LIVELIHOODS AND FOOD SECURITY IN THE PASTORAL and AGROPASTORAL COMMUNITIES OF ETHIOPIA: IMPLICATIONS FOR DEVELOPMENT INTERVENTION

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Surveys conducted

- Regional Pastoral Livelihoods Resilience Program (RPLRP)
  - Somali, Afar, Oromia, SNNPR
  - Sample size: 1295
- Pastoral Community Development Program (PCDP)
  - Somali, Afar, Oromia, SNNPR
  - Sample size: 2756
- Drought Resistance and Sustainable Livelihoods Program II (DRSLP II)
  - Oromia, SNNPR
  - Sample size: 870
- Drought Resistance and Sustainable Livelihoods Program - Afar (DRSLP-Afar)
  - Afar
  - Sample size: 360

Presentation outline

- Household socioeconomic characteristics and livelihoods based on
  - RPLRP survey
  - Analysis of descriptive information

- Household food security analysis based on
  - DRSLP –II (Borana, Guji, Bench Maji, Kaffa, South Omo) survey and
  - DRSLP-Afar survey (Amibara, Chifera, Dawe, Telalak, Aura, Gewane Woredas)
  - HFIAS analysis and
  - Econometric analysis

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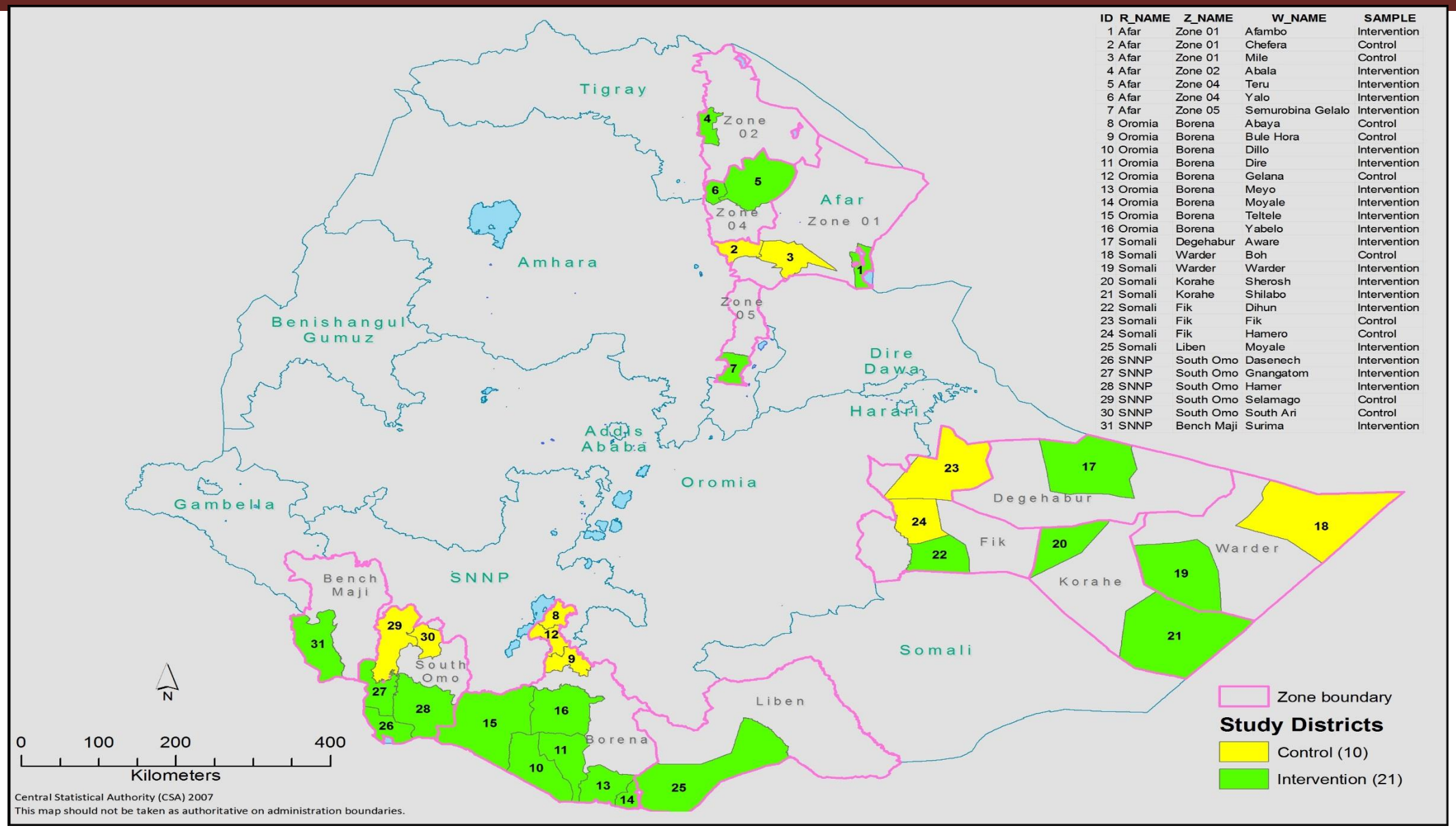
Selected household characteristics

