

Supplementary materials

Table S1. Sample Households per Agro-ecology Zone.

<i>Woreda</i>	Kebeles (Villages)	Name of the AEZ_Class	Est Popn 2019	Sample HHs	No of FGD	No of KII
Lode Hitosa	Gebe	Cold to very cold hu- mid sub_Afroalpine to Afroalpine [AEZ_1]	1307	101	1	3
	Tulu Jebi	Tepid to cool humid mid highlands [AEZ_2]	1135	88	1	
Merti	Gado Arba	Hot to warm moist low- lands [AEZ_3]	1010	78	1	3
	Wetro Dino	Hot to warm, arid low- land plains [AEZ_4]	702	54	1	
Adama	Seqeqelo	Tepid to cool sub-moist mid-highlands [AEZ_5]	297	23	1	3
	Gedemsa Kurfa	Hot to warm semi-arid lowlands [AEZ_6]	496	39	1	
Total	6	6	4947	384	6	9

Cold to very cold humid [AEZ_1], Tepid to cool humid [AEZ_2], Hot to warm moist [AEZ_3], Hot to warm arid [AEZ_4], Tepid to cool sub moist [AEZ_5], and Hot to warm semi-arid [AEZ_6].

Table S2. Annual drought frequency over agro-ecologies for the period 1983–2016.

SPEI-12 Index Value and Description	Agro-Ecological Zones					
	[AEZ_1]	[AEZ_2]	[AEZ_3]	[AEZ_4]	[AEZ_5]	[AEZ_6]
+2.0 and above (Extremely wet)	1	2	0	0	1	1
+1.5 to +1.99 (Very wet)	3	1	3	3	1	1
+1.0 to +1.49 (Moderately wet)	0	1	2	2	2	4
+0.5 to +0.99 (Mild wet)	3	4	7	4	9	2
-0.49 to +0.49 (Normal condition)	17	17	11	14	10	18
-0.5 to -0.99 (Mild drought)	5	2	6	6	5	3
-1.0 to -1.49 (Moderate drought)	2	5	3	1	3	3
-1.5 to -1.99 (Severe drought)	2	1	2	4	3	2
-2.0 and below (Extreme drought)	1	1	0	0	0	0
Drought frequency	29.4%	26.5%	32.4%	32.4%	32.4%	23.5%

Cold to very cold humid [AEZ_1], Tepid to cool humid [AEZ_2], Hot to warm moist [AEZ_3], Hot to warm arid [AEZ_4], Tepid to cool sub moist [AEZ_5], and Hot to warm semi-arid [AEZ_6].

Table S3. Agroecology based farmers' perception of trends of selected climate indices.

Perception		Major Agro-Ecology Zone						Total
		AEZ_1	AEZ_2	AEZ_3	AEZ_4	AEZ_5	AEZ_6	
Perceived about Climate Change	No	9.3	14.0	13.8	9.8	12.5	2.4	10.7
	Yes	90.7	86.0	86.2	90.2	87.5	97.6	89.3
Temperature over the years has increased	Disagree	18.7	12.9	37.9	26.2	0	0	18.2
	Agree	81.3	87.1	62.1	73.8	100	100	81.8

Physical data (Tmin and Tmax)	Decreased	0	0	100	0	0	100	33.3
	Increased	100	100	0	100	100	0	66.7
The number of Warm days (TX90P) over the years increased	Disagree	23.4	25.8	24.1	32.8	0	17.1	23.4
	Agree	76.6	74.2	75.9	67.2	100	82.9	76.6
Physical data (TX90P)	Decreased	0	0	0	0	0	0	0
	Increased	100	100	100	100	100	100	100
The number of cold nights (TN10p) over the years increased	Disagree	70.1	68.8	46.6	70.5	91.7	29.3	36.7
	Agree	29.9	31.2	53.4	29.5	8.3	70.7	63.3
Physical data (TN10P)	Decreased	100	100	100	100	0	0	66.7
	Increased	0	0	0	0	100	100	33.3
The amount of rainfall (TRF) over a year has increased	Disagree	63.6	50.5	60.3	70.5	100	61	55.5
	Agree	36.4	49.5	39.7	29.5	0	39	44.5
Physical data (TRF)	Decreased	100	100	100	100	100	0	80.3
	Increased	0	0	0	0	0	100	16.7
Drought occurrence frequency increases	Disagree	39.3	37.6	45.8	39.0	24.1	34.4	36.2
	Agree	60.7	62.4	54.2	61.0	75.9	65.6	63.8
Physical data (SPEI and SPI 12)	Decreased	0	0	0	0	0	0	0
	Increased	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Cold to very cold humid [AEZ_1], Tepid to cool humid [AEZ_2], Hot to warm moist [AEZ_3], Hot to warm arid [AEZ_4], Tepid to cool sub moist [AEZ_5], and Hot to warm semi-arid [AEZ_6]. Responses are in percentage.