impacted by drought

% HHs reporting of experienced food insecurity

Past 3-months

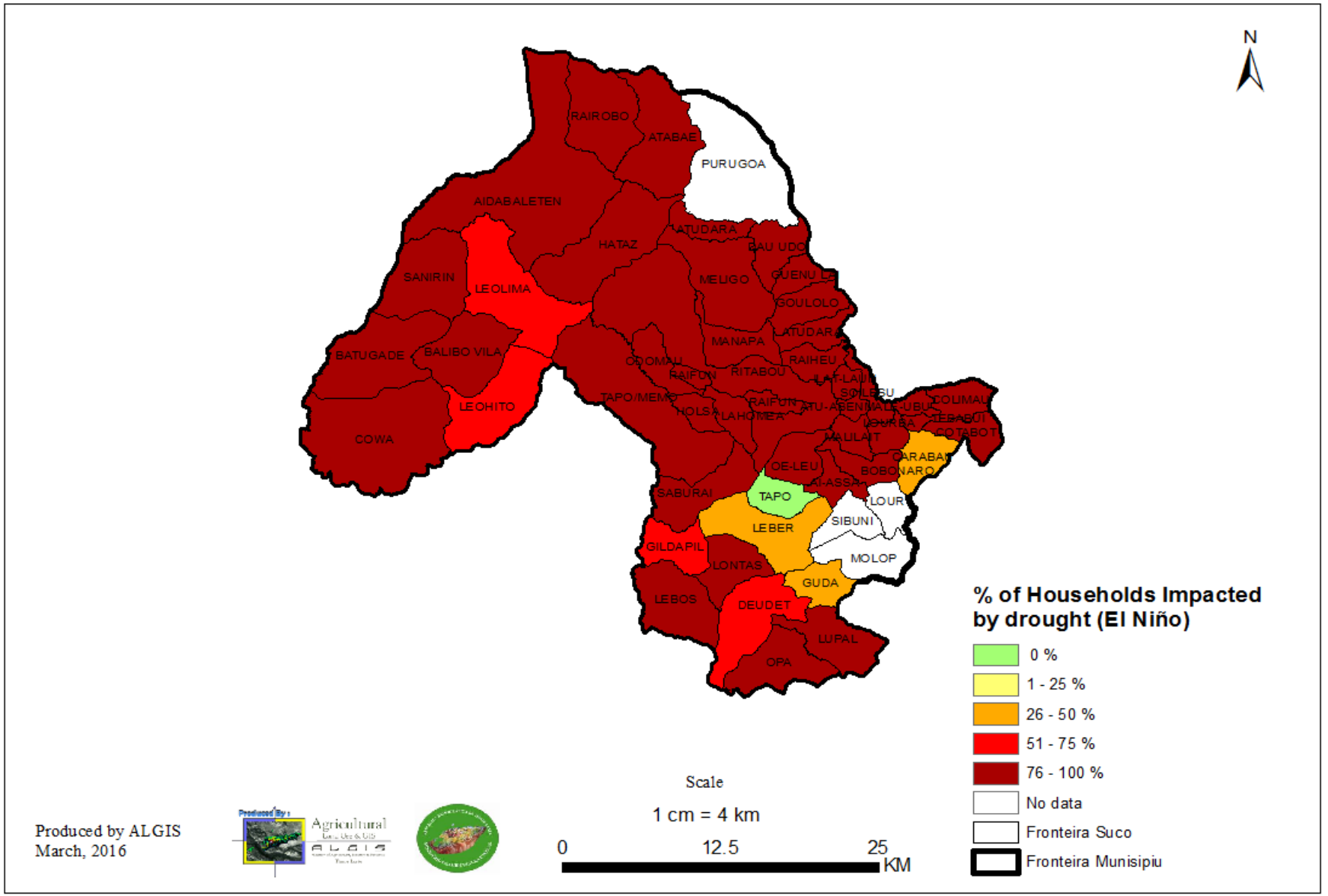


Coping strategy

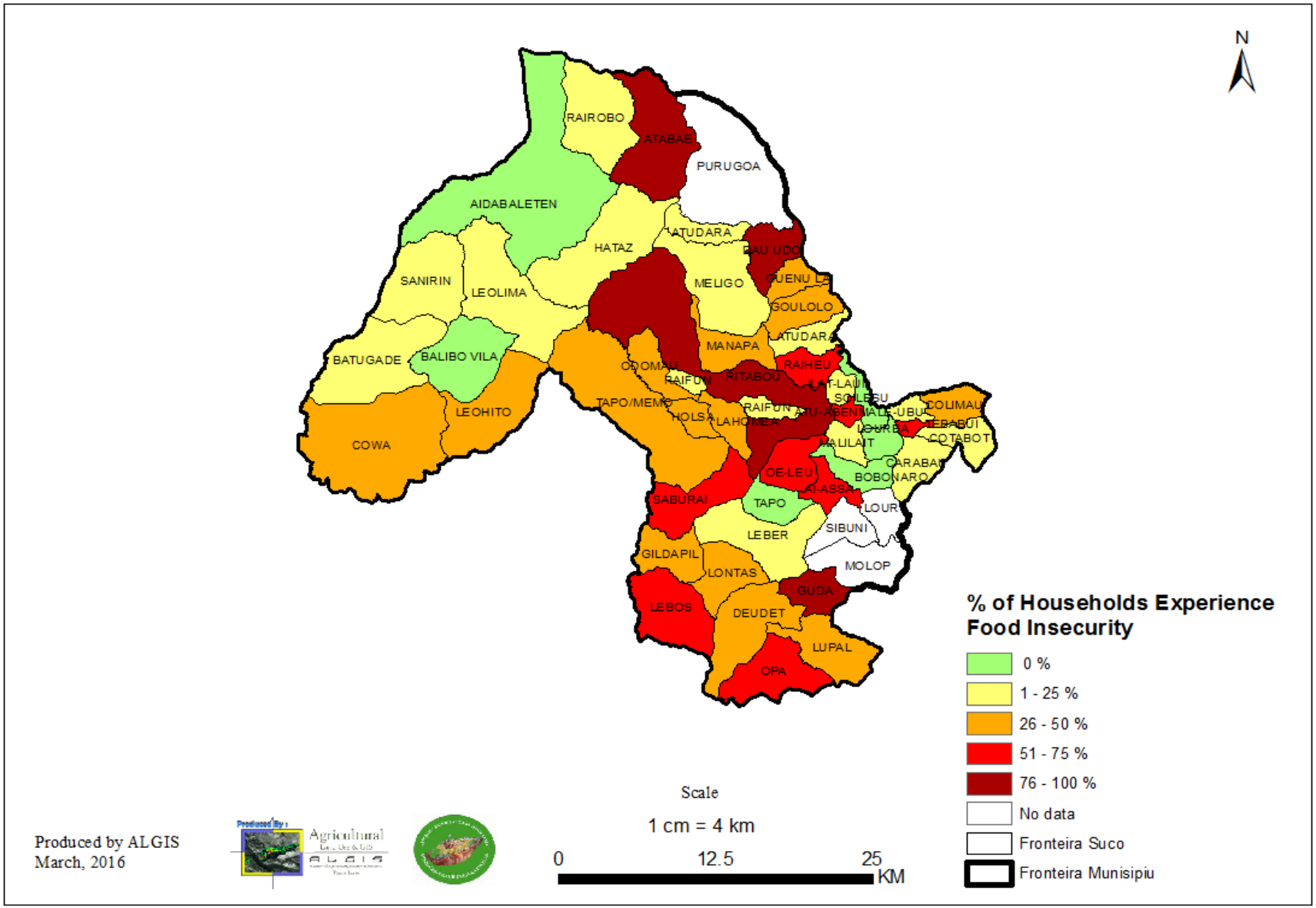
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequenciesmeals
- Relied on less preferred foods

Next 3-months

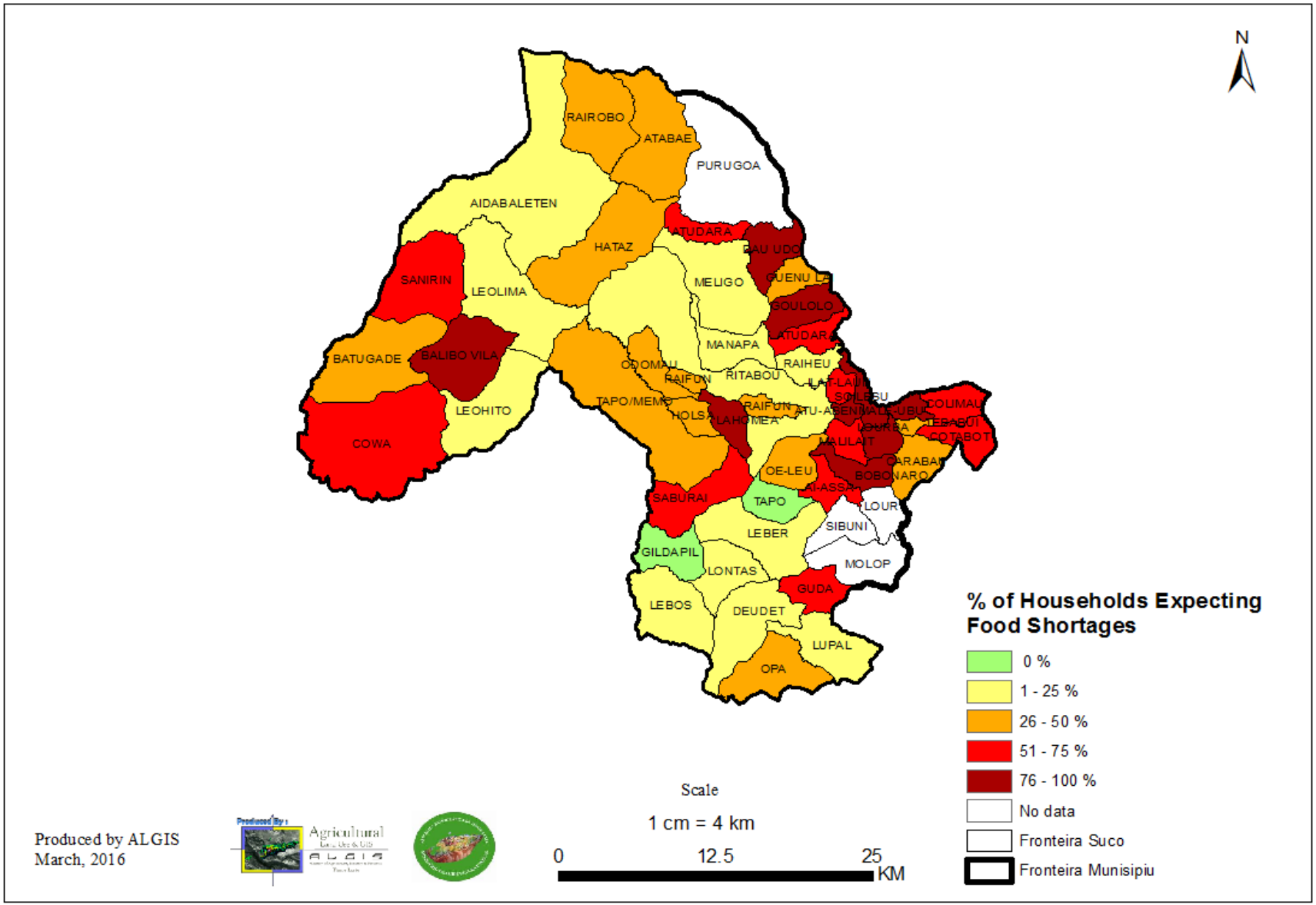
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Covalima

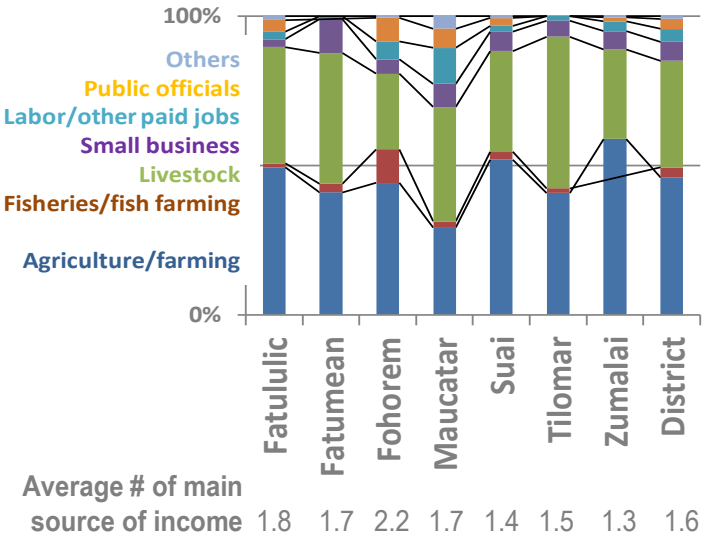
General Information

# surveyed households	634
% women headed households	9%
# sucos	30
% surveyed suco	100%

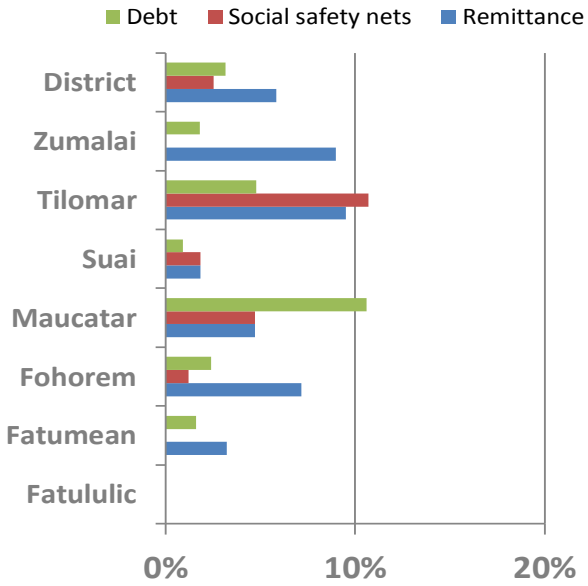
Profile respondent HHs

	Average # HH members	Average # pregnant woman per HH	Average # of children under-5 per HH	Average # of disable person per HH
Fatululic	6.1	0.4	0.7	0.3
Fatumean	5.4	0.4	0.7	0.1
Fohorem	6.8	0.2	0.5	0.1
Maucatar	6.2	0.2	1.4	1.4
Suai	6.6	0.3	0.7	0.1
Tilomar	5.9	0.2	0.8	0.1
Zumalai	5.9	0.4	1.0	0.2
District	6.1	0.3	0.9	0.3

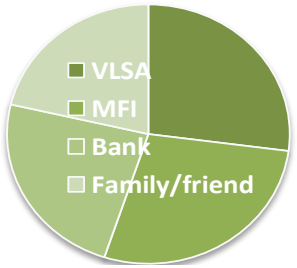
Main source of income



Access to other income/cash

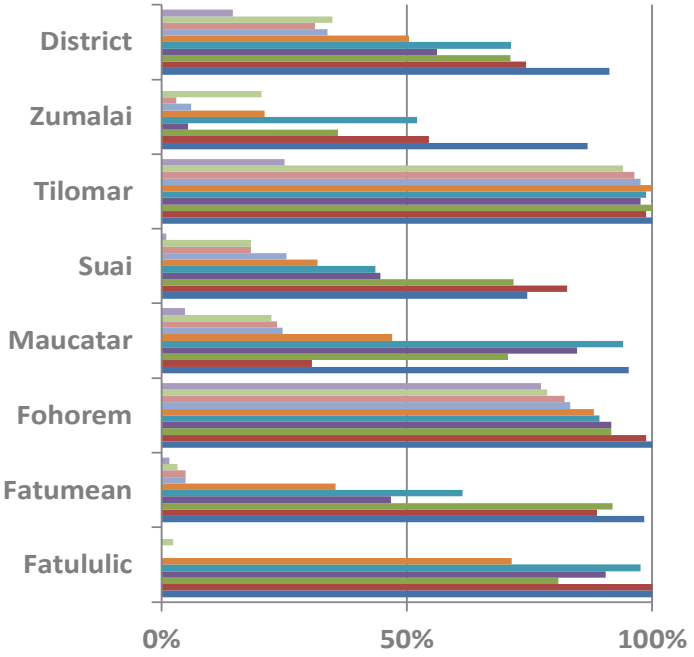


Social safety nets



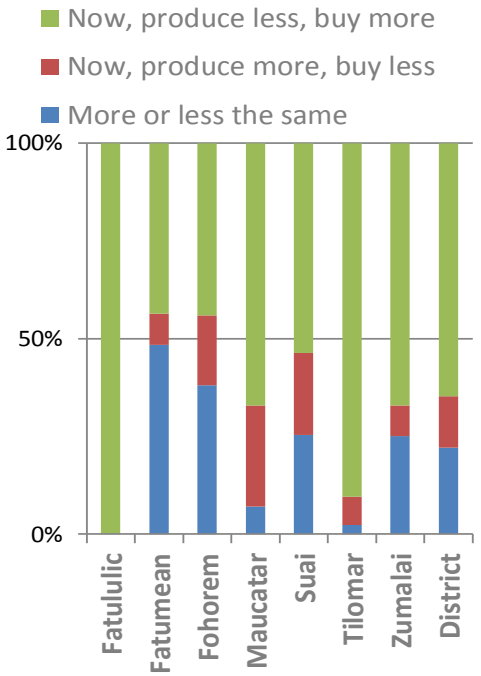
Source of Credit

Foods consumed and sources

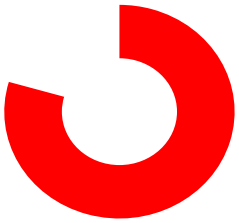


	% HH Produced	Procured
Others	18%	19%
Fish/seafoods	26%	57%
Eggs	29%	41%
Meats	30%	52%
Fruits	55%	33%
Vegetables	67%	44%
Legume beans	60%	29%
Roots/tubers	79%	29%
Rice	62%	58%
Maize	95%	33%

Compare to last year..