(RPLRP Survey Results)

RPLRP Sample Woredas (Intervention and Control)



ID	R_NAME	Z_NAME	W_NAME	SAMPLE
1	Afar	Zone 01	Afambo	Intervention
2	Afar	Zone 01	Chefera	Control
3	Afar	Zone 01	Mile	Control
4	Afar	Zone 02	Abala	Intervention
5	Afar	Zone 04	Teru	Intervention
6	Afar	Zone 04	Yalo	Intervention
7	Afar	Zone 05	Semurobina Gelalo	Intervention
8	Oromia	Borena	Abaya	Control
9	Oromia	Borena	Bule Hora	Control
10	Oromia	Borena	Dillo	Intervention
11	Oromia	Borena	Dire	Intervention
12	Oromia	Borena	Gelana	Control
13	Oromia	Borena	Meyo	Intervention
14	Oromia	Borena	Moyale	Intervention
15	Oromia	Borena	Teltele	Intervention
16	Oromia	Borena	Yabelo	Intervention
17	Somali	Degehabur	Aware	Intervention
18	Somali	Warder	Boh	Control
19	Somali	Warder	Warder	Intervention
20	Somali	Korahe	Sherosh	Intervention
21	Somali	Korahe	Shilabo	Intervention
22	Somali	Fik	Dihun	Intervention
23	Somali	Fik	Fik	Control
24	Somali	Fik	Hamero	Control
25	Somali	Liben	Moyale	Intervention
26	SNNP	South Omo	Dasenech	Intervention
27	SNNP	South Omo	Gnangatom	Intervention
28	SNNP	South Omo	Hamer	Intervention
29	SNNP	South Omo	Selamago	Control
30	SNNP	South Omo	South Ari	Control
31	SNNP	Bench Maji	Surima	Intervention

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RPLRP data collection

- Data collected from Afar, Somali, Oromia (Borana zone), and SNNPR (South Omo and Bench Maji zones)
- 31 Woredas (21 intervention and 10 control), 93 kebeles
- 1295 household interviews, of which 11.9% (154) were women household heads
- 93 community FGDs, 93 woreda level KIIs , and 12 regional KIIs
- Secondary data collected at various levels

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Proportion of female headed households

Region	Pastoral	Agro-pastoral	Total
Afar	13.66	7.21	**11.22**
Oromia (Borana)	26.03	7.87	**11.38**
Somali	20.91	14.81	**19.14**
SNNP (Bench Maji, South Omo)	1.35	3.37	**2.78**

- Lowest proportion of female headed households in SNNPR, and highest in Somali
- Proportion statistically higher in pastoral than in agropastoral areas in Afar and Borana
- Interesting to find out why proportion higher in pastoral areas

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Average age of household heads

Region	Age			
	Mean	Min.	Max.	Mode
Afar	42	20	85	40
Oromia (Borana)	44	20	90	35
Somali	45	20	83	40
SNNP (Bench Maji, South Omo)	42	20	78	40
Total	44	20	90	40

- Relatively younger household heads
- Consistent mode value except in Oromia
- No statistically significant difference in average age of household head by livelihood zones

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Average household size

Region	Size			
	Mean	Min	Max	Mode
Afar	6.47	1	15	6
Oromia (Borana)	6.80	2	25	7
Somali	6.87	1	18	7
SNNP (Bench Maji, South Omo)	5.99	1	12	6

- Average household sizes numerically higher than the national average
- No statistically significant difference in average household size across regions
- Agro-pastoralists have statistically higher household sizes in Borana and Somali

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Proportion of total household members who are in education

Region	Pastoral	Agro-pastoral	Total
Afar	27.75	39.59	**32.30**
Oromia (Borana)	22.54	28.62	**27.54**
Somali	29.61	36.13	**31.68**
SNNP (Bench Maji, South Omo)	20.80	29.40	**26.82**

- Good performance in education enrolment
  - Between a quarter and one-third of population in school
- Enrolment higher for males than for females across regions and livelihood zones
- Enrolment significantly higher in agro-pastoral than pastoral system
  - Relative settlement helping school enrolment?

