Survey Questionnaire (English)

Impact of Climate Change on Livestock and Adaptation Strategies in the Gandaki Province of Nepal

(Survey Questionnaire, 2022)

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This project is funded by Research Directorate, Tribhuvan University. My name is …….. ……. ……. We are conducting a survey in Western Nepal to learn about *Impact of Climate Change on Livestock and Adaptation Strategies in the Gandaki Province of Nepal.* You have been chosen by chance to participate in the study. I want to assure you that all of your views will be kept strictly secret. You have the right to stop the interview at any time, or to skip any questions that you don't want to answer. There is no right or wrong answer and you can put your views independently. Many respondents have found useful to have the opportunity to talk and discuss on it. Your participation is completely voluntary but your experiences could be very helpful to formulate the policy against the climate change impact in Nepal. The interview takes approximately 20 – 30 minutes to complete. Thank you in advance for your cooperation.

Survey Enumerator

Initial Information	
1	Interview date:
2	Interviewee name:
3	Province:
4	District:
5	Village/Municipality
6	Ward:
7	Tole:
8	Household number:
9	Longitude:
10	Latitude:
11	Elevation:
Background Information	
Please give the details of person who lives this place since at least last 15 years, 45 years old or more and who is engaged in agriculture and livestock farming.	
12	Respondent name and contact number:
13	Relationship of respondent to the household head: 1. HH Head 2. Spouse 3. Son/Daughter 4. Son/Daughter in law 5. Other (Specify)
14	Sex of respondent: Male 2. Female 3. Other
15	Age of respondent:
16	Marital status: 1. Unmarried 2. Married 3. Separated 4. Divorced 5. Widow/Widower
17	Religion: 1. Hindu 2. Buddha 3. Islam 4. Kirat 5.Cristian 6. Other
18	Caste and ethnicity:
19	Level of education: 1. Illiterate 2. Literate (informal) 3. Basic (1-8) 4. Secondary (9-12) 5. Higher
20	Profession other than agriculture and livestock farming (if any): 1. Govt job 2. Private job 3. Business 4. Other (specify)
21	Annual income of respondent (NRs in thousand):
22	Annual expenditure of respondent (NRs in thousand):
Household Information	
23	Household size:
24	Family type:
	1. Nuclear 2. Joint
25	Annual income of household (NRs in thousand):
26	Annual expenditure of household (NRs in thousand):
27	Food sufficiency status (in month):
Land holding in Agriculture and livestock	

28	Total land holdings: 1. Agriculture (ropani/bigha) 2. Livestock (ropani/bigha)
29	Agricultural Production and Livestock Holdings (major five):

SN	Crops type	Annul Production	SN	Livestock type	Number
1			1		
2			2		
3			3		
4			4		
5			5		

30	Loan for livestock farming 1. Yes 2. No If yes how much?

People's perception on variability of climate change (compared with last 15 years)
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

31	Annual average maximum temperature has been increased.	1	2	3	4	5
32	Annual average minimum temperature has been decreased.	1	2	3	4	5
33	Summer average maximum temperature has been increased.	1	2	3	4	5
34	Summer average minimum temperature has been decreased.	1	2	3	4	5
35	Winter average maximum temperature has been increased.	1	2	3	4	5
36	Winter average minimum temperature has been decreased.	1	2	3	4	5
37	Timing of rainfall has been changed.	1	2	3	4	5
38	Amount of rainfall has been changed.	1	2	3	4	5
39	Annual average rainfall has been decreased.	1	2	3	4	5
40	Summer average rainfall has been decreased.	1	2	3	4	5
41	Winger average rainfall has been decreased.	1	2	3	4	5
42	Number of draught incident has been increased.	1	2	3	4	5
43	Number of flood incident has been increased.	1	2	3	4	5
44	Water availability has been decreased.	1	2	3	4	5
45	Incidence of diseases has been increased in agriculture sector.	1	2	3	4	5
46	Incidence of diseases has been increased in livestock sector.	1	2	3	4	5

People's perception about the impact of climate change on Livestock
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

47	Feed crop availability has decreased.	1	2	3	4	5
48	Feed crop quality has decreased.	1	2	3	4	5
49	Forage availability has decreased.	1	2	3	4	5
50	Forage quality has decreased.	1	2	3	4	5
51	Water quality has decreased.	1	2	3	4	5
52	Number of livestock has decreased	1	2	3	4	5

53	Weight of livestock has decreased	1	2	3	4	5
54	Livestock production has decreased	1	2	3	4	5
55	Quality of milk has decreased.	1	2	3	4	5
56	Quality of meat has decreased.	1	2	3	4	5
57	Summer hotness has increased milk production.	1	2	3	4	5
58	Summer hotness has increased meat production.	1	2	3	4	5
59	Winter coldness has decreased milk production.	1	2	3	4	5
60	Winter coldness has decreased meat production.	1	2	3	4	5
61	Incidence of disease in livestock has increased.	1	2	3	4	5
62	Incidence of new diseases in livestock has increased.	1	2	3	4	5
63	Cost of veterinary services has increased.	1	2	3	4	5
64	Morbidity of livestock has increased.	1	2	3	4	5
65	Longevity of livestock has decreased.	1	2	3	4	5
66	Availability of pastoral land has decreased.	1	2	3	4	5
67	Surrounding flora has decreased.	1	2	3	4	5
68	New invasive flora has increased.	1	2	3	4	5
69	Diversity of birds has decreased.	1	2	3	4	5
70	Diversity of animals has decreased.	1	2	3	4	5
71	Environment quality has degraded.	1	2	3	4	5