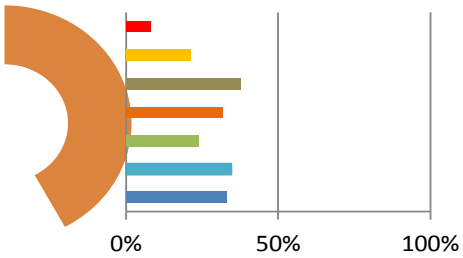


% HHs reporting impacted by drought



% HHs reporting of food insecurity experience

Past 3-months

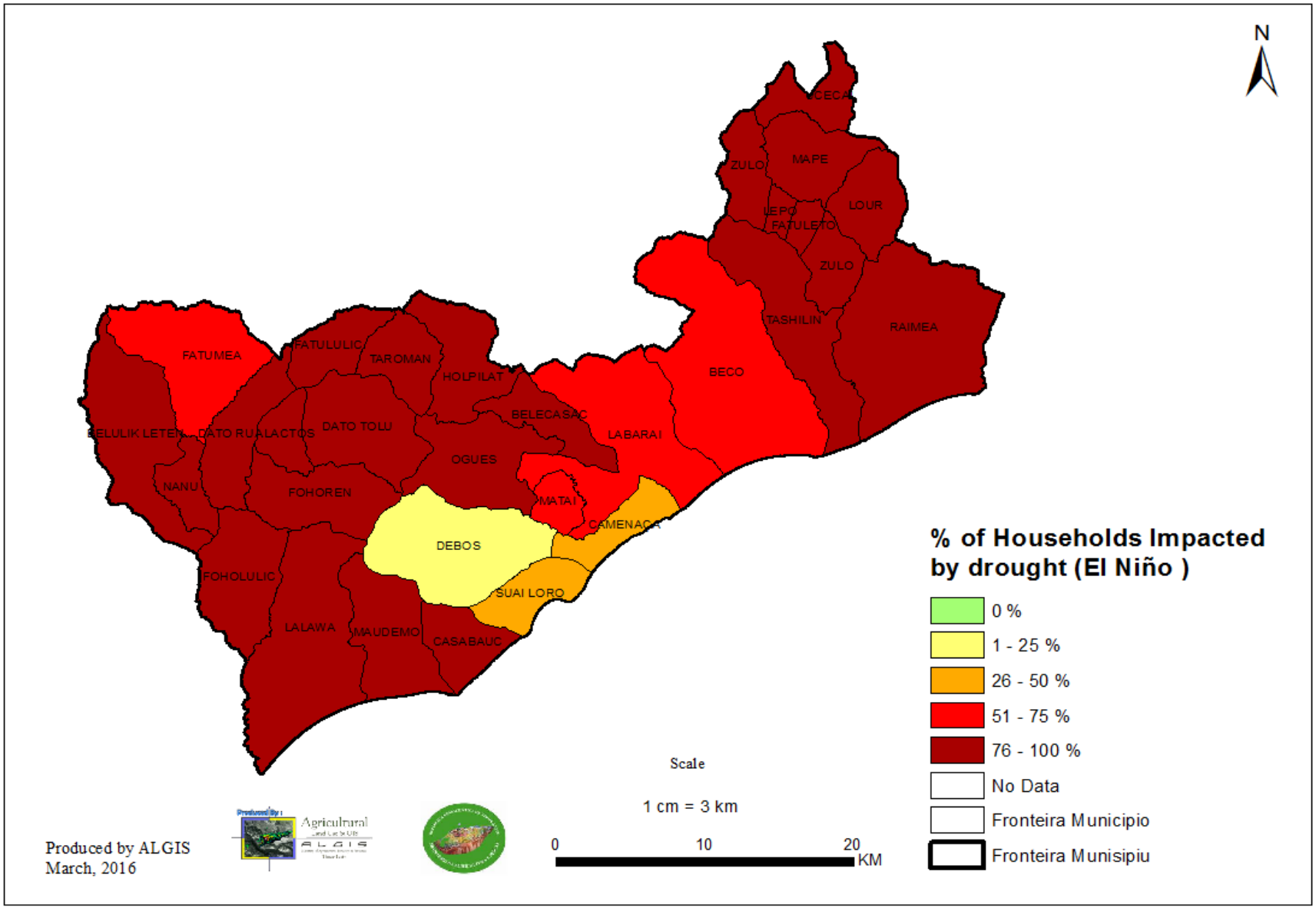


Coping strategy

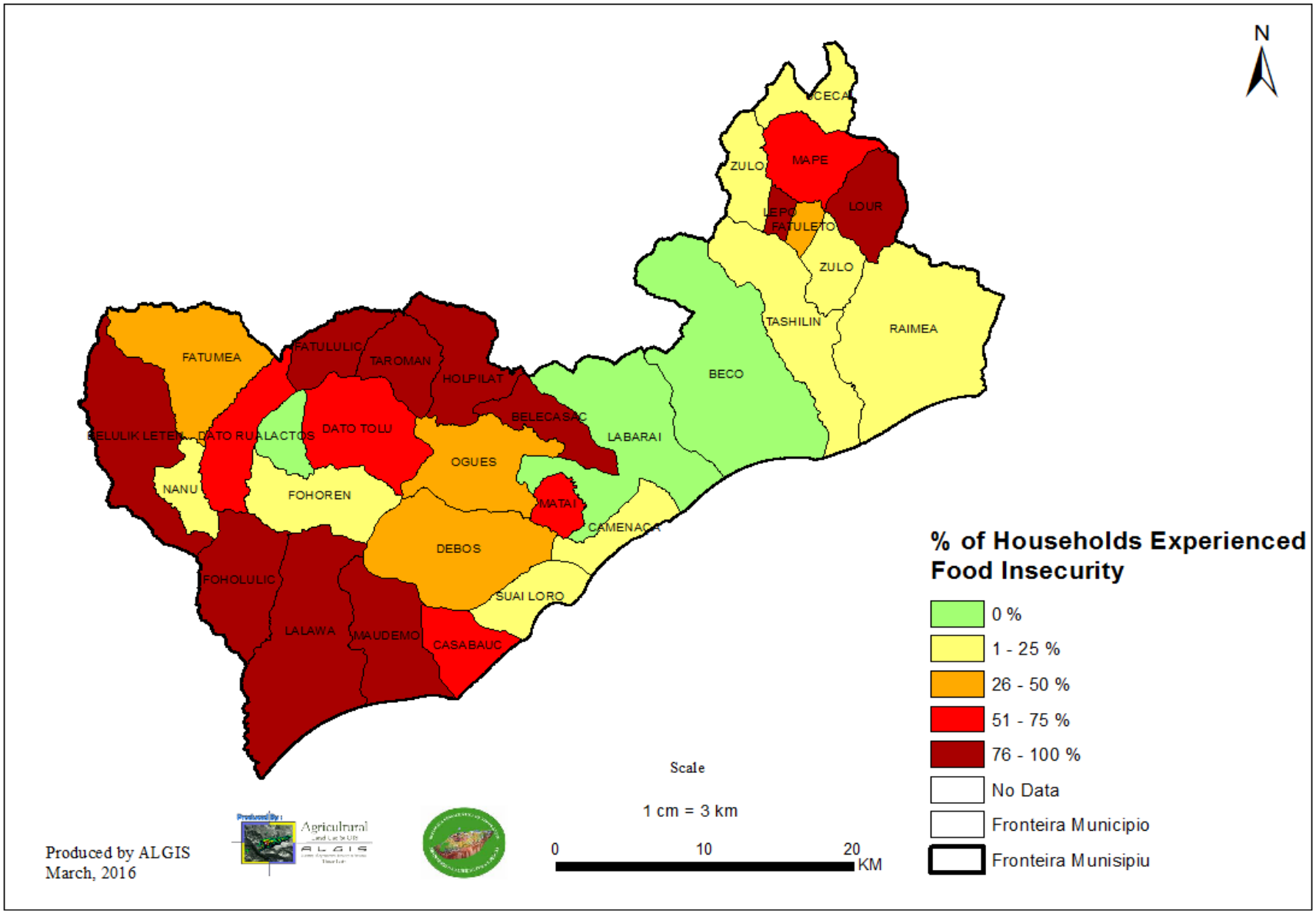
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

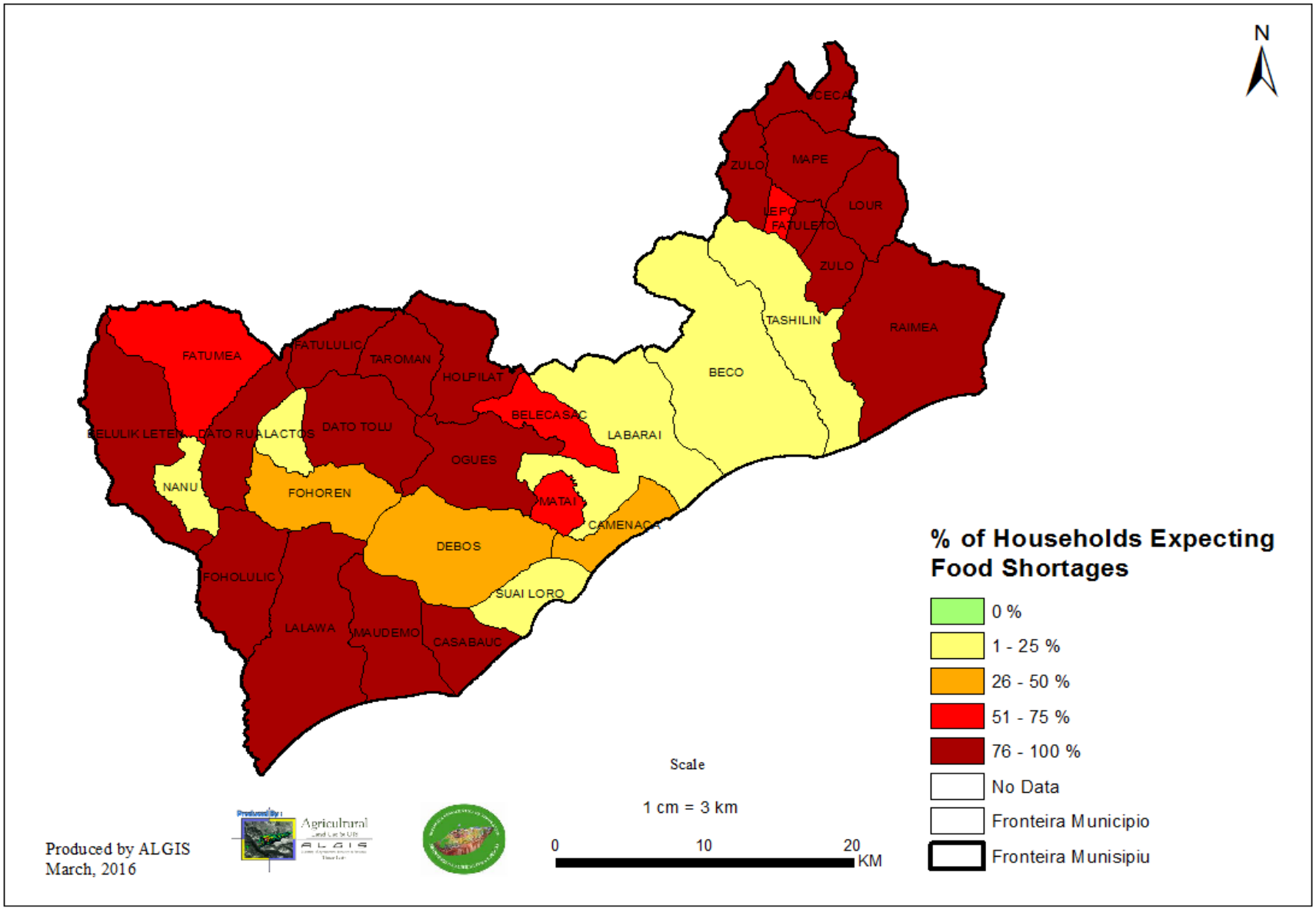
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Dili

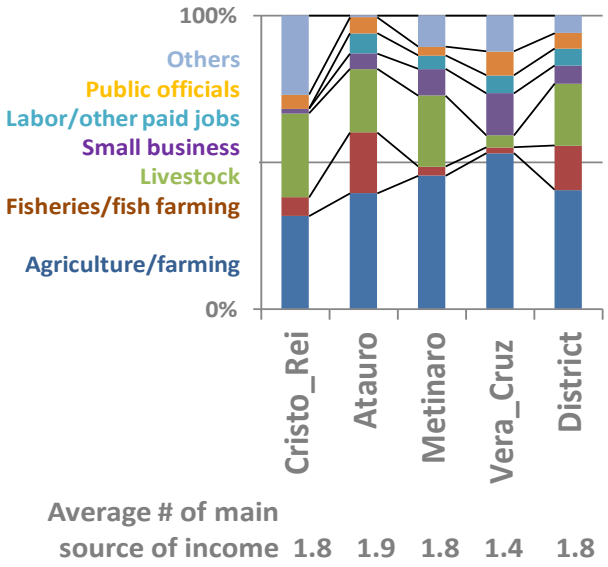
General Information

# surveyed households	295
% women headed households	19%
# sucos (all)	31
% surveyed suco	26%

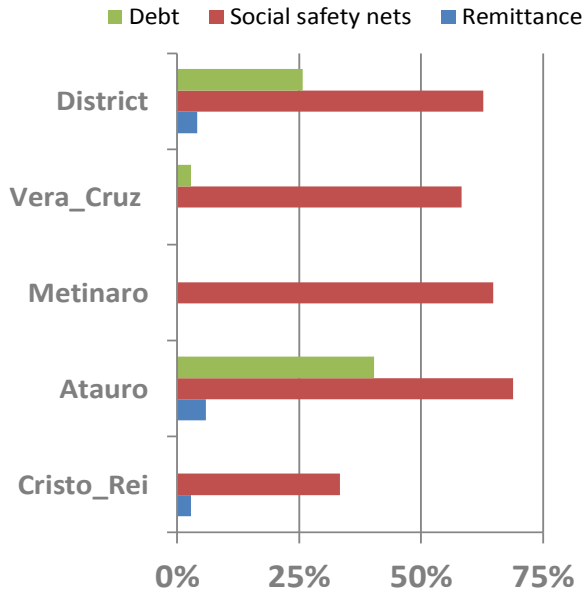
Profile respondent HHs

	Average # HH members	Average # pregnant woman per HH	Average # of children under-5 per HH	Average # of disable person per HH
Cristo_Rei	7.3	0.6	1.2	0.2
Atauro	6.2	0.3	0.8	0.1
Metinaro	7.6	0.4	1.4	0.1
Vera_Cruz	7.8	0.3	1.3	0.1
District	7.2	0.4	1.0	0.1

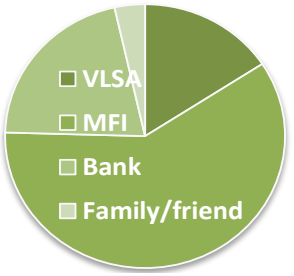
Main source of income



Access to other income/cash

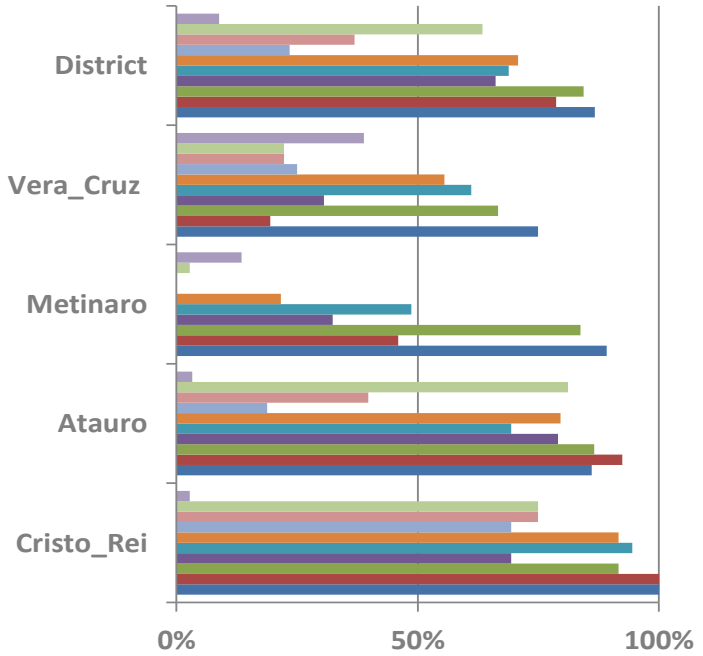


Social safety nets



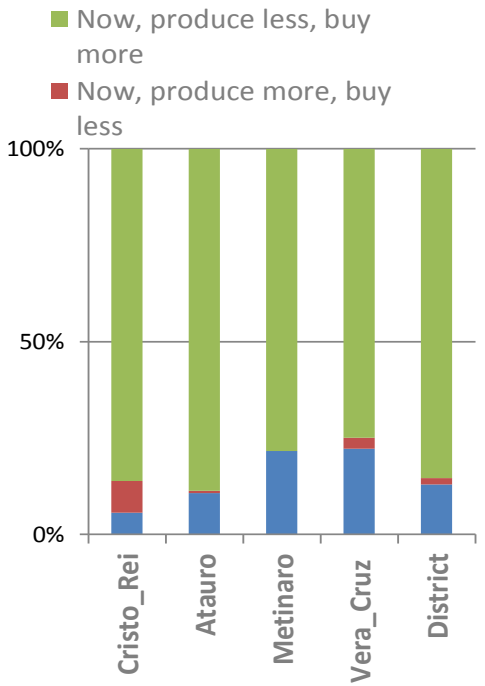
Source of Credit

Foods consumed and sources

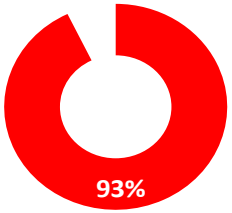


	% HH Produced	% HH Procured
Others	1%	12%
Fish/seafoods	30%	49%
Eggs	9%	40%
Meats	5%	29%
Fruits	61%	29%
Vegetables	29%	53%
Legume beans	57%	23%
Roots/tubers	74%	26%
Rice	4%	83%
Maize	86%	14%

Compare to last year..