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Livestock Holding

Proportion of households who own livestock by species

Region				
	cattle	sheep	goat	camel
Afar	65.65	67.69	**91.84**	44.22
Oromia (Borana)	98.41	52.65	**82.80**	20.63
Somali	40.70	80.86	**95.42**	34.50
SNNP (Bench Maji, South Omo)	98.81	46.43	**81.35**	0.00

- Importance of type of species vary by region
- Most popular species across regions are goats
- Cattle seem to be more popular in Borana and SNNPR
- Camel more popular in Somali and Afar

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Livestock ownership - Number

Region	Number			
	Cattle	Sheep	Goat	Camel
Afar	13.39	28.92	56.44	4.42
Oromia (Borana)	26.65	15.84	24.10	1.70
Somali	4.07	41.92	53.77	4.65
SNNP (Bench Maji, South Omo)	50.45	27.04	53.92	0.00

- Importance of species varies by region
  - Higher number of cattle in Oromia and SNNPR
  - Higher number of Sheep in Somali
  - Higher number of goats in Afar, Somali and SNNP
  - Higher number of camels in Afar and Somalia

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Mean livestock holding -- TLU

Region	Cattle	sheep	goat	camel	Total TLU
Afar	9.38	2.89	5.64	4.42	26.75
Oromia (Borana)	18.66	1.58	2.41	1.7	26.04
Somali	2.85	4.19	5.38	4.65	21.73
SNNP (Bench Maji, South Omo)	35.32	2.7	5.39	0	43.41

- Recent World Bank publication (2016) indicates that 3-4 TLU per capita is required for food security
- Per capita TLU:
  - Afar: 4.13
  - Borana: 3.82
  - Somali: 3.16
  - SNNP: 7.24

Household Cash Income

Average household cash income

Region	Pastoral	Agro-pastoral	Total
	Mean	Mean	Mean
Afar	28,431.60	17,949.58	24, 474.10
Oromia (Borana)	30,961.67	22,779.36	24, 359.54
Somali	25,464.53	17,616.01	23, 179.78
SNNP (Bench Maji, South Omo)	25,896.04	25,611.00	25, 694.70

- No statistically significant difference in average household cash income across regions
- Wide cash income difference across households
- Cash income statistically higher in pastoral areas only in Somali.

Average cash income structure of households

Region	Total					
	Livestock sales	Livestock products and services	Other on-farm activities	wage employment	Business activities	Other income sources
Afar	**18,671.70**	965.98	1,267.13	887.38	464.83	**2,217.07**
Oromia (Borana)	**16,305.59**	959.71	**3,572.74**	1,276.31	1,235.71	1,009.47
Somali	**14,436.14**	1,020.38	186.86	453.10	**4,122.27**	**2,961.03**
SNNP (Bench Maji, South Omo)	**16,253.11**	**2,287.32**	**4,180.74**	305.40	260.52	2,407.62

- Cash income from the sale of livestock most important source
- Other important sources of cash income vary from region to region

Cash income of livestock sales by livelihoods

Region	Pastoral	Agro-Pastoral
	Mean	Mean
Afar	23,363.66	10,936.31
Oromia (Borana)	28,236.30	13,450.05
Somali	15,951.44	10,746.10
SNNP (Bench Maji, South Omo)	19,119.19	15,061.59

- Cash income from livestock sales numerically much higher in pastoral than agro-pastoral areas
- However, difference is statistically significant only in Borana and SNNP (Bench Maji, South Omo)

Market Participation

- Most marketed species in all regions are goats
- 2nd most marketed species in Somali and Afar are sheep
- 2nd most marketed species in Borana and SNNPR are cattle
- Overall pattern is that higher proportion of households sell livestock in drought than in normal years

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Market access

- Market access a challenge
  - About 25% in Afar and Somali travel for more than 1 day
  - About 20% in Borana travel for more than 1 day
  - About 10% in SNNPR travel for more than a day

- Overall about one-fifth travel for more than a day

- Market access more of challenge in pastoral than in agro-pastoral areas in Afar, Borana and SNNPR

Access to livestock price information (% of respondents)