People's adaptation strategies against the impact of climate change on Livestock (1 = No, 2 = Too little, 3 = Little, 4 = Moderate, 5 = As needed)						
Nutritional Strategies Change						
72	Changed the composition of feed	1	2	3	4	5
73	Fed vitamin and minerals	1	2	3	4	5
74	Fed additional nutrients	1	2	3	4	5
75	Changed feeding time	1	2	3	4	5
76	Changed feeding frequency	1	2	3	4	5
77	Dewormed livestock	1	2	3	4	5
Income-related responses						
78	Participated in crop insurance schemes.	1	2	3	4	5
79	Participated in livestock insurance schemes.	1	2	3	4	5
80	Involved in credit schemes for crops.	1	2	3	4	5
81	Involved in credit schemes for livestock.	1	2	3	4	5
82	Adapted income diversification.	1	2	3	4	5
83	Involved in income generation activities.	1	2	3	4	5
84	Involved in cost reducing activities.	1	2	3	4	5
Institutional changes						
85	Received agricultural services.	1	2	3	4	5
86	Received veterinary services.	1	2	3	4	5
87	Benefited from decreased tax provision in crops.	1	2	3	4	5

88	Benefited from decreased tax provision in livestock.	1	2	3	4	5
89	Benefited from subsidy provision in crops.	1	2	3	4	5
90	Benefited from subsidy provision in livestock.	1	2	3	4	5
91	Received crop insurance subsidies.	1	2	3	4	5
92	Received livestock insurance subsidies.	1	2	3	4	5
93	Received training of production and conservation of feed.	1	2	3	4	5
Science and technology advances in livestock sector						
94	Adapted new crop varieties.	1	2	3	4	5
95	Adapted new livestock feeds.	1	2	3	4	5
96	Improved water management system.	1	2	3	4	5
97	Improved animal health technology (preventive/curative).	1	2	3	4	5
98	Produced energy crops.	1	2	3	4	5
99	Shifted to less water consuming forages.	1	2	3	4	5
100	Shifted to less maturation time forages.	1	2	3	4	5
Adaptation against high heat/cold						
101	Fed hot kudo in winter and cold kudo in summer.	1	2	3	4	5
102	Used modified shade	1	2	3	4	5
103	Increased the height of shade.	1	2	3	4	5
104	Covered the shade.	1	2	3	4	5
105	Used fan or cooling system.	1	2	3	4	5
106	Increased water intake during periods of high heat.	1	2	3	4	5
107	Diversified crop varieties.	1	2	3	4	5
108	Diversified livestock varieties.	1	2	3	4	5
Risk Management						
109	Managed feeding system	1	2	3	4	5
110	Managed grazing land	1	2	3	4	5
111	Adapted pest control	1	2	3	4	5
112	Practiced altitude changes (grass land and livestock)	1	2	3	4	5
113	Reduced age to slaughter (except cattle)	1	2	3	4	5
114	Practiced the extended lactation period	1	2	3	4	5
115	Minimized diseases outbreak	1	2	3	4	5
116	Changed irrigation system	1	2	3	4	5
117	Practiced mixed crop-livestock systems	1	2	3	4	5
118	Practiced agroforestry (trees, crops and pastures in a mix)	1	2	3	4	5
Breeding						
119	Changed breed to tropically adopted.	1	2	3	4	5
120	Adapted more fecund genotype.	1	2	3	4	5
121	Adapted faster growing genotype.	1	2	3	4	5
122	Adapted more weighting genotype.	1	2	3	4	5
123	Adapted milking longevity genotype.	1	2	3	4	5
124	Adapted more milking genotype.	1	2	3	4	5
125	Adapted more Cross-breeding with heat tolerant breeds.	1	2	3	4	5

126	Adapted cross-breeding with cold tolerant breeds.	1	2	3	4	5
127	Adapted cross-breeding with disease tolerant breeds.	1	2	3	4	5
128	Adapted local breeds for local climatic stress and feed sources.	1	2	3	4	5

Barrier to the adaptation of livestock farmers to climate change (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)						
129	Lack of information	1	2	3	4	5
130	No improved breeds	1	2	3	4	5
131	Disease and parasite	1	2	3	4	5
132	Inadequate capital	1	2	3	4	5
133	Inadequate access to water resources	1	2	3	4	5
134	Inadequate forage and pasture	1	2	3	4	5
135	Inadequate access to veterinary services	1	2	3	4	5
136	Poor infrastructure	1	2	3	4	5
137	Limited knowledge of management practices	1	2	3	4	5
138	Lack of knowledge about other adaptation options	1	2	3	4	5
139	High prices for essential supplies and commodities	1	2	3	4	5
140	Lack of government support	1	2	3	4	5

Gender involvement in Livestock rearing

Activities		Activities		Person		Time Taken
		Difficult	Easy	Female	Male	
142	Cleaning Dung					
143	Preparing and feeding *Kudo*					
144	Milking					
145	Cutting and feeding grass					
146	Bringing fodder and forage					
147	Bathing					
148	Selling milk to dairy					
149	Keeping money after selling milk					
150	Keeping money after selling livestock					