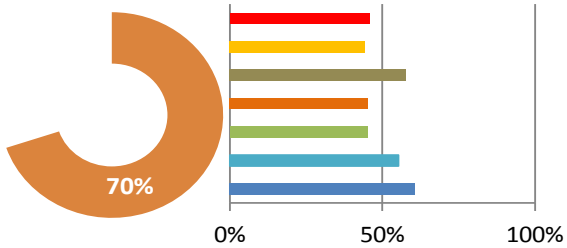


% HHs reporting impacted by drought



% HHs reporting of food insecurity experience

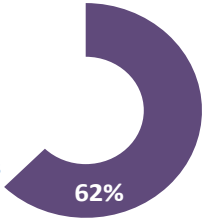
Past 3-months



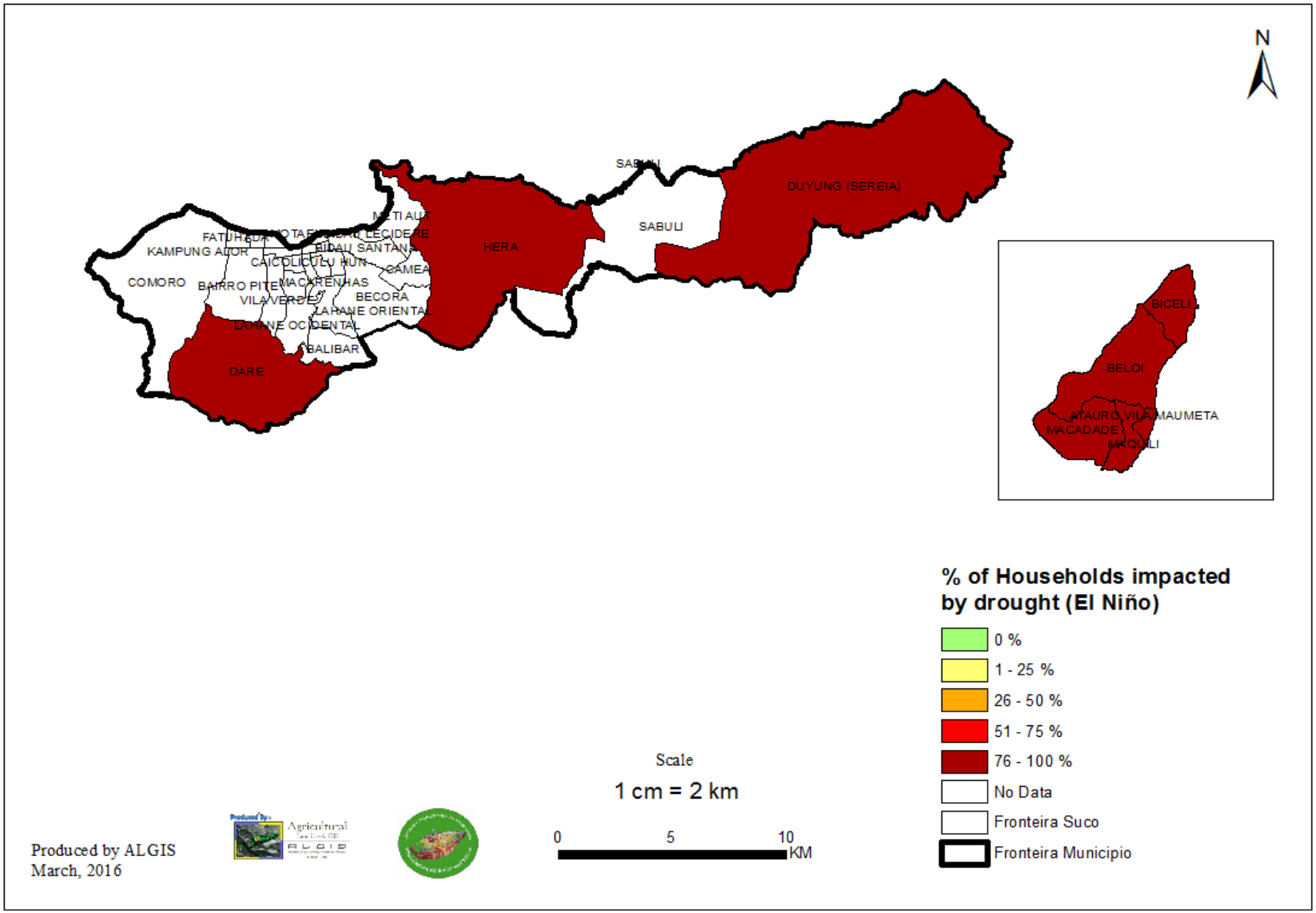
Coping strategy

- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

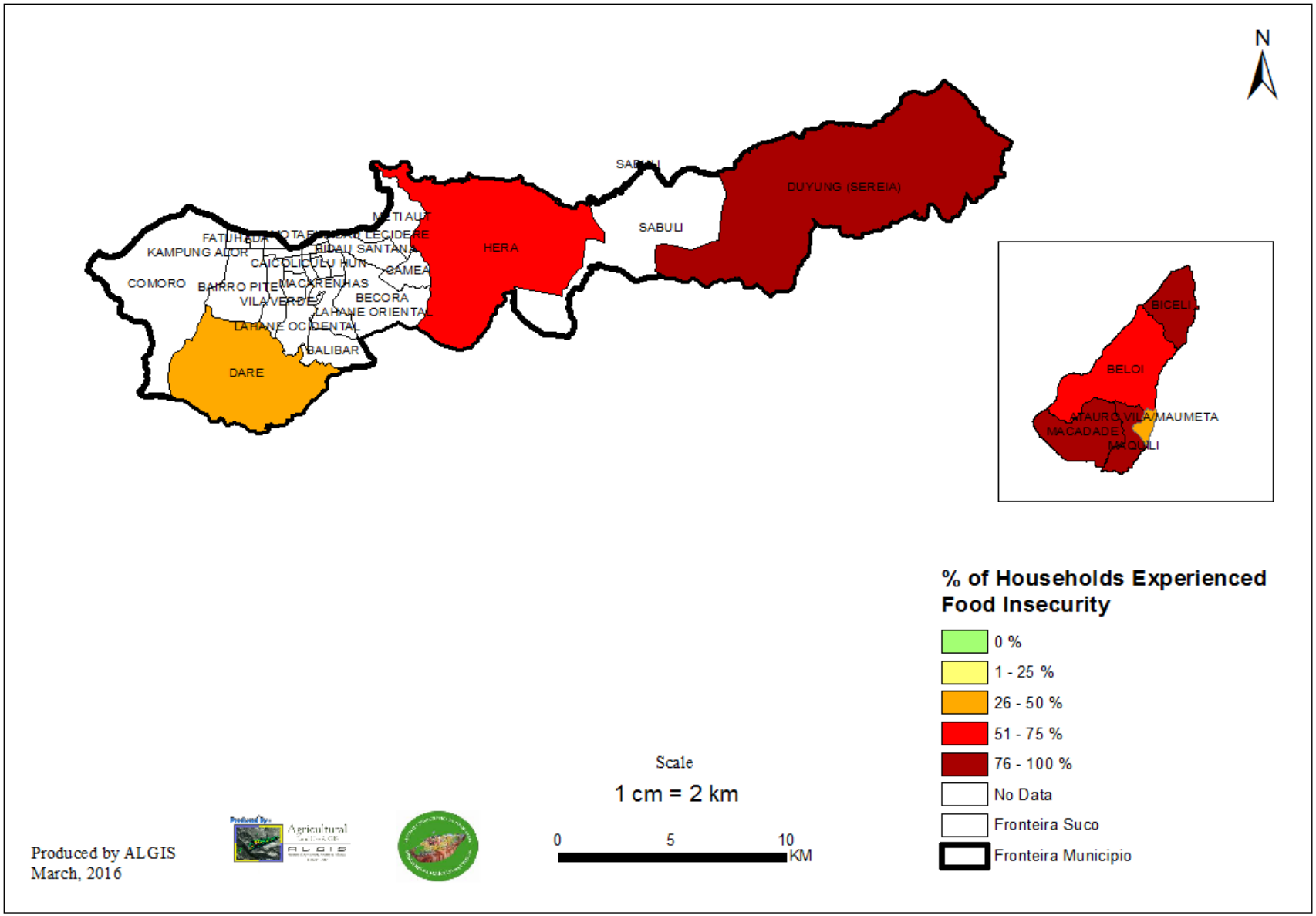
Next 3-months



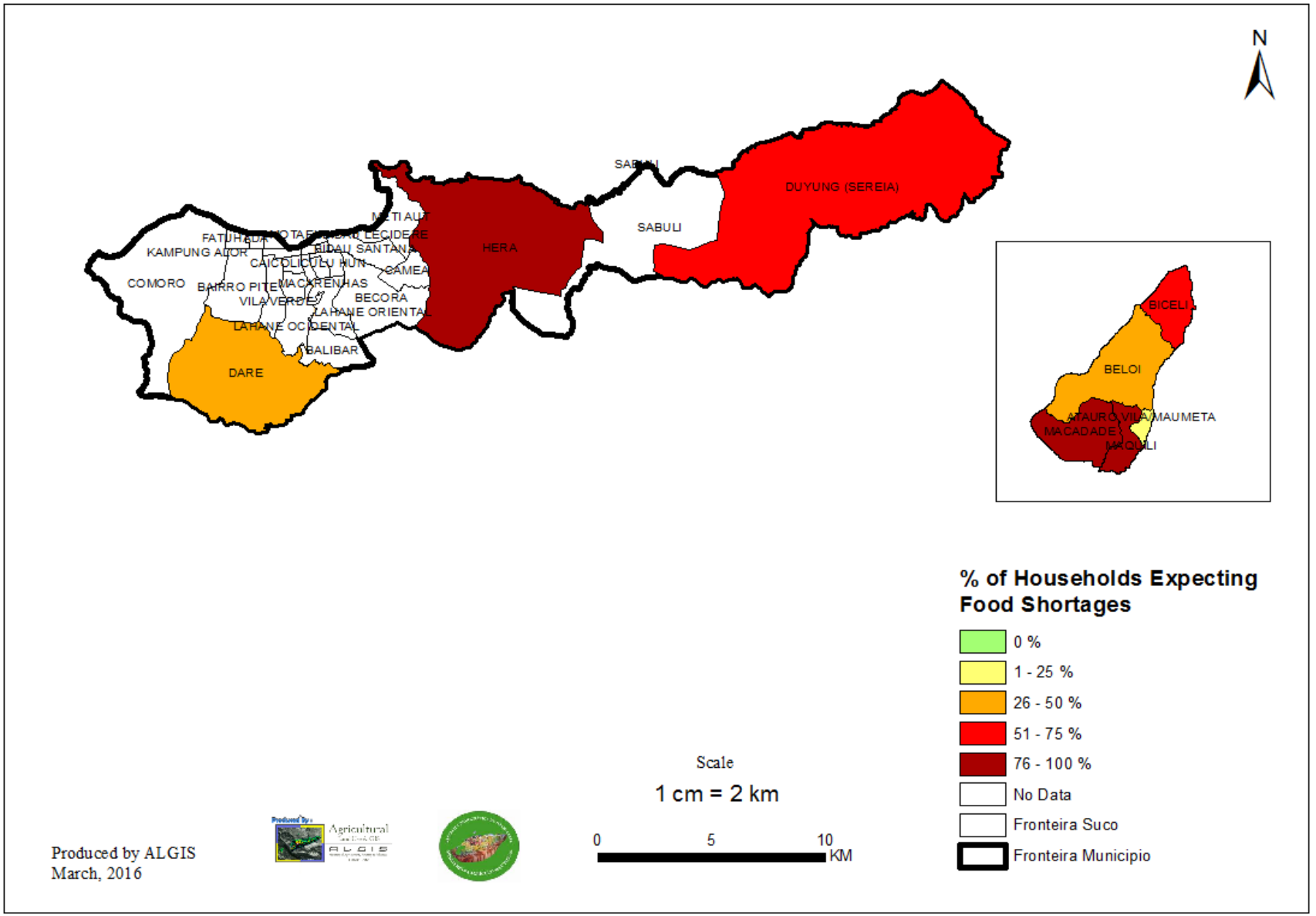
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Ermera

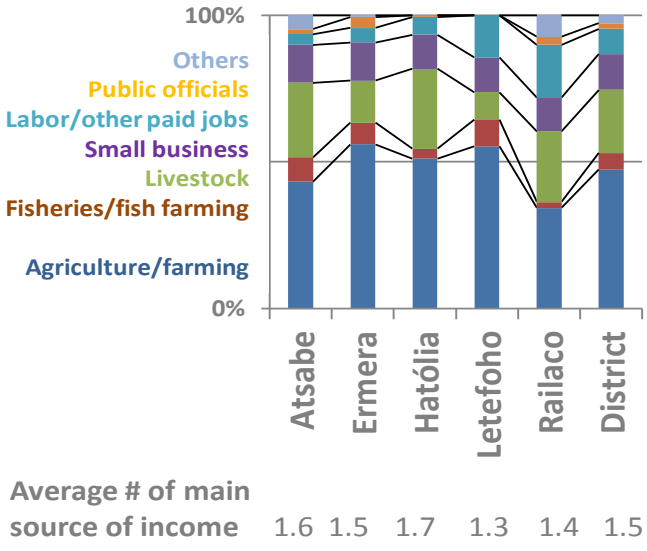
General Information

# surveyed households	484
% women headed households	4%
# sucos	46
% surveyed suco	88%

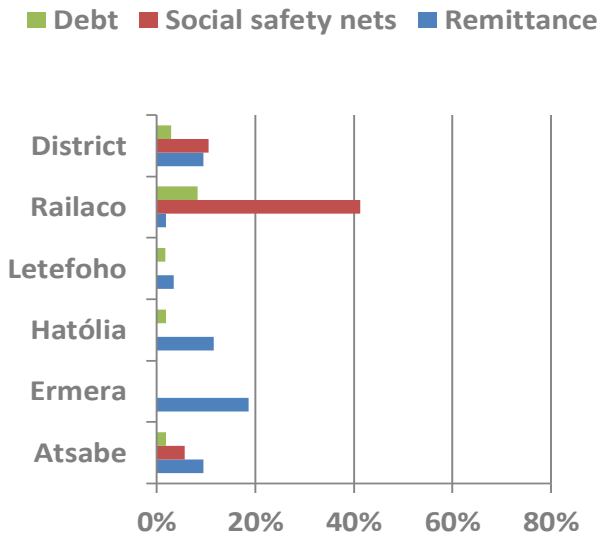
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Atsabe	6.2	0.4	1.0	0.2
Ermera	6.9	0.3	1.1	0.3
Hatólia	6.9	0.5	0.9	0.0
Letefoho	6.4	0.3	1.3	0.3
Railaco	7.6	0.6	1.1	0.2
District	6.8	0.4	1.1	0.2

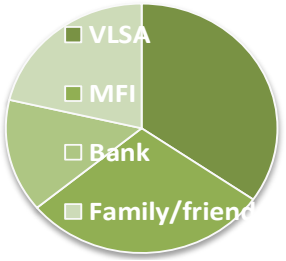
Main source of income



Access to other income/cash

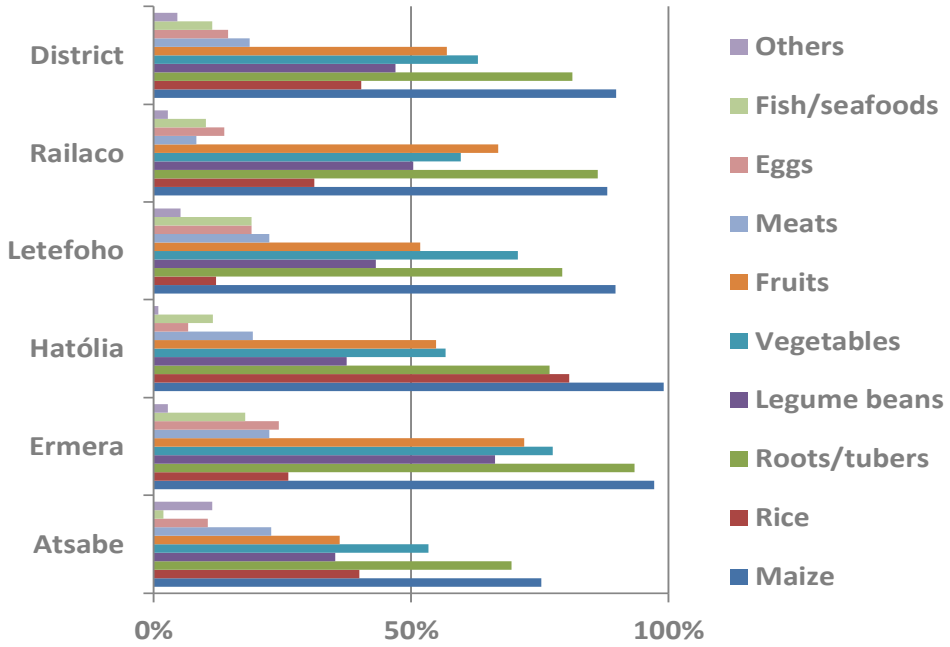


Social safety nets



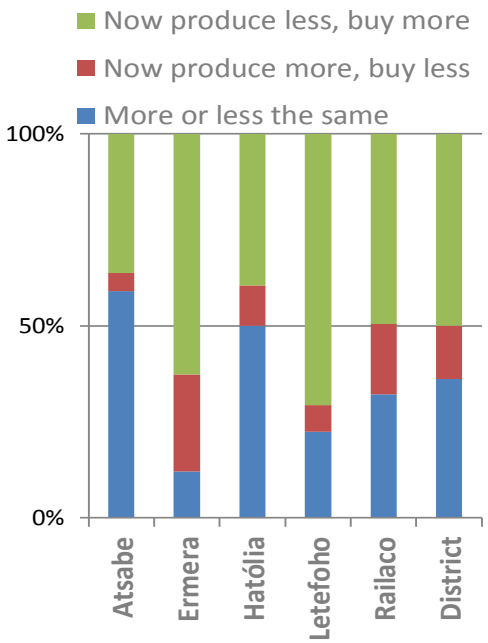
Sources of Credit

Foods consumed and sources

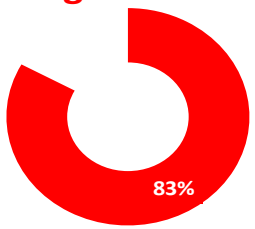


	% HH	
	Produced	Procured
Others	1%	9%
Fish/seafoods	3%	39%
Eggs	7%	44%
Meats	9%	51%
Fruits	58%	10%
Vegetables	59%	25%
Legume beans	45%	8%
Roots/tubers	82%	11%
Rice	19%	44%
Maize	89%	24%

Compare to last year..

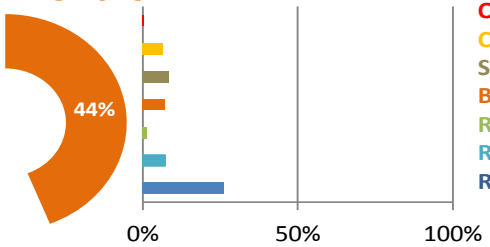


% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

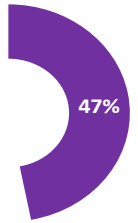


Coping strategy

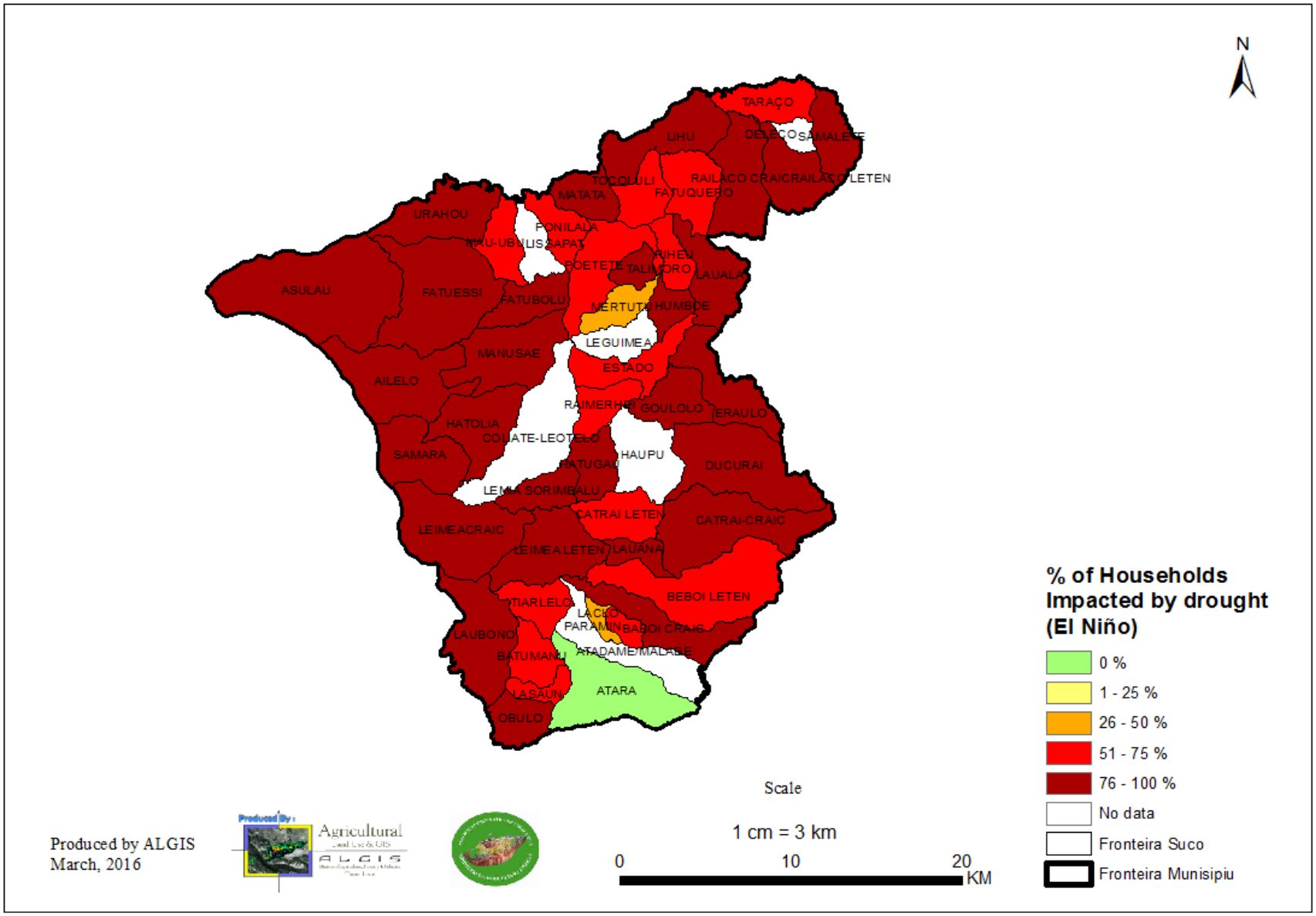
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies
- Relied on less preferred foods

meals

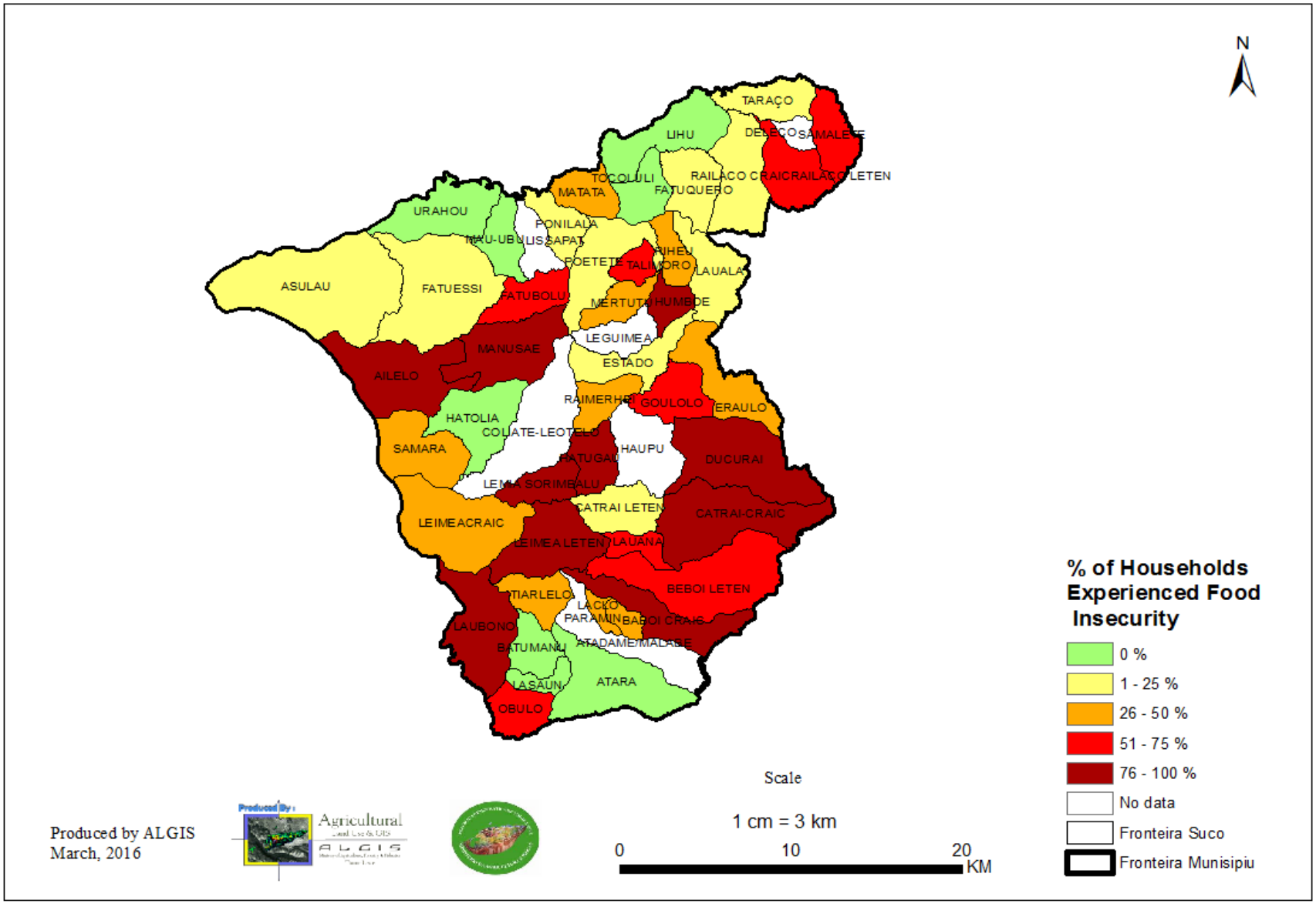
Next 3-months



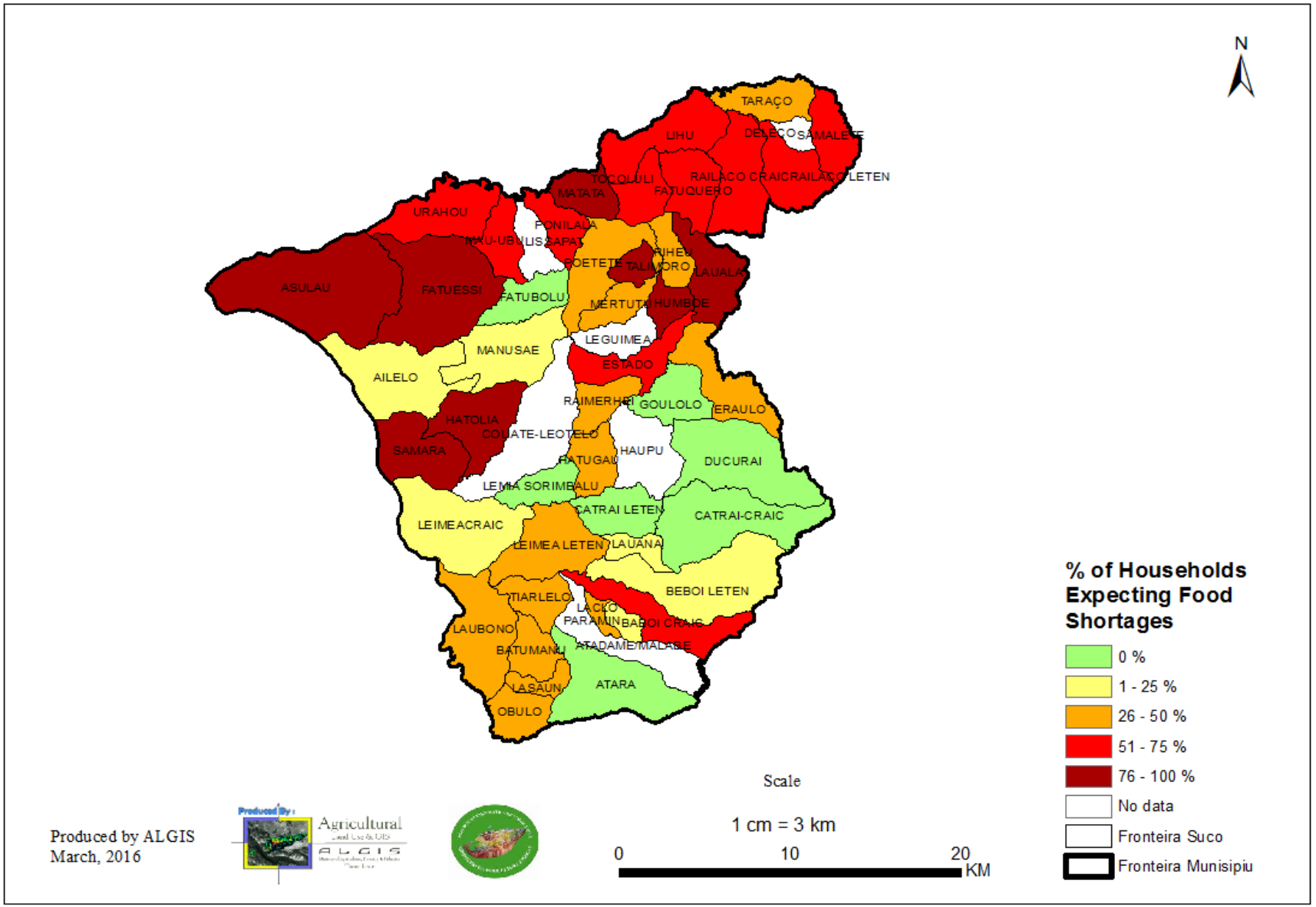
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Lautém