	Pastoral	Agro-pastoral	Total
Afar	51.91	45.95	**49.66**
Oromia	30.14	32.79	**32.28**
Somali	71.86	68.52	**70.89**
SNNP	4.05	18.54	**14.29**
Total	52.11	36.75	**43.78**

- Access to market information seems to be reasonable, except in SNNPR
- However, sources of information are primarily informal
- Role of mobile telephone as source of market information reported by between 6.8% and 45.9% of respondents

Selling decision is influenced by access to price information

	Pastoral	Agro-pastoral	Total
Afar	48.96	58.82	52.38
Oromia	22.73	22.33	22.40
Somali	37.82	32.43	36.33
SNNP	66.67	35.29	37.84
Total	40.45	33.97	37.50

- More 33% of households reported that access to price information influences their selling decision
- Livelihood zone does not change influence of price information on selling decision
- Non influence is due to unreliability and untimeliness of information, and the need to sell anyways

Food Insecurity and its Determinants (Based on DRSLP-II and DRSLP-Afar Data)

Methodology – Household Food Insecurity Access Scale (HFIAS)

- Food security – complex, multidimensional concept
- Most household level measures of food access, such as income, calorie intake tend to be data intensive and costly
- HFIAS is a relatively simple, but methodologically rigorous indicator of the access component of food insecurity
- Based on the idea that experiences of food insecurity causes predictable reactions and responses that can be captured and quantified through a survey and summarized in a scale

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Methodology – Household Food Insecurity Access Scale (HFIAS)

- Nine occurrence questions are asked for the last 4 weeks (30 days)
  - Anxiety
    - Did you worry that your household would not have enough food?
  - Quality of food intake
    - Were you or any household member not able to eat the kind of foods you preferred because of lack of resources?
    - Did you or any household member have to eat a limited variety of foods due to lack of resources?
    - Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
  - Quantity of food intake
    - Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?
    - Did you or any household member have to eat fewer meals in a day because there was not enough food?
    - Was there ever no food to eat of any kind in your household because of lack of resources to get food?
    - Did you or any household member go to sleep at night hungry because there was no enough food?
    - Did you or any household member go a whole day and night without eating anything because there was not enough food?
- If a condition occurs, a follow-up frequency (rarely, sometimes, often) is asked

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HFIAS

- Analysis
  - Domain 1- Feeling of uncertainty or anxiety over food – Question 1
  - Domain 2- Perception about insufficiency of quality of food intake – Questions 2-4
  - Domain 3- Perception about insufficiency of food intake – Questions 5-9

- Analysis outcomes:
  - Access-related conditions – occurrence of each condition
  - Access-related domains – occurrence in each domain
  - Household food insecurity access scale score – proportion of occurrences in sample
  - Household food insecurity access prevalence – categories of food insecurity status (food secure, mildly food insecure, moderately food insecure, severely food insecure)

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Food Insecurity Analysis Results Based on the DRSLP-II and DRSLP-Afar data

Food insecurity situation by month (DRSLP-II and DRSLP-Afar)

	Total households					
	Borena	Guji	South Omo	Bench Maji	Kaffa	Total
Meskerem	49.8	36.1	33.8	22.5	42.9	39.4
Tikemet	49.8	36.1	27.7	23.9	37.1	38.6
Hidar	53.2	38.6	32.3	21.1	28.6	40.3
Tahisas	57.1	42.6	40.0	21.1	20.0	43.4
Tir	69.8	58.4	47.7	28.2	17.1	55.0
Yekatit	77.1	75.2	61.5	42.3	25.7	67.3
Megabit	82.9	85.1	60.0	49.3	40.0	74.4
Miazia	81.0	86.6	67.7	67.6	40.0	77.3
Ginbot	81.0	82.7	72.3	83.1	65.7	79.9
Sene	73.2	73.8	61.5	70.4	57.1	70.8
Hamle	65.9	56.9	53.8	46.5	48.6	58.0
Nehassie	57.6	53.5	41.5	32.4	48.6	50.7

	Amibara	Chifera	Dawe	Telalak	Aura	Gewane	Total
Meskerem	25.8	43.3	24.1	26.5	25.9	18.5	27.5
Tikemet	29.0	33.3	24.1	23.5	18.5	18.5	24.7
Hidar	25.8	46.7	34.5	26.5	29.6	22.2	30.9
Tahisas	38.7	53.3	41.4	29.4	37.0	33.3	38.8
Tir	51.6	46.7	37.9	35.3	37.0	40.7	41.6
Yekatit	71.0	56.7	62.1	58.8	63.0	59.3	61.8
Megabit	74.2	60.0	79.3	64.7	74.1	85.2	72.5
Miazia	77.4	56.7	86.2	73.5	81.5	85.2	76.4
Ginbot	80.6	60.0	79.3	73.5	74.1	77.8	74.2
Sene	61.3	50.0	55.2	67.6	70.4	44.4	58.4
Hamle	48.4	43.3	41.4	38.2	55.6	37.0	43.8
Nehassie	29.0	33.3	44.8	41.2	48.1	33.3	38.2

Food Insecurity Prevalence

- Classifies households into four categories: Food insecure, Mildly food insecure, Moderately food insecure and Severely food insecure
  - **Food Secure:** experiences none of the food insecurity (access) conditions, or just experiences worry, but rarely.
  - **Mildly food insecure:** worries about having enough food sometimes or often, and/or is unable to eat preferred foods, and/or eats more monotonous diet than desired, and some foods considered undesirable, but only rarely.
  - **Moderately food insecure:** sacrifices quality more frequently, eats monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity size of meals or number of meals, rarely or sometimes
  - **Severely food insecure:** has graduated to cutting back on meal size or number of meals often, and/or experiences any of the three most severe conditions, even rarely

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Food insecurity categories

Questions	Frequency		
	Rarely	Sometimes	Often
1	**Food Secure**		
2			
3	**Mildly Food insecure**		
4			
5			
6	**Moderately food insecure**		
7			
8	**Severely food Insecure**		
9			

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Food insecurity prevalence in total households (% of households) (DRSLP-II and DRSLP-Afar)

	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
Borena	28.1	4.1	32.2	35.6
Guji	36.7	3.3	20.4	39.6
South Omo	34.4	6.7	24.4	34.4
Bench Maji	55.6	4.4	22.2	17.8
Kaffa	43.3	15.0	26.7	15.0
Total	38.2	4.9	25.3	31.6

	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
	41.7	6.7	43.3	8.3
Amibara	45.0	1.7	41.7	11.7
Chifera	43.3	6.7	35.0	15.0
Dawe	46.7	8.3	36.7	8.3
Telalak	46.7	3.3	38.3	11.7
Aura	45.0	6.7	28.3	20.0
Gewane	44.7	5.6	37.2	12.5

Food Insecurity prevalence (DRSLP-II and DRSLP-Afar) by Livelihood Zone

	Pastoral				Agro-pastoral			
	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
Borena	27.4	3.5	33.2	35.8	31.8	6.8	27.3	34.1
Guji	21.2	6.1	24.2	48.5	41.7	2.5	19.1	36.8
South Omo	35.2	6.8	22.7	35.2	na	na	na	na
Bench Maji	35.5	3.2	32.3	29.0	59.7	4.7	20.1	15.4
Kaffa	26.3	26.3	26.3	21.1	51.2	9.8	26.8	12.2
Total	28.6	5.6	29.3	36.5	47.5	4.3	21.4	26.8

	Pastoral				Agropastoral			
	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
Amibara	39.1	8.7	43.5	8.7	50.0	0.0	42.9	7.1
Chifera	45.0	1.7	41.7	11.7	0.0	0.0	0.0	0.0
Dawe	39.1	6.5	34.8	19.6	57.1	7.1	35.7	0.0
Telalak	45.8	8.5	37.3	8.5	100.0	0.0	0.0	0.0
Aura	40.0	4.0	42.0	14.0	80.0	0.0	20.0	0.0
Gewane	47.8	6.5	26.1	19.6	35.7	7.1	35.7	21.4
Total	43.0	5.9	37.8	13.4	54.7	3.8	34.0	7.5

Food insecurity prevalence in male headed and female headed households (% of households) (DRSLP-II)

	Male headed				Female headed			
	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
Borana	27.0	4.6	32.4	36.1	37.9	0.0	31.0	31.0
Guji	38.2	2.8	21.1	37.8	20.8	8.3	12.5	58.3
South Omo	33.3	7.7	25.6	33.3	41.7	0.0	16.7	41.7
Bench Maji	55.3	4.1	22.4	18.2	60.0	10.0	20.0	10.0
Kaffa	42.1	14.0	28.1	15.8	66.7	33.3	0.0	0.0
Total	38.3	4.9	25.8	31.1	37.2	5.1	20.5	37.2