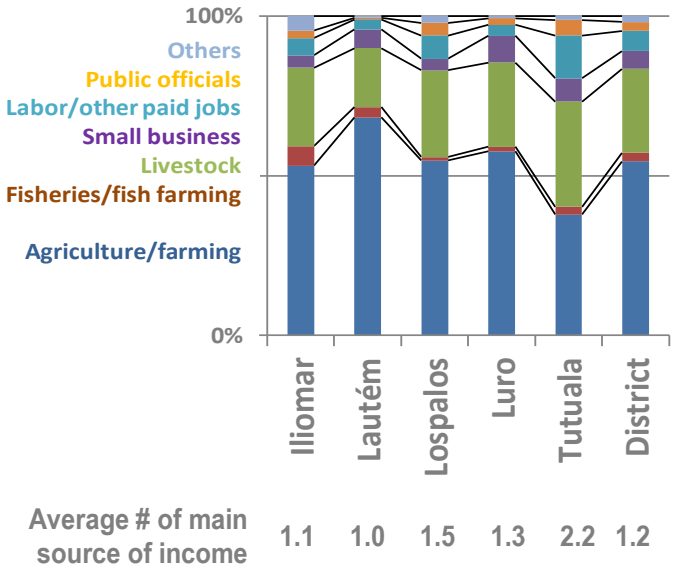
General Information

# surveyed households	636
% women headed households	16%
# sucos	34
% surveyed suco	100%

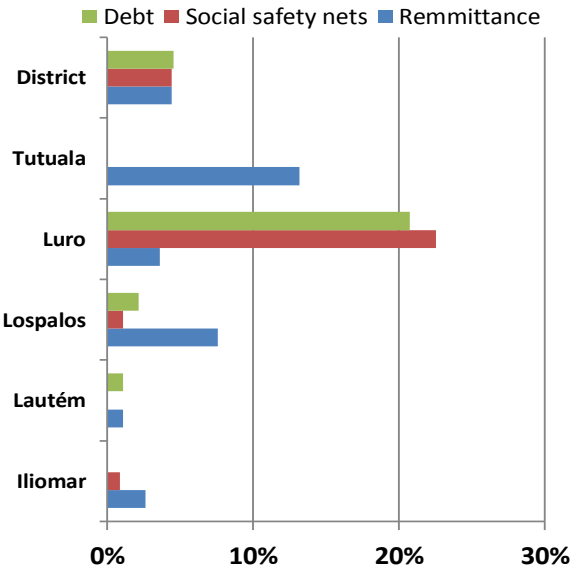
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Iliomar	7.7	1.13	2.11	1.09
Lautem	7.6	1.19	1.93	1.07
Lospalos	6.9	0.86	1.82	0.68
Luro	7.4	1.00	2.00	0.89
Tutuala	7.6	1.00	1.63	1.00
District	7.5	1.02	1.93	0.89

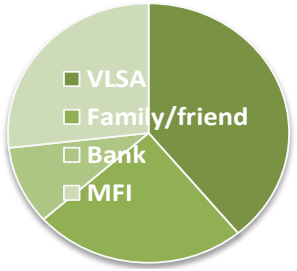
Main source of income



Access to other income/cash

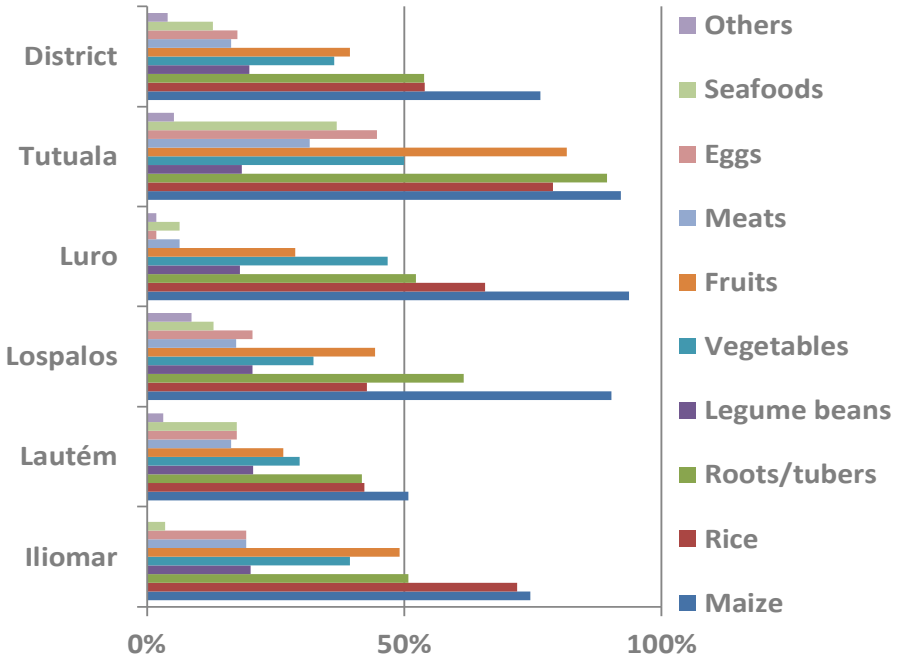


Social safety nets



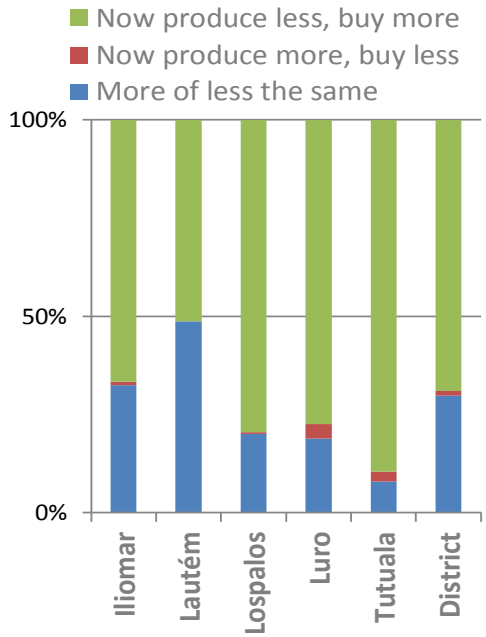
Sources of Credit

Foods consumed and sources

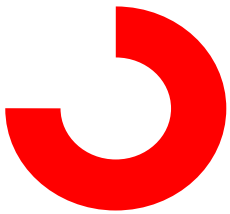


	% HH
Produced	Procured
1%	13%
4%	27%
14%	16%
5%	25%
39%	13%
21%	41%
17%	10%
56%	17%
23%	52%
76%	21%

Compare to last year..



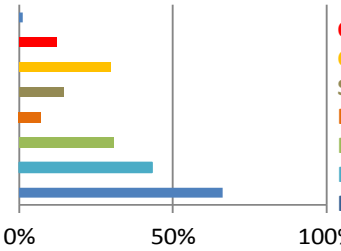
% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

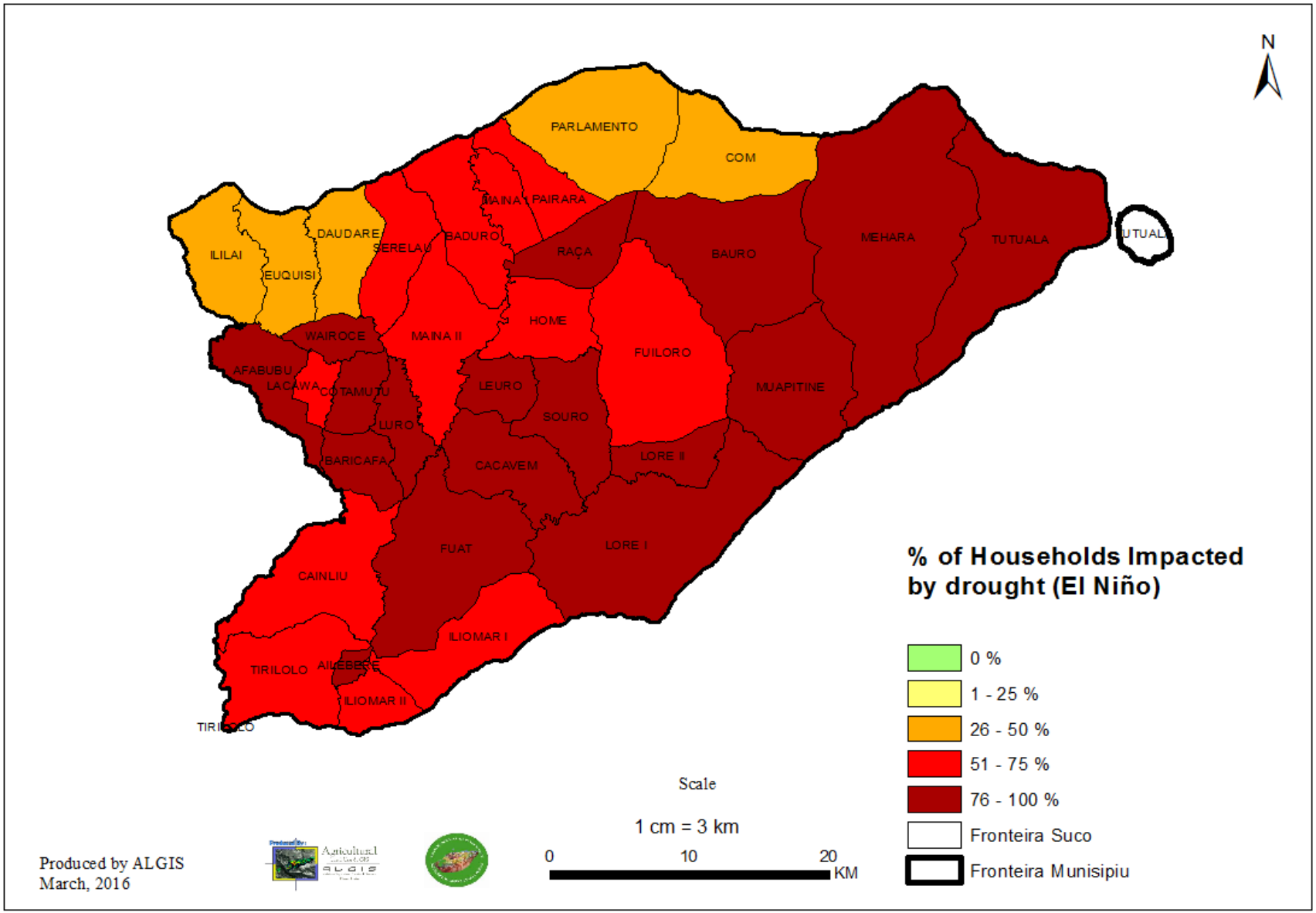
Coping strategy



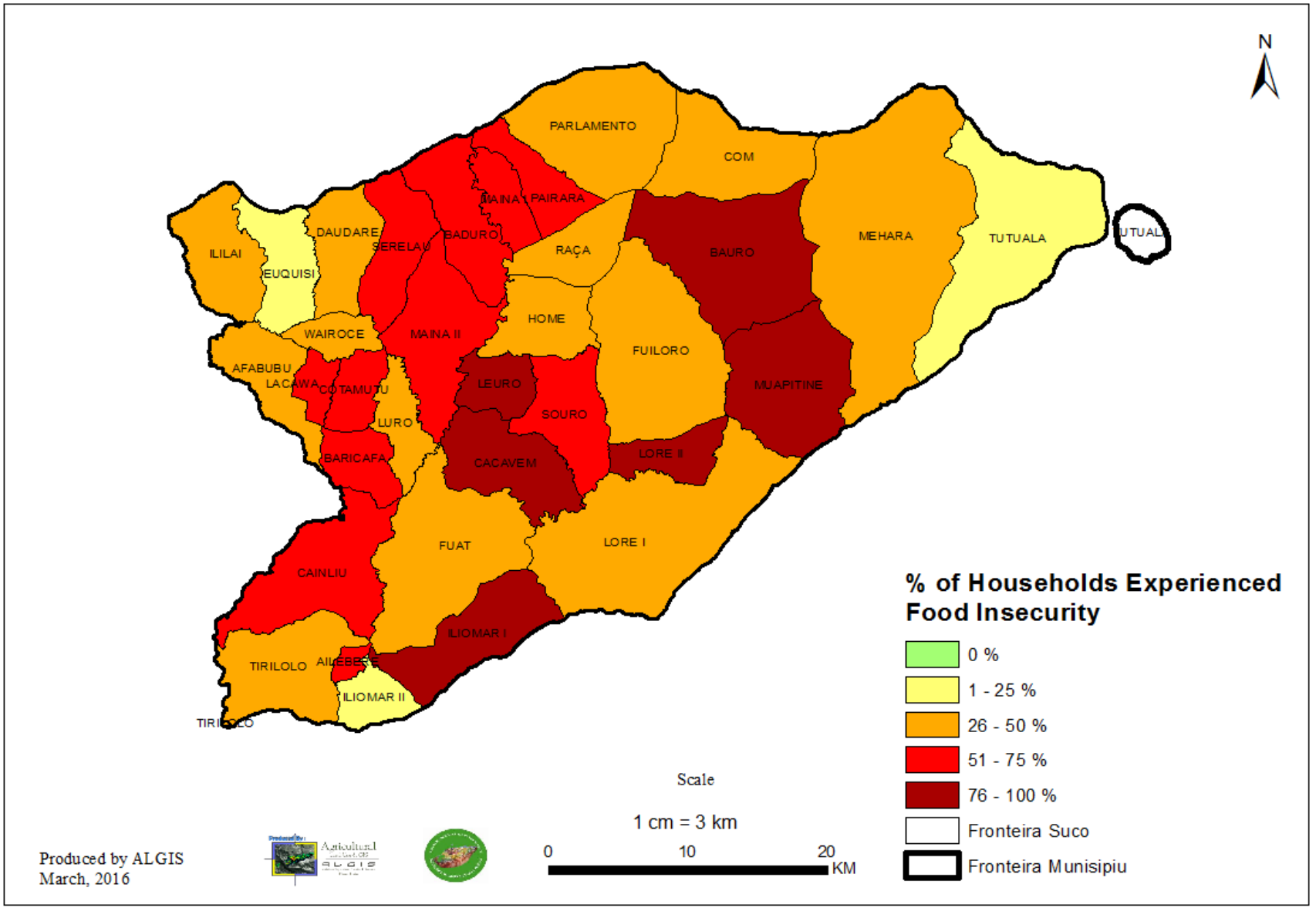
Others
Consumed saved-seeds
Sold animals or other HH assets
Borrowed $ or foods from others
Received supports from family/friend
Reduced portion and/or frequencies meals
Relied on less preferred foods

Next 3-months

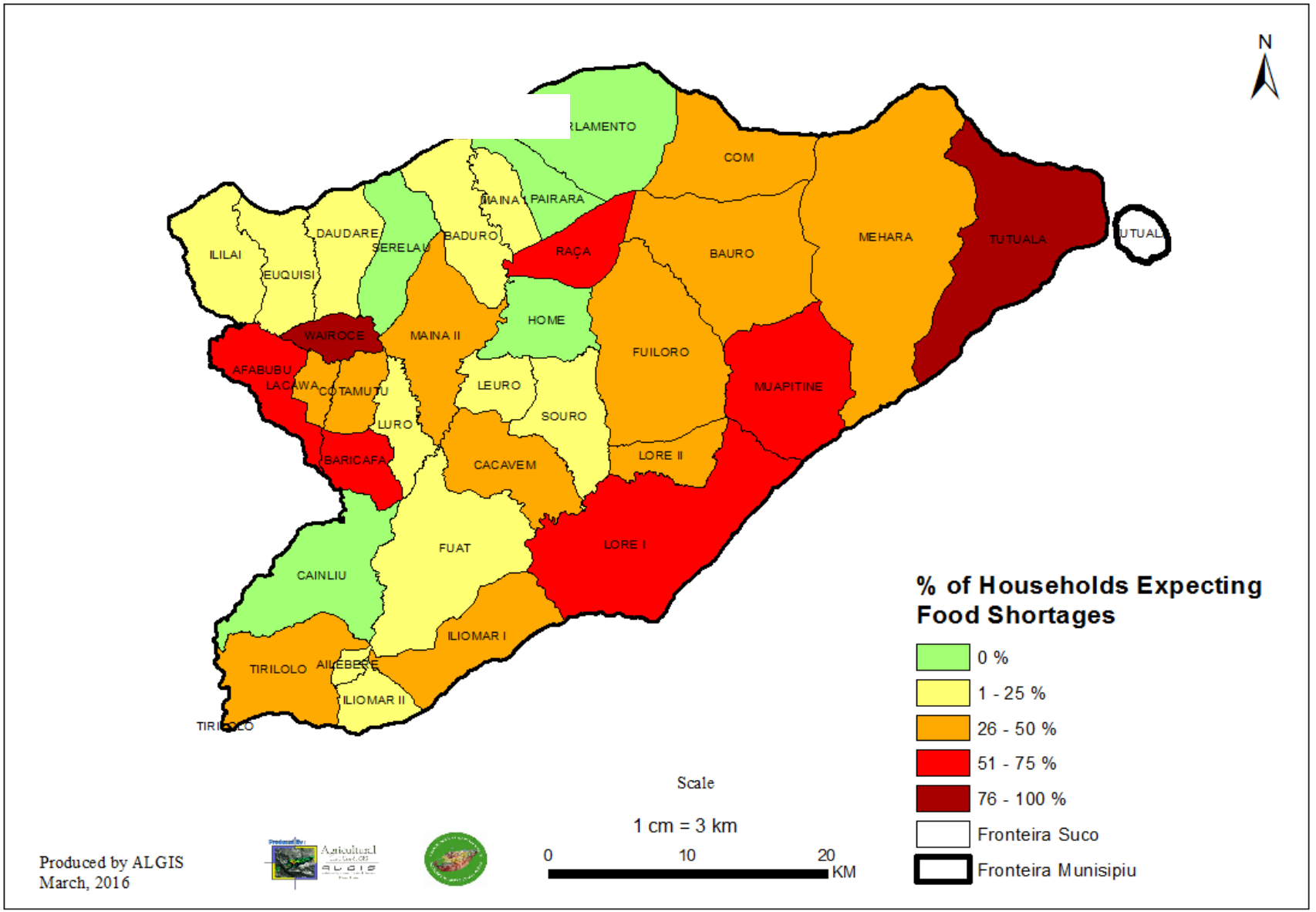
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Liquiçá

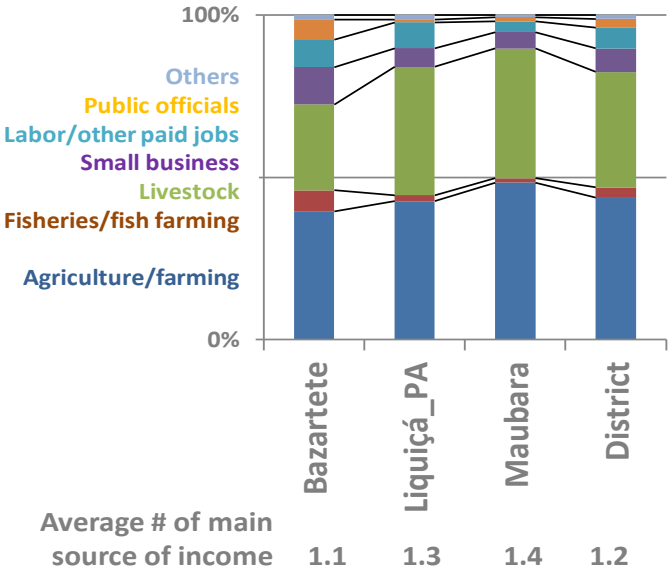
General Information

# surveyed households	663
% women headed households	8%
# sucos	23
% surveyed suco	100%

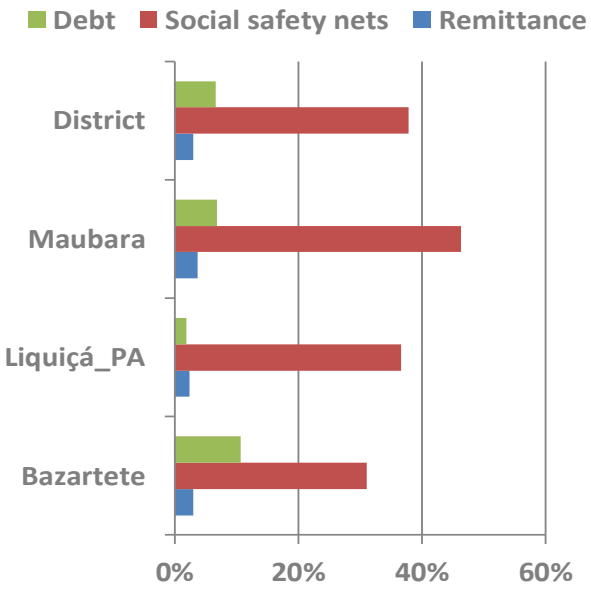
Profile respondent HHs

	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Bazartete	6.9	0.4	1.0	0.1
Liquiçá_PA	6.4	0.4	1.1	0.1
Maubara	5.9	0.2	0.9	0.8
District	6.5	0.3	1.0	0.3

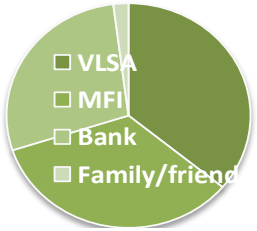
Main source of income



Access to other income/cash

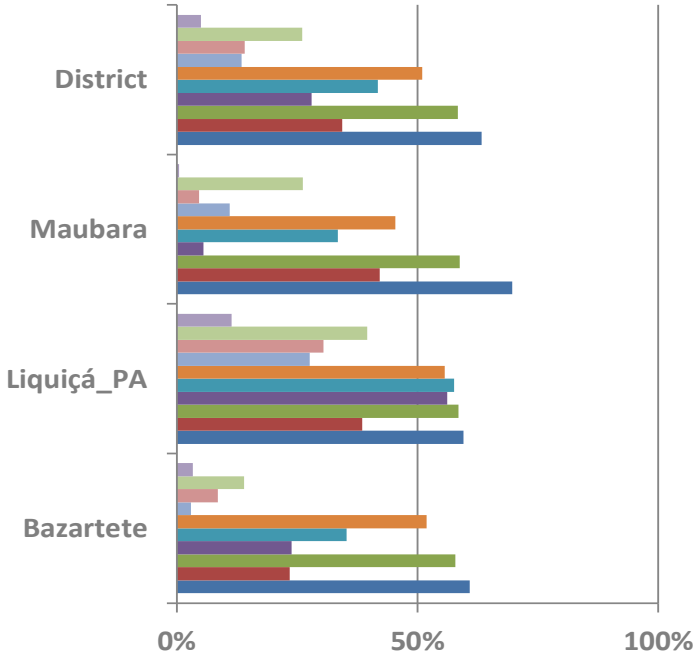


Social safety nets



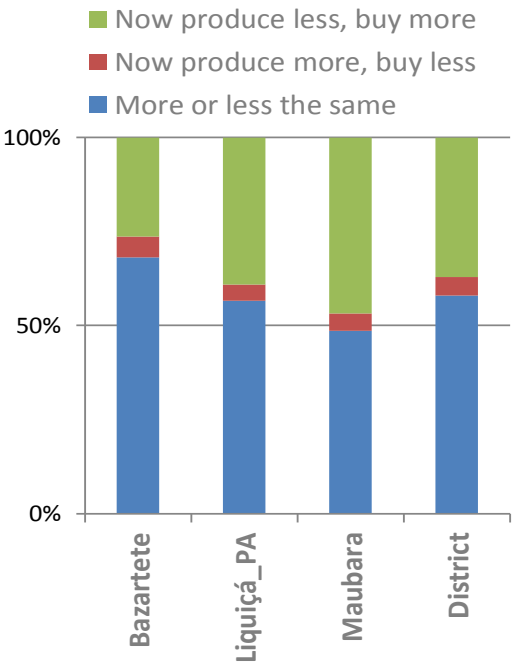
Sources of Credit

Foods consumed and sources



	% HH Produced	% HH Procured
Others	2%	10%
Fish/seafoods	5%	43%
Eggs	6%	17%
Meats	4%	28%
Fruits	51%	6%
Vegetables	38%	13%
Legume beans	26%	13%
Tubers/roots	54%	9%
Rice	3%	51%
Maize	62%	15%

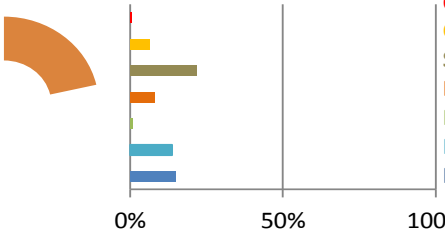
Compare to last year..



% HHs reporting impacted by drought

% HHs reporting of experienced food insecurity

Past 3-months

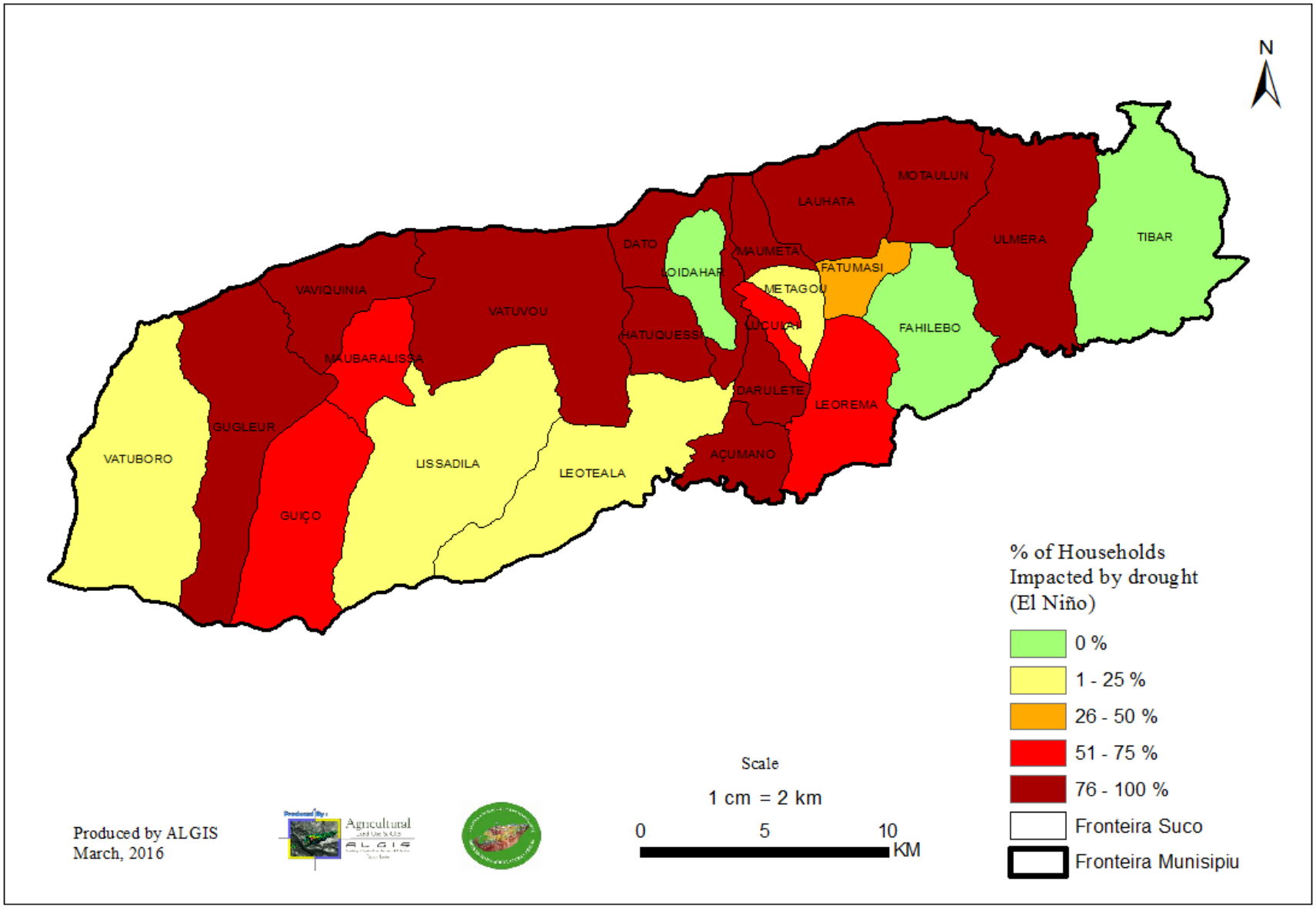


Coping strategy

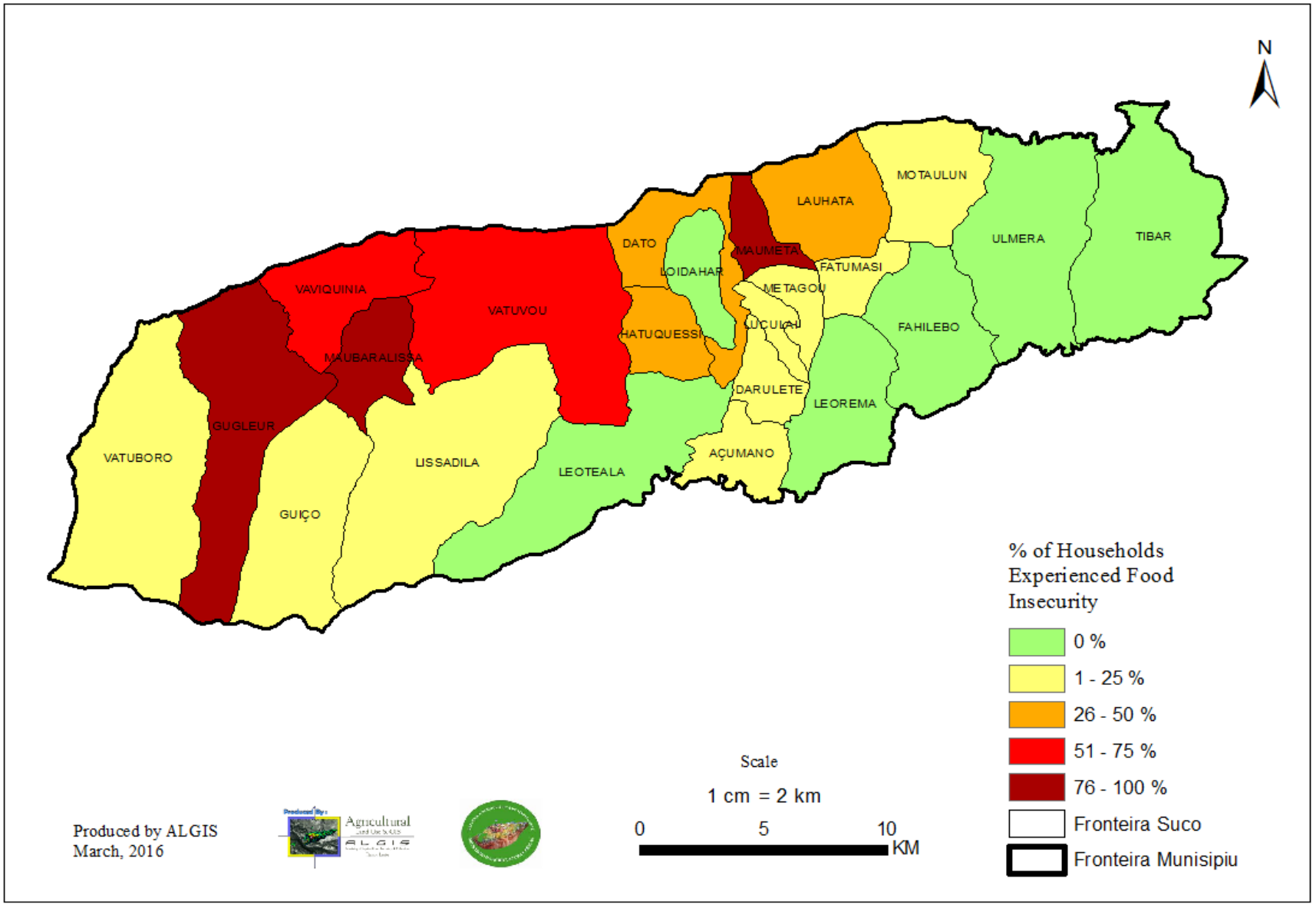
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

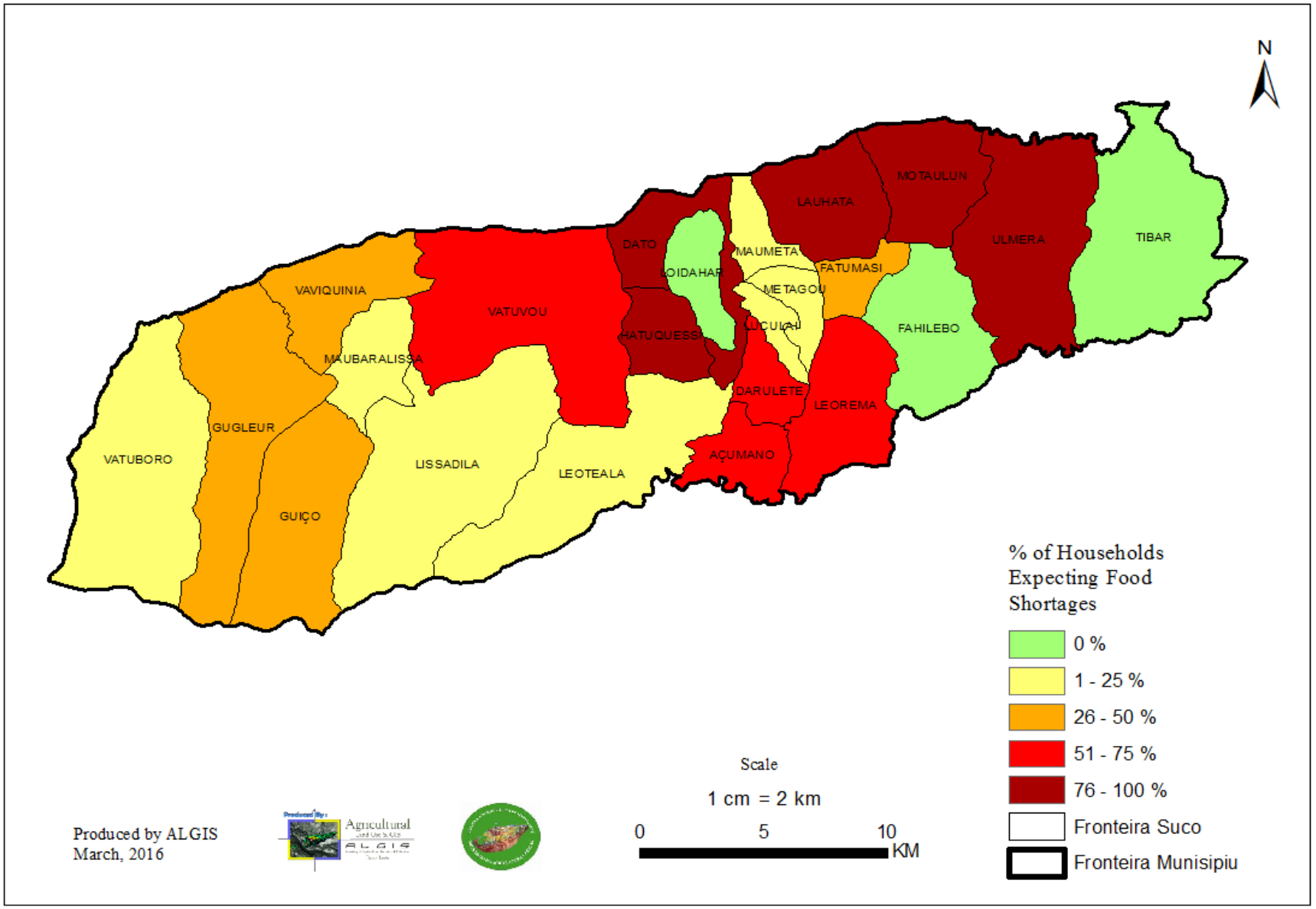
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Manatuto

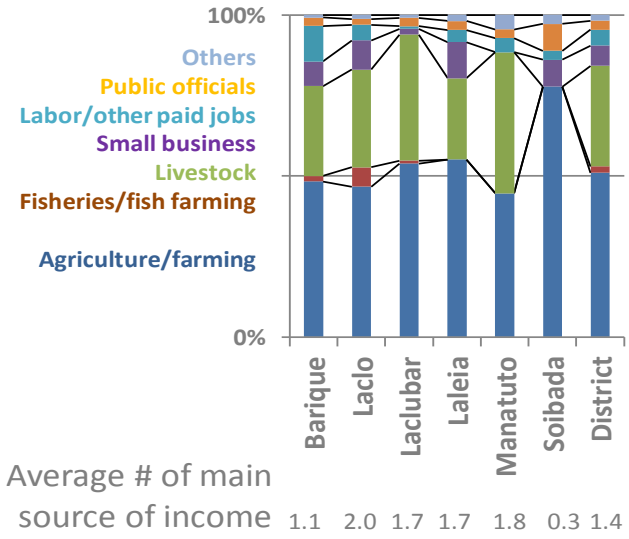
General Information

# surveyed households	483
% women headed households	4%
# sucos	22
% surveyed suco	5%

Profile respondent HHs

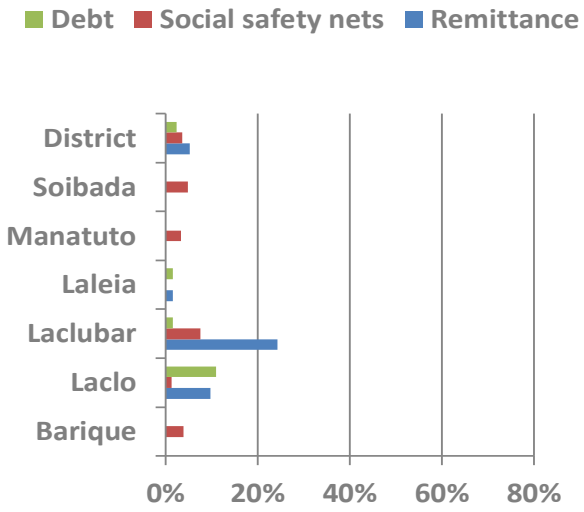
	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Barique	7.2	0.3	0.5	0.1
Laclo	6.7	0.6	1.3	0.0
Laclubar	6.7	0.7	1.1	0.1
Laleia	6.5	0.1	1.1	0.1
Manatuto	6.7	0.4	1.0	0.1
Soibada	7.8	0.3	1.0	0.2
District	6.9	0.4	1.0	0.1

Main source of income

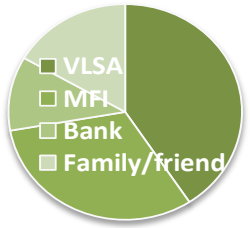


Average # of main source of income: 1.1 2.0 1.7 1.7 1.8 0.3 1.4

Access to other income/cash

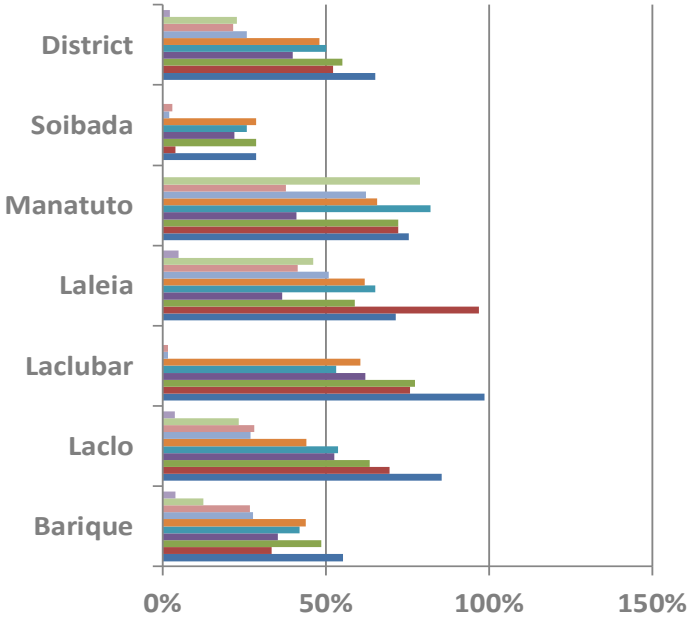


Social safety nets



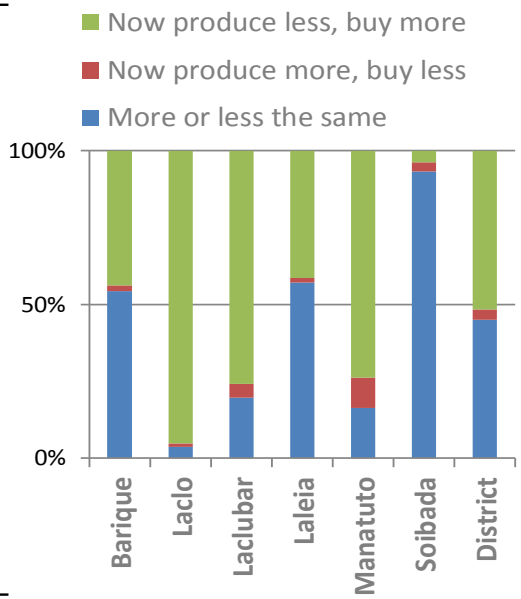
Sources of Credit

Foods consumed and sources

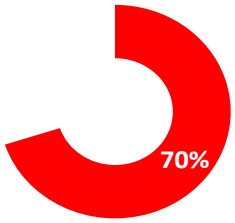


	% HH Produced	Procured
Others	1%	0%
Fish/seafoods	5%	48%
Eggs	16%	38%
Meats	10%	50%
Fruits	41%	13%
Vegetables	45%	27%
Legume beans	35%	11%
Roots/tubers	52%	12%
Rice	38%	16%
Maize	62%	8%

Compare to last year..