	Male headed				Female headed			
	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure	Food Secure	Mildly Food Insecure	Moderately Food Insecure	Severely Food Insecure
Amibara	45.2	7.1	42.9	4.8	33.3	5.6	44.4	16.7
Chifera	44.7	2.1	40.4	12.8	46.2	0.0	46.2	7.7
Dawe	39.2	5.9	41.2	13.7	66.7	11.1	0.0	22.2
Telalak	46.0	8.0	38.0	8.0	50.0	10.0	30.0	10.0
Aura	43.4	1.9	41.5	13.2	71.4	14.3	14.3	0.0
Gewane	50.0	4.0	28.0	18.0	20.0	20.0	30.0	30.0
Total	44.7	4.8	38.6	11.9	44.8	9.0	31.3	14.9

Determinants of Food Insecurity – Probit and Ordered Probit Regression Results

Determinants of food security

- Probit and Ordered Probit results show that:
  - Livestock holding contributes to household food security
  - Off-farm income (wages and businesses) contributes to food security
  - Households may be resorting to livestock selling to cope up with food insecurity situations.
  - All else equal, female-headed households are more likely to be food insecure than male-headed households
  - All else equal, pastoral households are more likely to face food security situation than agro-pastoral households
  - Access to extension agent is associated with food security situation
  - In some cases, literacy of household head is associated with food security

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Community voices – Results of FDGs

- Water-centred Development
- Animal health services
- Integrated NRM
- Diversification of livelihood options
- Infrastructural development

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Conclusions and implications – Assets and income diversification

- Livestock assets improve food security. Development interventions need to focus on building and maintaining the livestock asset base of households – livestock health, integrated range management, water resources.
- Income diversification promotes food security. Interventions to facilitate income diversification such as capacity building, technology promotion, financial services, and market linkages need better attention.
- Access to extension services is associated with improved food security status of households. Strengthening the extension services should be an important component of interventions aimed at improving food security.

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Conclusions and implications – Gender

- Female-headed households are important in number and may increase overtime. Explicit attention to female-headed households in development interventions may be needed.

- Females have lower school enrolment than males. Measure to improve school enrolment for females is warranted.

- The high family size implies the need for family planning and birth control measures. However, intervention to this effect need to be consistent with social, cultural and religious norms.

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Conclusions and implications – Preparedness

- Pre-emptive measure for food security during the peak food insecurity months that have been identified need to be considered

- Food security is more severe in the pastoral than in the agro-pastoral households, implying more attention to ensure food security in pastoral households is needed.

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Conclusions and implications – market Infrastructure and services

- Market access still seems to be a problem in the production systems. Market infrastructure development based on participatory planning is recommended.
- Most market information is available from informal sources. Complementing the informal sources with formal sources may be needed.
- The fact that household selling decisions are influenced by access to market information emphasises the importance of improving the service.
- The level of school enrolment that has been achieved is encouraging. However, focus on quality and technical skills of students may be needed to achieve development impact of education.

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Average HFIAS Score of Households (DRSLP-II and DRSLP-Afar)

	Pastoral	Agro-pastoral	Total
Borena	7.7	6.3	7.5
Guji	9.4	7.2	7.7
South Omo	6.6	na	6.6
Bench Maji	5.4	3.6	3.9
Kaffa	4.8	2.7	3.4
Total	7.5	5.5	6.5

	Pastoral	Agropastoral	Total
Amibara	3.8	4.0	3.9
Chifera	3.0	na	3.0
Dawe	3.8	1.9	3.4
Telalak	3.0	na	3.0
Aura	3.5	0.5	3.0
Gewane	3.5	4.1	3.6
Total	3.4	2.7	3.3

Proportion of households who reported at least one month of food insecurity situation (% of households) (DRSLP-II and DRSLP-Afar)

	Livelihood		
Zone	Pastoral	Agropastoral	Total
Borana	77.9	65.9	75.9
Guji	84.8	71.6	74.8
South Omo	71.6	na	72.2
Bench Maji	71.0	32.9	39.4
Kaffa	73.7	51.2	58.3
Total	77.0	56.1	66.4

	Livelihood		Total
	Pastoral	Agropastoral	
Amibara	54.3	42.9	51.7
Chifera	50.0	0.0	50.0
Dawe	52.2	35.7	48.3
Telalak	57.6	na	56.7
Aura	50.0	20.0	45.0
Gewane	45.7	42.9	45.0
Total	51.8	35.8	49.4