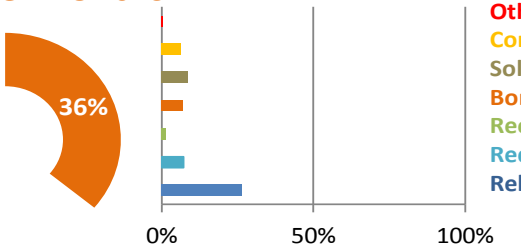


% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

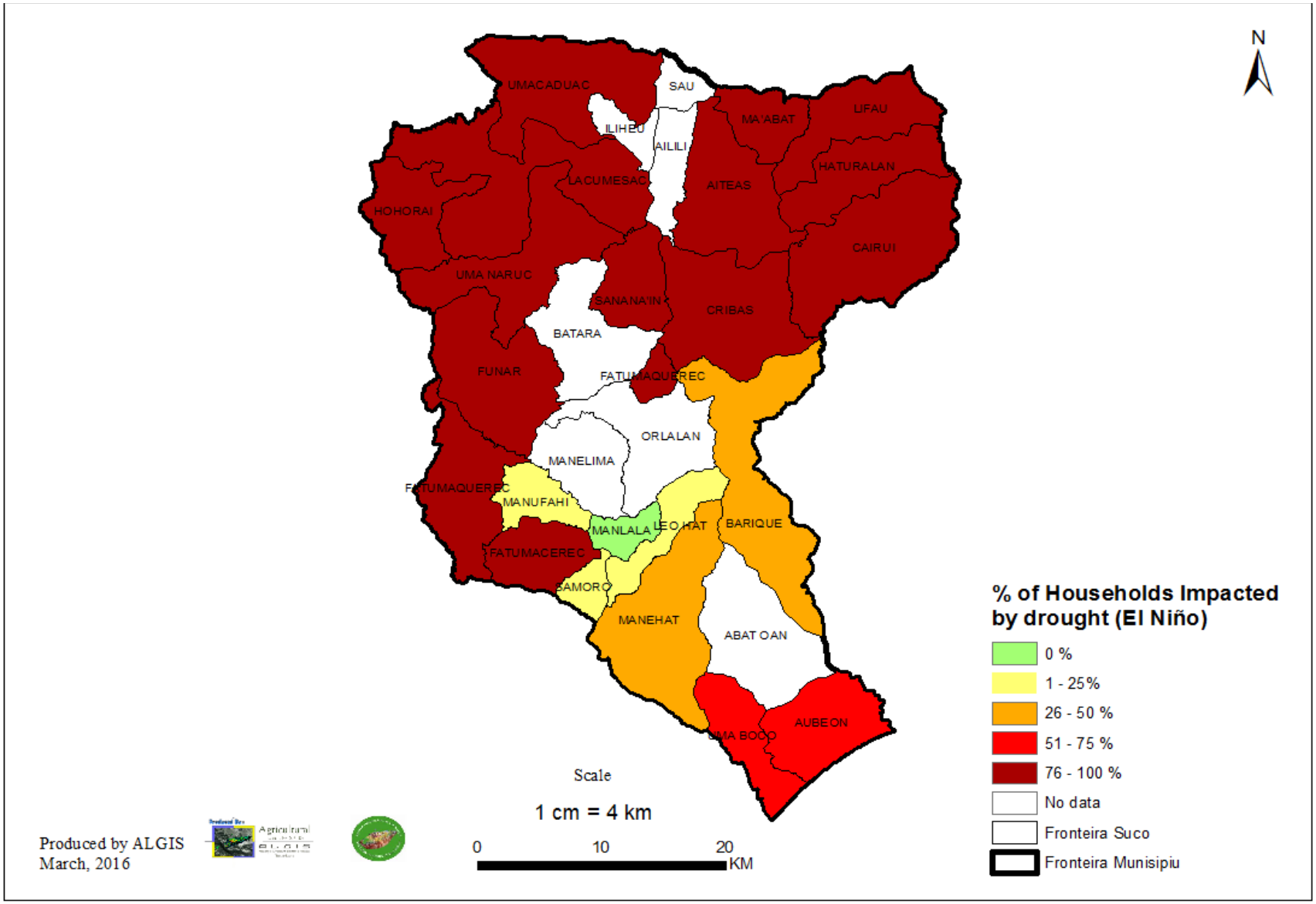


Coping strategy

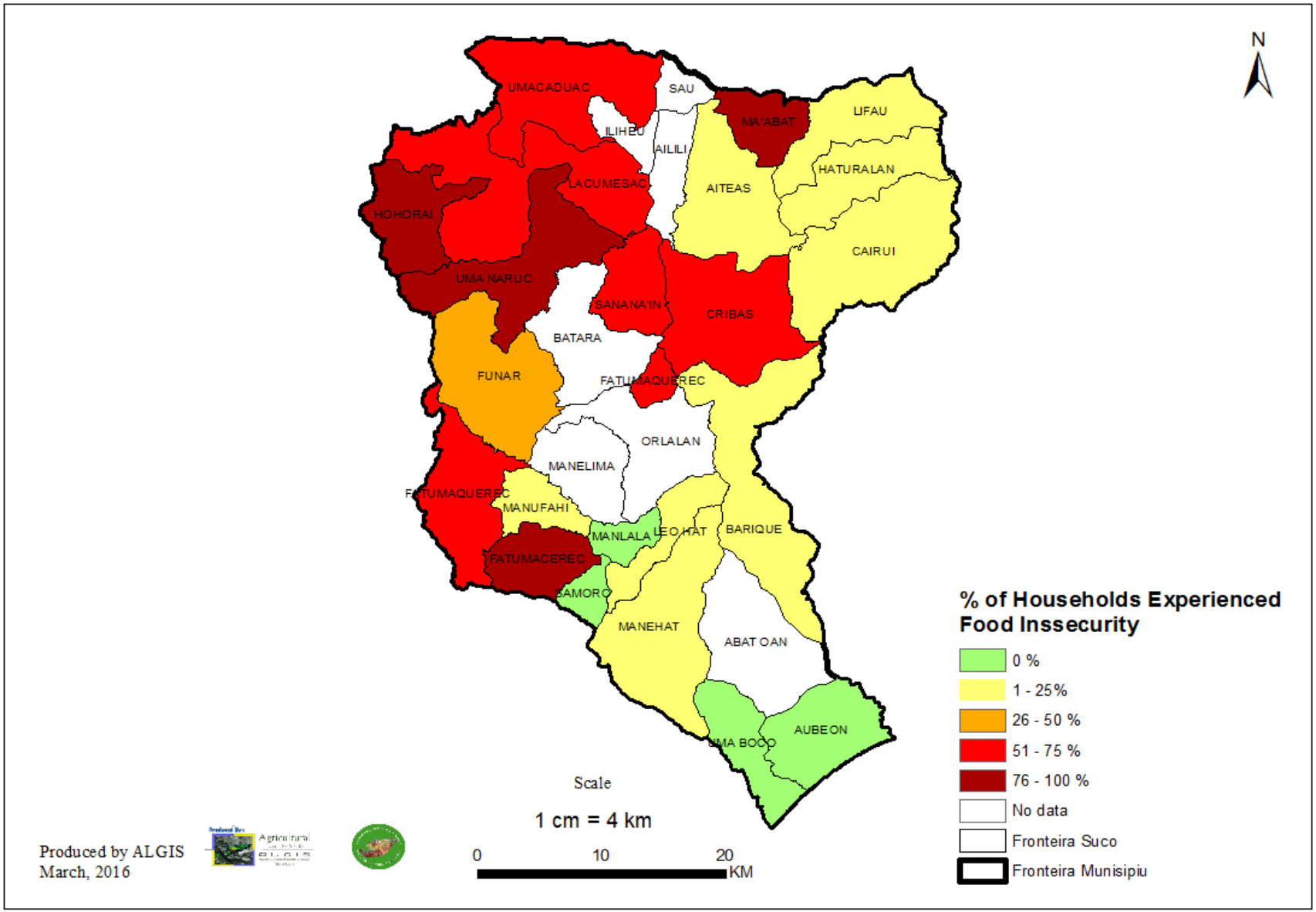
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

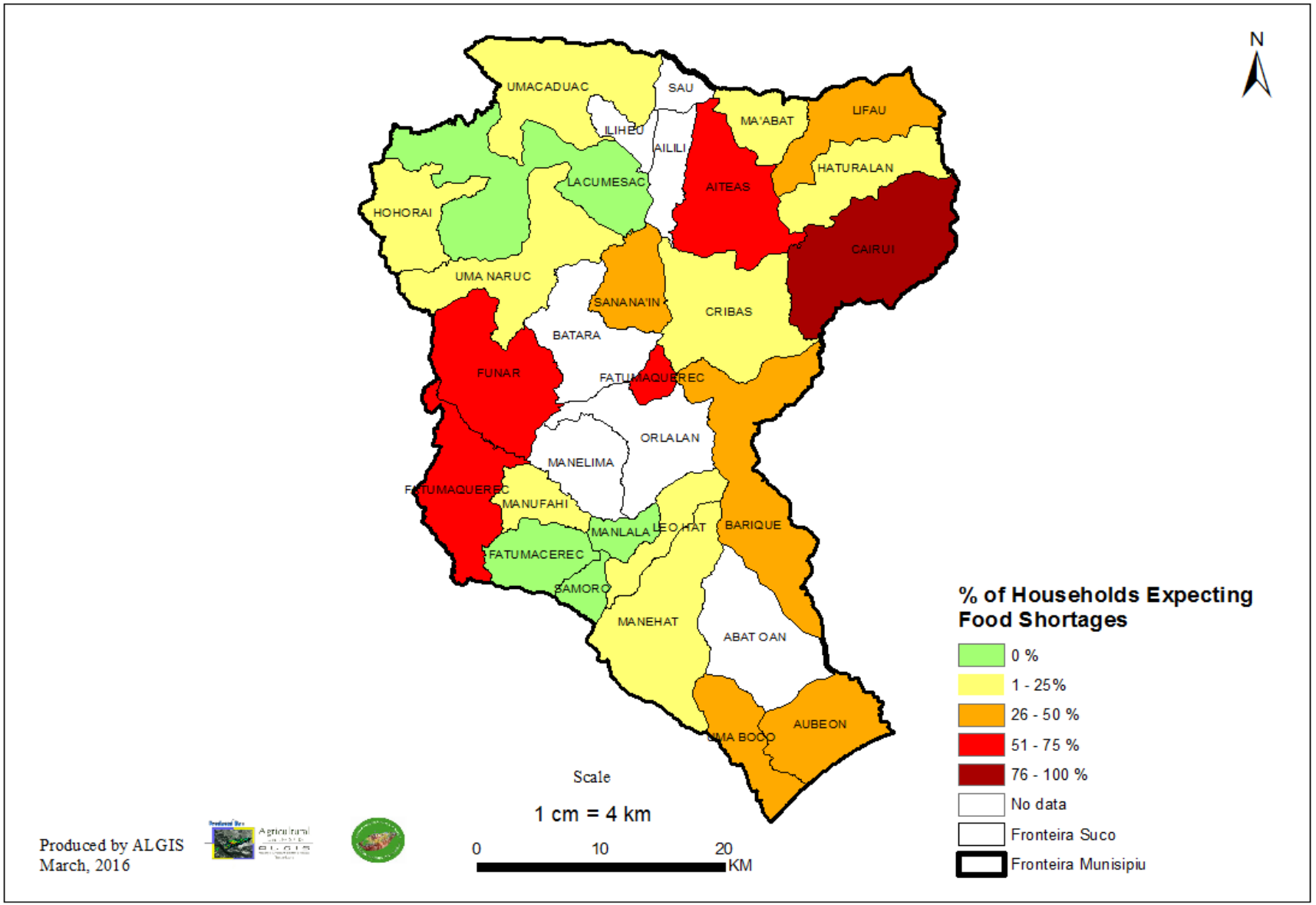
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Manufahi

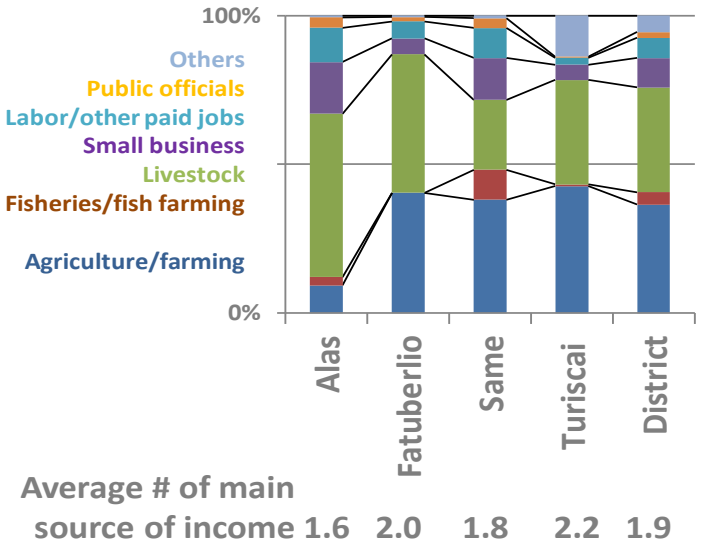
General Information

# surveyed households	717
% women headed households	4%
# sucos	29
% surveyed suco	100%

Profile respondent HHs

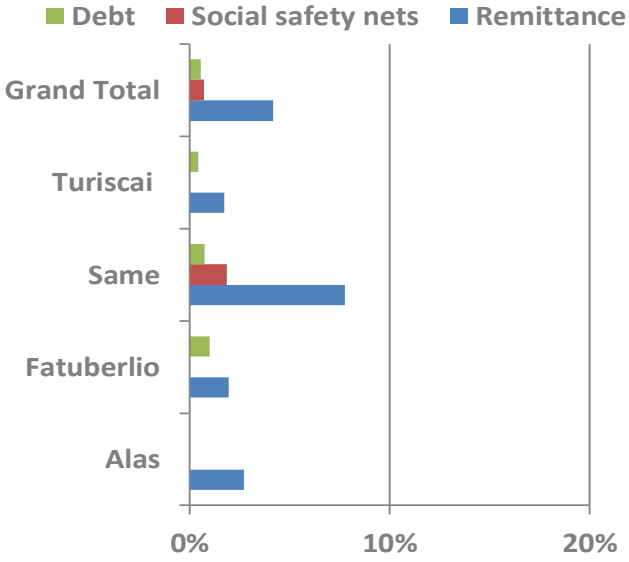
	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Alas	5.9	0.4	0.7	0.1
Fatuberlio	6.2	0.3	1.0	0.1
Same	5.4	0.4	0.8	0.1
Turiscai	6.5	0.5	1.3	0.0
District	5.9	0.4	1.0	0.1

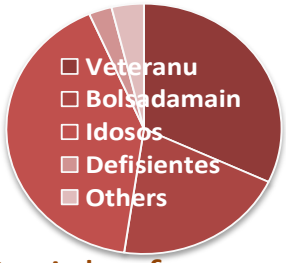
Main source of income



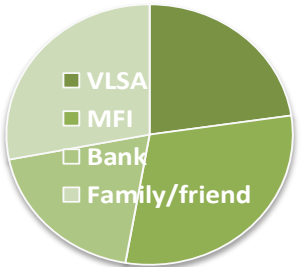
Average # of main source of income: Alas 1.6, Fatuberlio 2.0, Same 1.8, Turiscai 2.2, District 1.9

Access to other income/cash



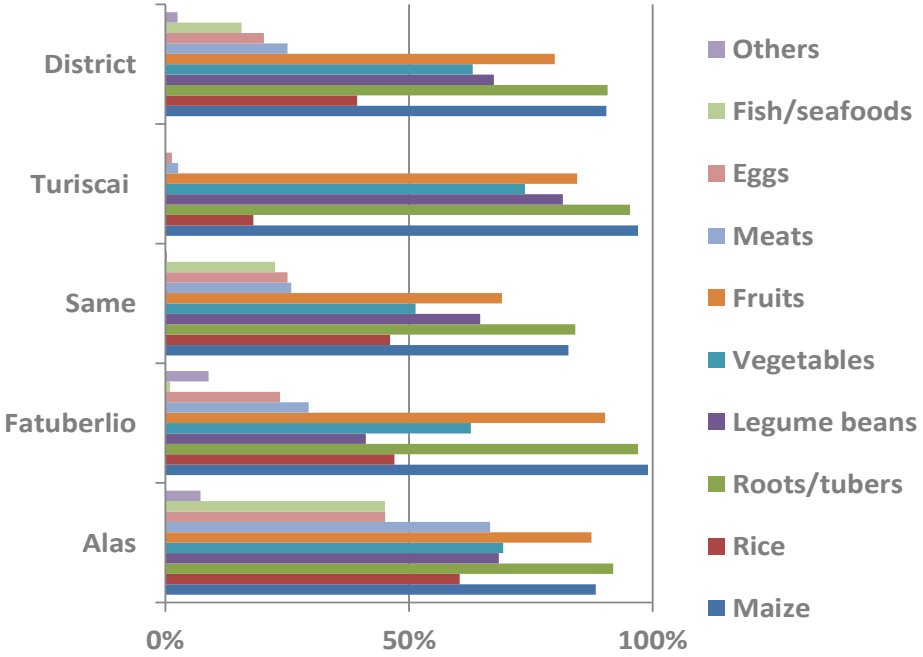


Social safety nets



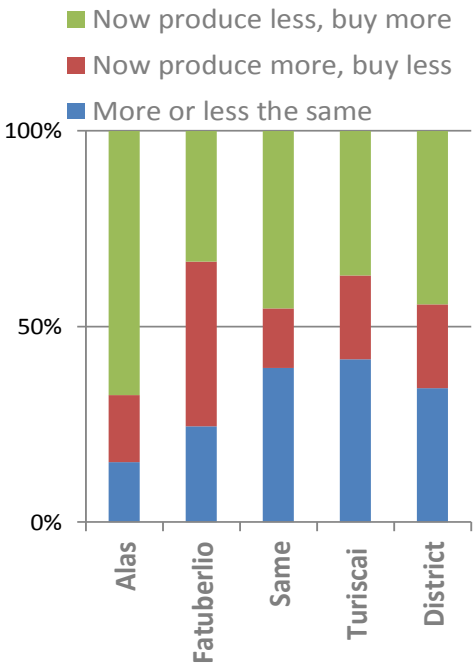
Source of Credit

Foods consumed and sources

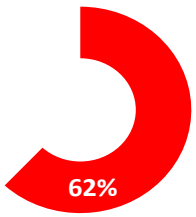


	% HH	
	Produced	Procured
Others	0%	14%
Fish/seafoods	3%	53%
Eggs	7%	47%
Meats	7%	59%
Fruits	70%	15%
Vegetables	54%	26%
Legume beans	60%	14%
Roots/tubers	83%	8%
Rice	87%	46%
Maize	87%	9%

Compare to last year..

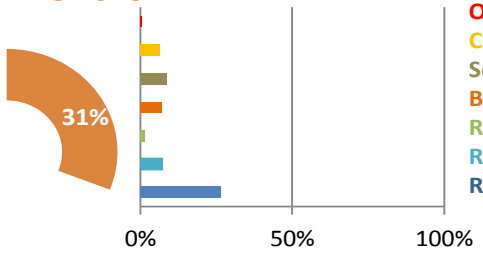


% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

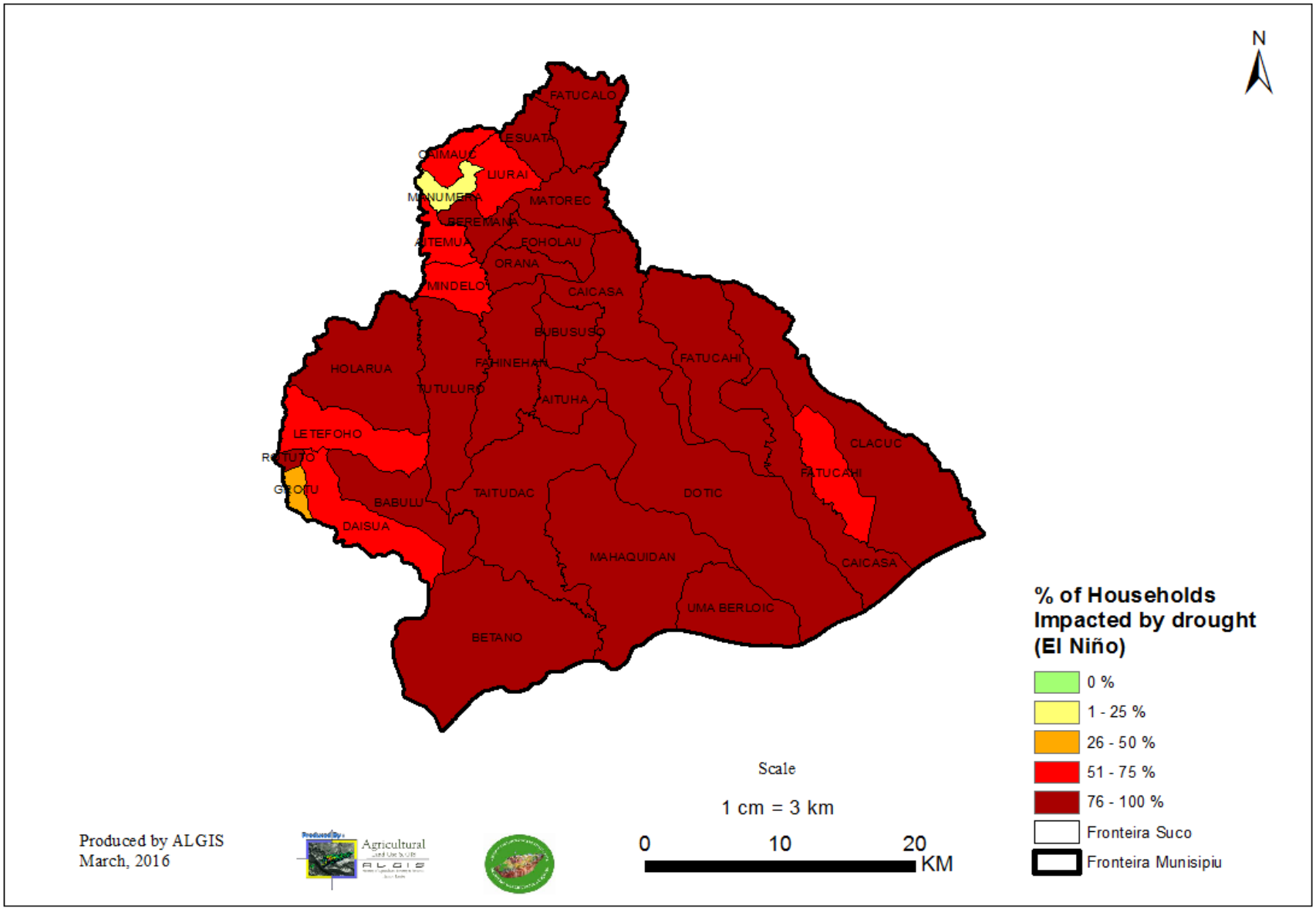


Coping strategy

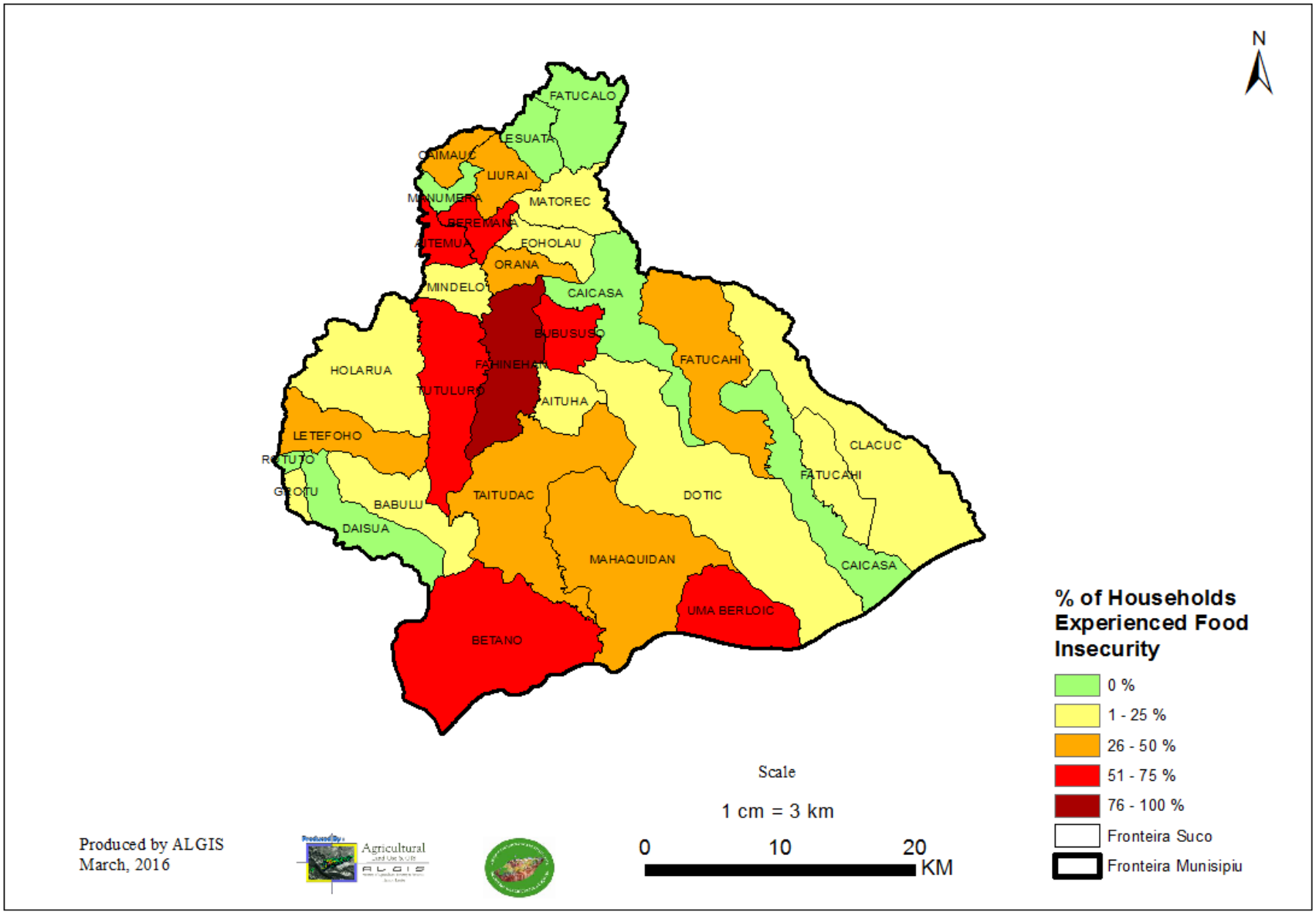
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

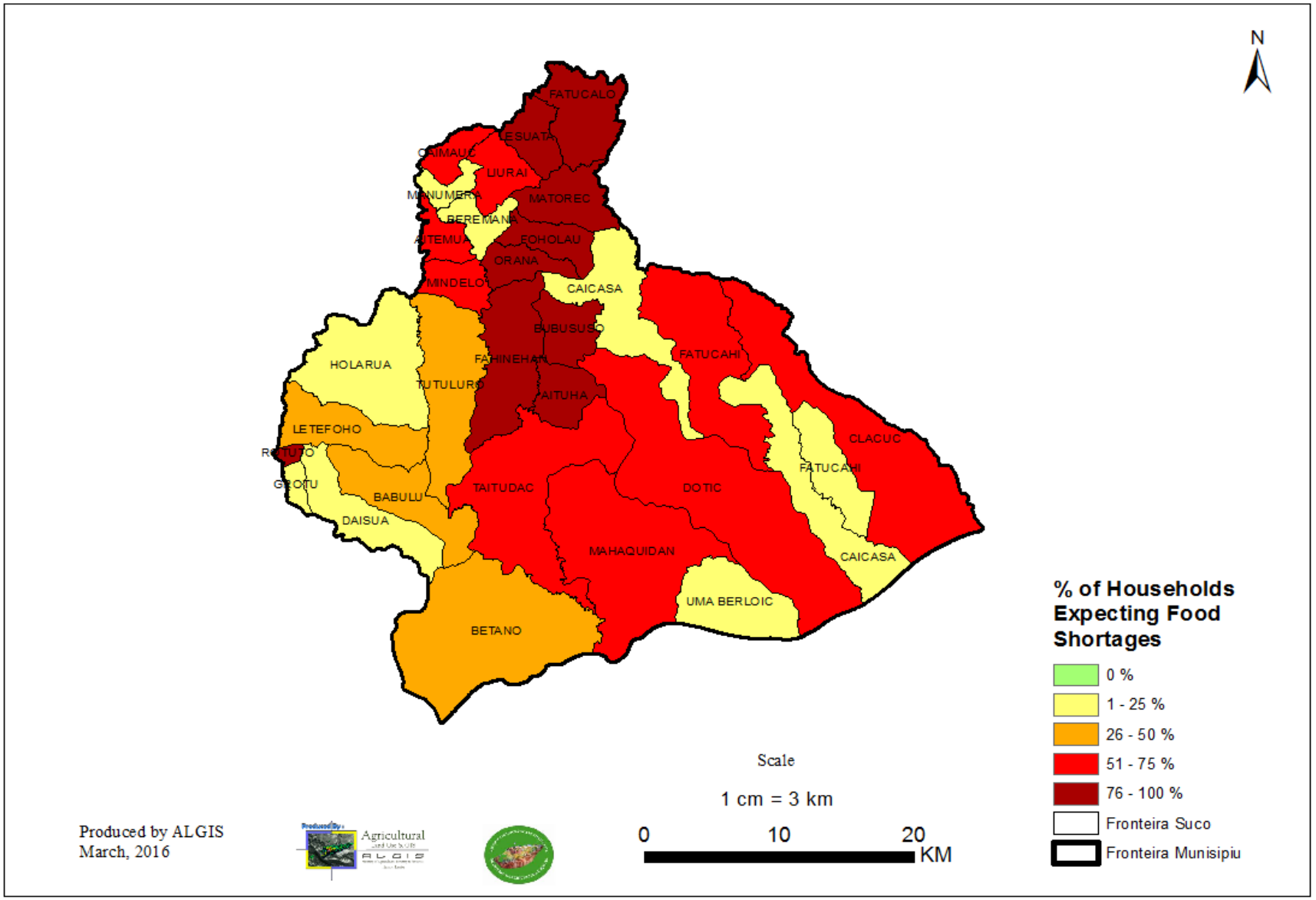
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Viqueque

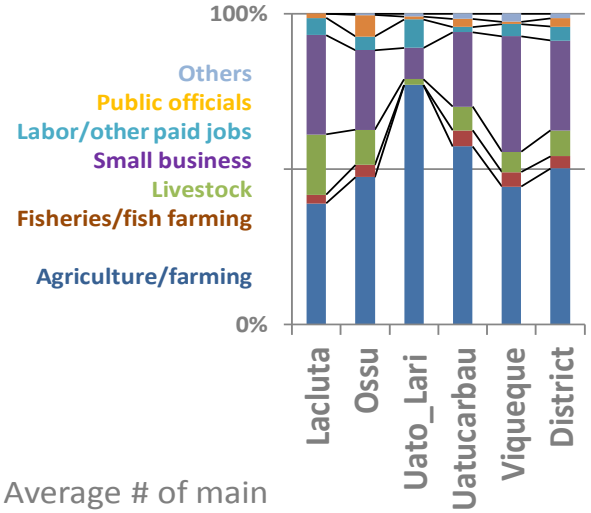
General Information

# surveyed households	571
% women headed households	10%
# sucos	32
% surveyed suco	91%

Profile respondent HHs

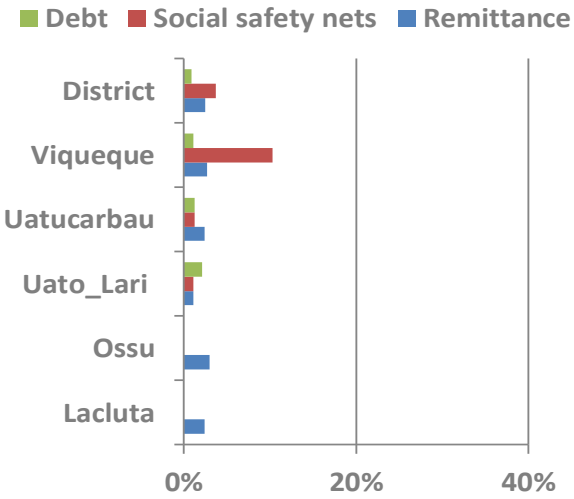
	Average # HH members per surveyed HH	Average # of pregnant woman per surveyed HH	Average # of children under-5 per HH	Average # of disable person per HH
Lacluta	6.5	0.2	1.1	0.4
Ossu	6.9	0.3	1.0	0.1
Uato_Lari	6.8	0.1	0.7	0.3
Uatucarbau	6.9	0.2	1.1	0.2
Viqueque	6.6	0.3	1.0	0.1
District	6.8	0.3	1.0	0.2

Main source of income

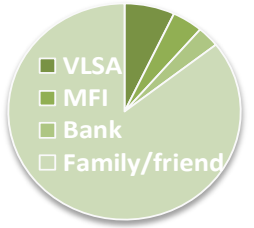


Average # of main source of income: 1.7 (Lacluta), 1.4 (Ossu), 1.2 (Uato_Lari), 1.4 (Uatucarbau), 2.1 (Viqueque), 1.6 (District)

Access to other income/cash

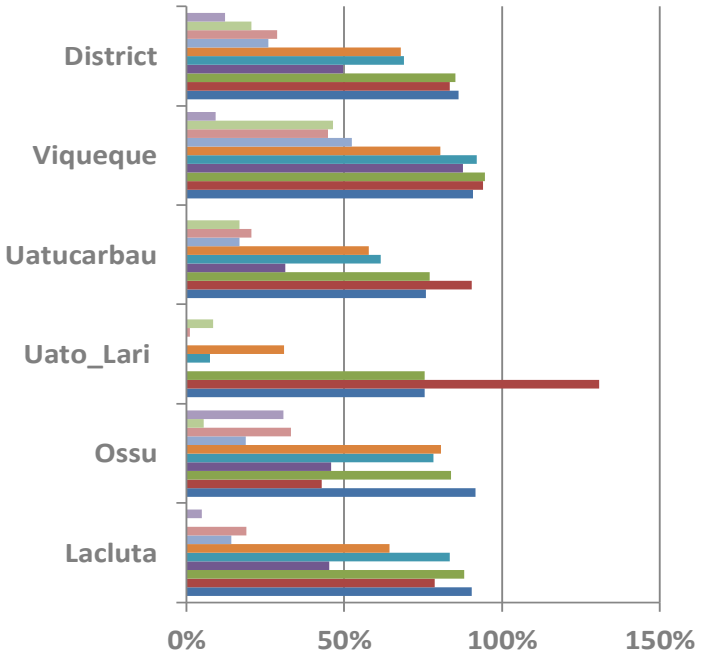


Social safety nets



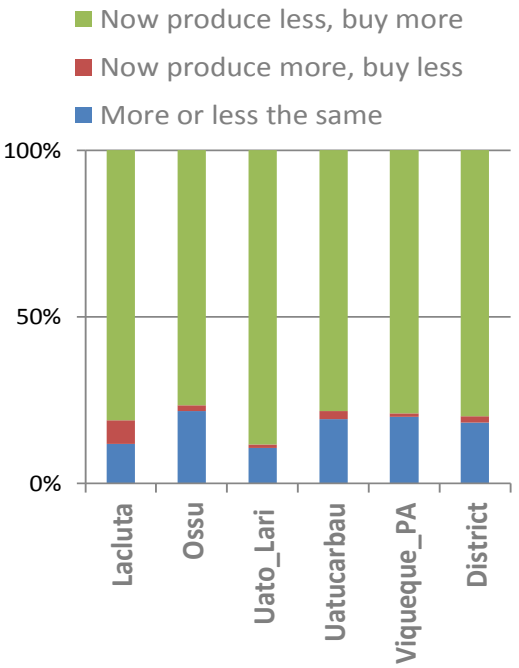
Source of Credit

Foods consumed and sources

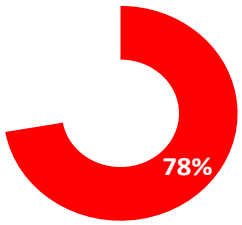


	% HH	
	Produced	Procured
Others	1%	12%
Fish/seafoods	4%	41%
Eggs	16%	31%
Meats	8%	43%
Fruits	58%	28%
Vegetables	55%	51%
Legume beans	44%	23%
Roots/tubers	82%	26%
Rice	58%	49%
Maize	87%	22%

Compare to last year..

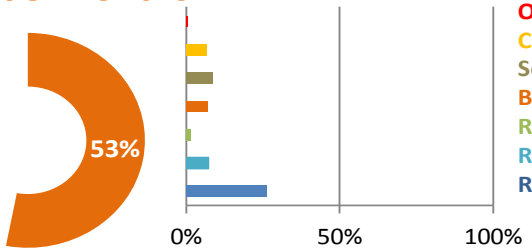


% HHs reporting impacted by drought



% HHs reporting of experienced food insecurity

Past 3-months

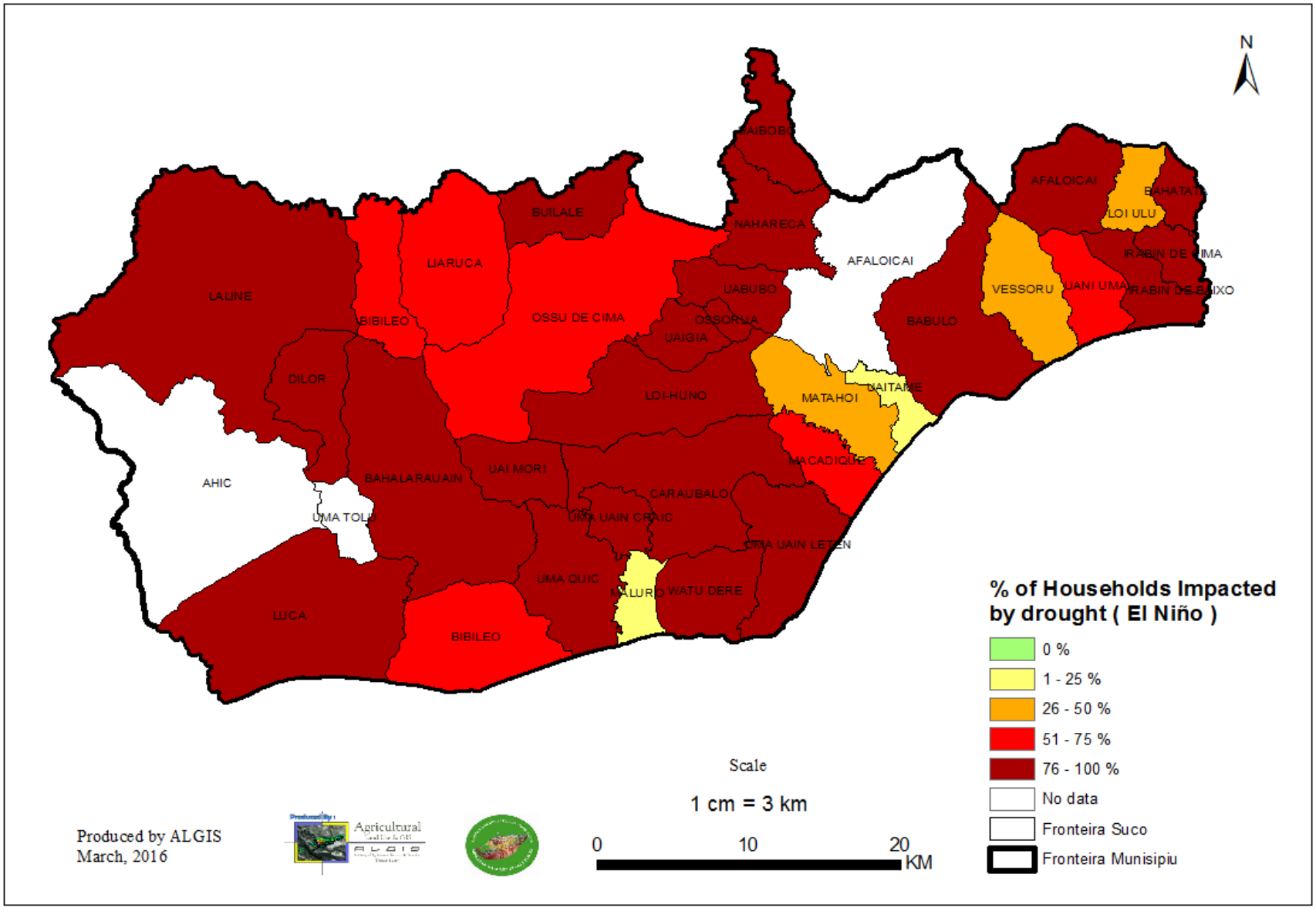


Coping strategy

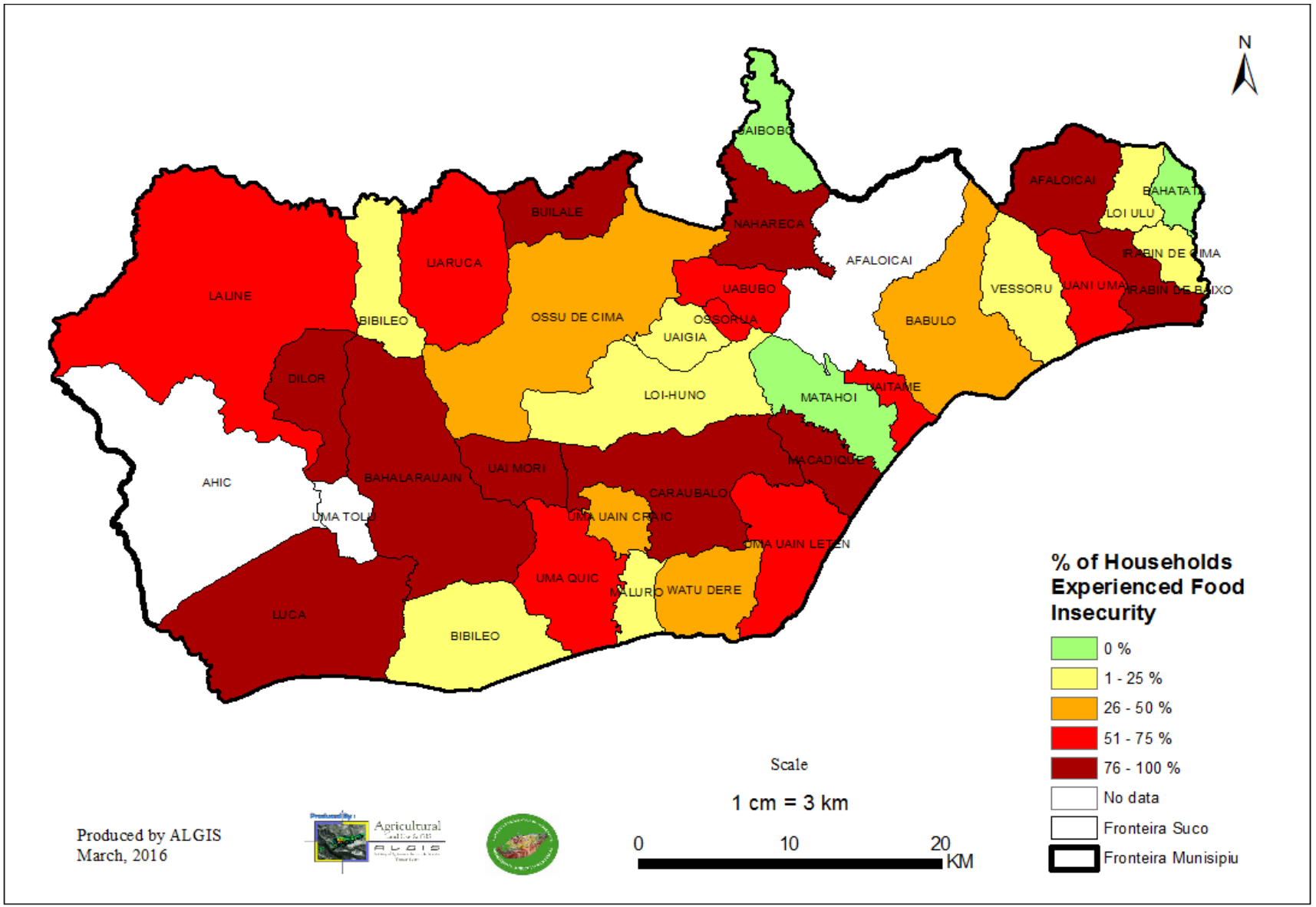
- Others
- Consumed saved-seeds
- Sold animals or other HH assets
- Borrowed $ or foods from others
- Received supports from family/friend
- Reduced portion and/or frequencies meals
- Relied on less preferred foods

Next 3-months

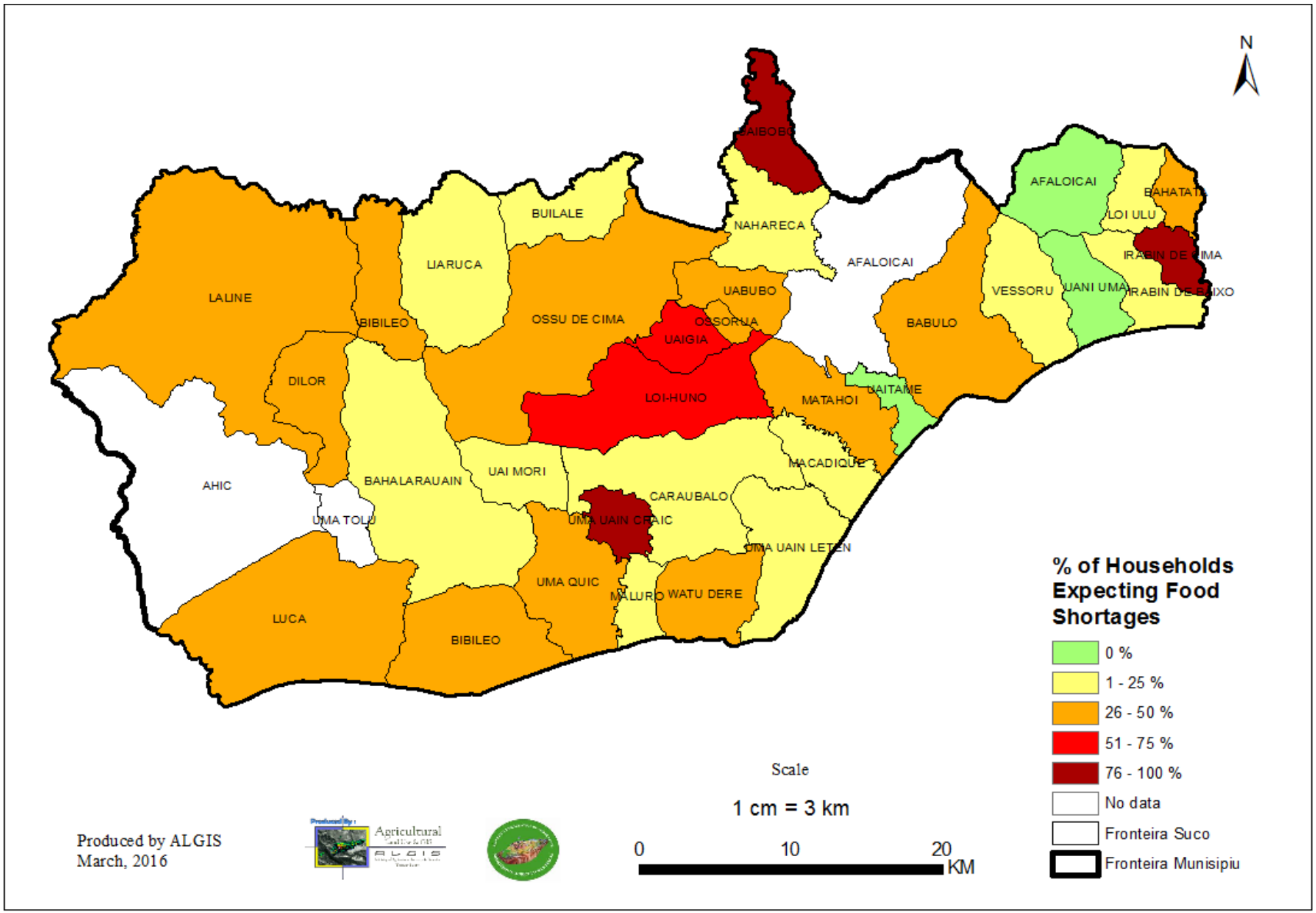
Drought affected areas, by percentage of households impacted, per *suco*



Prevalence of Food Insecurity from December 2015 to February/March 2016, by *suco*



Food Security Situation from March/April to June 2016, by *suco*



Annex 2: Questioner for Household Survey

Introduction

This survey is of us to gather information to understand the impact of the drought to households. This information will be used to make recommendations to government and other relevant organizations.

Interviewer

Name of interviewer	Organization	Date of interview

Geographic information

Municipal	Adm Post	Suco	Aldeia

Respondent details

1.1	1.2	1.3	1.4	1.5
Name	Sex	Age (years)	Are you the HH head?	If no, what is the sex of HH head?
	□Male □Female		□Yes → go to 2.1 □No	□Male □Female

Household details

2.1	2.2	2.3	2.4
# people in HH	# pregnant or breastfeeding women in HH	# under-5 children in HH	# disabled person in HH

2.5	Does your HH (crops, rice field, animals) is impacted by the drought?	□No → **FINISH** □Yes

Household income sources

3.1	3.2	3.3	3.4	3.5
Main sources of HH income	During past 3 months, anyone in HH receive remittance from overseas?	Anyone in HH receive any social payment from government? If yes, please specify	During past 3 months, anyone in HH working for cash-for-work or short-term construction job?	During past 3 months, anyone in HH have access to credit? If yes, specify sources
□Agriculture/crop sale □Fishing/aquaculture □Animal sale □Small businesses (kiosk, trading, etc.) □Construction or other paid work □Government staff □Other, specify:___________________	□No □Yes	□No □Yes, Veteranus □Yes, Bolsadamain □Yes, Idosos □Yes, Defisientes □Other, specify:_______	□No □Yes	□No □Yes, from Savings and Loan Group □Yes, from Micro Finance Institution (i.e. Moris Rasik) □Yes, from Bank (BNCTL) □Yes, from family or friend

Food consumption and sources

4.1	4.2	4.3	4.4
Types of food which are currently consumed by HH?	Any foods which are currently produced by HH? If yes, what are they?	Any foods which are currently procured from market? If yes, what are they?	How does these situations (4.2 & 4.3) compare to previous year?
□Maize □Rice □Roots and tubers (cassava, etc.) □Beans/legumes/nuts □Vegetables □Any fruits (banana, etc.) □Any meat □Eggs □Any fish and other seafood □Other, specify:___________________	□Maize □Rice □Roots and tubers (cassava, etc.) □Beans/legumes/nuts □Vegetables □Any fruits (banana, etc.) □Any meat □Eggs □Any fish and other seafood □Other, specify:___________________	□Maize □Rice □Roots and tubers (cassava, etc.) □Beans/legumes/nuts □Vegetables □Any fruits (banana, etc.) □Any meat □Eggs □Any fish and other seafood □Other, specify:___________________	□I don't know/Not so sure □Now produce more and buy less □More or less the same □Now produce less and buy more

4.5	During past 3-months, do your HH have any problem in meeting food needs?	□No → **go to 4.7** □Yes, why? _____	
4.6	If 'Yes', what did your HH do to address it?	□Rely on less preferred, less expensive foods or foods from forest/bush (cassava, taro, etc.) □Reduce meal size or reduce the number of meals each day □Ask/receive food donation from relatives, friends or government/others	□Borrow food from kiosks or borrow money from relatives, friend or financial institution/others to buy food □Selling HH assets (animal, tools, etc.) to buy food □Consuming saved seeds for next planting season □Other, please specify:_____
4.7	Do you think your HH will be able to meet its food needs (either from own production or from buying from market) for the next 3 months or above?	□No □Yes → **go to 5.1**	
4.8	If no, what will your HH do?	□Rely on less preferred, less expensive foods or foods from forest/bush (cassava, taro, etc.) □Reduce meal size or reduce the number of meals each day □Ask/receive food donation from relatives, friends or government/others	□Borrow food from kiosks or borrow money from relatives, friend or financial institution/others to buy food □Selling HH assets (animal, tools, etc.) to buy food □Consuming saved seeds for next planting season □Other, please specify:_____

Maize production

5.1	5.2	5.3	5.4	5.5
Does your HH grow maize normally?	How many hectares did your HH plant maize last year?	How many hectares does your HH plant maize this year?	Compare to last year, how well is your maize growing now?	Will you replant maize <u>within next 3-months</u>? If no – why, and if yes – when
□No → **go to 6.1** □Yes	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Growing well (better or more or less the same than previous 'normal' seasons) □Only partly growing □Not growing at all	□Not so sure, why? _____ □No, because no more saved seeds or no seeds available in local market/others □No, because no money to buy seeds despite that seeds is available in market □No, because no water □No, because no time/labor □No, other reason, specify: _____ □Yes, please specify when? _____

5.6	Do you have any silo or other improved storage unit to save your maize seeds and/or grain?	□No □Yes

Rice production

6.1	6.2	6.3	6.4	6.5
Does your HH grow rice normally?	How many hectares did your HH plant rice last year?	How many hectares does your HH plant rice this year?	Compare to last year, how well is your rice growing now?	Will you replant rice <u>within next 3-months</u>? If no – why, and if yes – when
□No → **go to 7.1** □Yes	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Growing well (better or more or less the same than previous 'normal' seasons) □Only partly growing □Not growing at all	□Not so sure, why? _____ □No, because no more saved seeds or no seeds available in local market/others □No, because no money to buy seeds despite that seeds is available in market/others □No, because no water □No, because no time/labor □No, other reason, specify: _____ □Yes, please specify when? _____

6.6	Do you have any silo or other improved storage unit to save your rice seeds and/or grain?	□No □Yes

Vegetables, tubers, roots, beans production

7.1	7.2	7.3	7.4	7.5
Does your HH normally grow any vegetables/ tubers /roots/ beans?	How many ha. did your HH plant last year?	How many ha. does your HH plant this year?	Compare to last year, how well they're growing now?	Will you replant them within next 3-months? If no – why, and if yes – when
□No → **go to 8.1** □Yes, what are they? □Leafy & salad vegs (kangkung, pakcoy, etc) □Fruity vegs (tomatoes, etc.) □Flowers/buds vegs (broccoli, cauliflower, etc.) □Podded/beans (red beans, etc.) □Bulb & stems (kohlrabi, garlic) □Root & tubers (cassava, potato)	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Not planting □0.01 - 0.25 ha □0.25 to 0.50 ha □0.51 to 1.00 ha □1.01 to 1.50 ha □1.51 to 2.00 ha □>2 ha	□Growing well (better or more or less the same than previous 'normal' seasons) → **go to 8.1** □Only partly growing □Not growing at all	□Not so sure, why? _____ □No, because no more saved seeds or no seeds available in local market/others □No, because no money to buy seeds despite that seeds is available in market/others □No, because no water □No, because no time/labor □No, other reason: _____ □Yes, please specify when? _____

Others

8.1	Is there any animal owned by your HH died because of drought?	□No □Yes
8.2	If -yes, what animal & how many?	
8.3	Is there any animal owned by your HH sick because of drought?	□No □Yes
8.4	If yes, what animal & how many?	
8.5	Do you have any fish pond that has no/less water due to the drought?	□No □Yes

Annex 3: Questioner for Key Informant Interviews

0 – GENERAL INFORMATION		
Name of Enumerator	**Position:**	**Date of the Interview:**
Municipality:	**Administrative Post:**	**Suco:**
Name ofthe Respondent:	**Sex:**	**Signature:**
	□ Mane □ Feto	

1. CULTIVATION FIRST SEASON YEAR 2015/2016				
1.1. Irrigated Rice Fields				
In this Suco how many hectares are irrigated rice fields?	Are all areas planted?	If not, how many hectares not planted?	Why farmers not planted? **(Max 3 answers, 1 being the most important and 3 the least)**	
	□ Yes □ No		□ Water not sufficient	
			□ Seeds not sufficient	
			□ Labor not sufficient	
			□ Plenty of water	
			□ Tractor was not available	
			□ Not yet season	
			□ Tractor not enough	
1.2 Rainfed Rice Fields				
In this Suco how many hectares are rainfed rice fields?	Are all areas planted?	If not, how many hectares not planted?	Why farmers not planted? **(Max 3 answers, 1 being the most important and 3 the least)**	
	□ Yes □ No		□ Water not sufficient	
			□ Seeds not sufficient	
			□ Labor not sufficient	
			□ Plenty of water	
			□ Tractor was not available	
			□ Not yet season	
			□ Tractor not enough	
1.3 Upland Rice Fields				
In this Suco how many hectares are upland rice fields?	Are all areas planted?	If not, how many hectares not planted?	Why farmers not planted? **(Max 3 answers, 1 being the most important and 3 the least)**	
	□ Yes □ No		□ Water not sufficient	
			□ Seeds not sufficient	
			□ Labor not sufficient	
			□ Plenty of water	
			□ Tractor was not available	
			□ Not yet season	
			□ Tractor not enough	
1.4 Do you consider this season rice planting normal, early or late?		□ Early	□ Normal	□ Late
1.5 Maize this season				
In this Suco how many hectares are maize fields?	Are all areas planted?	If not, how many hectares not planted?	Why farmers not planted? **(Max 3 answers, 1 being the most important and 3 the least)**	
	□Yes □No		□ Water not sufficient	
			□ Seeds not sufficient	
			□ Labor not sufficient	
			□ Plenty of water	
			□ Tractor was not available	
			□ Not yet season	
			□ Tractor not enough	
1.6 Do you consider this season maize planting normal, early or late?		□ Early	□ Normal	□ Late

2 – CROP CONDITION THIS MONTH				
2.1		**Is the crop growing well?**	**Is the crop wilting?**	**Is the crop died?**
1	Irrigated Rice	□ Yes □ No	□ Yes □ No	□ Yes □ No
2	Upland Rice	□ Yes □ No	□ Yes □ No	□ Yes □ No
3	Rainfed Rice	□ Yes □ No	□ Yes □ No	□ Yes □ No
4	Maize	□ Yes □ No	□ Yes □ No	□ Yes □ No

3 - PEST, HAZARDS AND DISEASES										
Please indicate crops that are affected with pest, diseases and hazards during this season										
3.1	**Factors**	Irrigated Rice	Rainfed Rice	Upland Rice	Maize	Cassava	Iris Potato	Sweet Potato	Red beans	Coffee
1	Rodents/Rats	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
2	Locust	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
3	Fura kain	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
4	Fungus	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
5	Nago/wereng	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
6	Snails	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
7	White caterpillars	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
8	Drought	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
9	Strong wind	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
10	Landslides /erosion	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
11	Flooding	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No

4 – FOOD AVAILABLE IN THE MARKET			
What kind of food available in the market this month?			
4.1	**Type of Food**	**Available in the market?**	**Price ($/kg)**
1	Local Rice	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
2	Subsidy Rice (MCIA)	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
3	Commercial Rice	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
4	Maize	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
5	Soy Bean	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
6	Mung Bean	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
7	Red Bean	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
8	Cassava	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
9	Iris Potato	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
10	Sweet Potato	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
11	Fresh Fish	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	
12	Dried Fish	□ Available □ More or less available (difficult to find) □ Not available (not in the market)	

5 - LIVESTOCK				
5.1	**Type of Animal**	**Access to water and fodder**	**Number of sick animal**	**Number of animal died**
1	Chicken	□ Yes □ No		
2	Buffalo	□ Yes □ No		
3	Cattle/Cow	□ Yes □ No		
4	Pig	□ Yes □ No		
5	Goat	□ Yes □ No		
6	Sheep	□ Yes □ No		
7	Horse	□ Yes □ No		

In this suco, do some people sell their animal?

5.2	**Animal**	**Selling or not?**	**Reason?**	**Price (average) ($)**
1	Chicken	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
2	Buffalo	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
3	Cattle/Cow	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
4	Pig	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
5	Goat	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
6	Sheep	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	
7	Horse	□ Plenty are selling □ Few selling □ Not selling	□ Buy things/gifts/fix house/etc □ Buy food or seeds □ Ceremony	

6 – AQUACULTURE	
6.1 Aquaculture	
How many fish ponds still functioning?	
How many of the fish pond dried because of drought?	

7 – GENERAL COMMENT ON THE FOOD SECURITY SITUATION

This report is made possible with the support from: