

17/12/2020

Supporting Information

1) Appendix S1

PART A -Land-use and livelihoods

1. What has been the percent cover of the following prevalent land uses in Mara?

Land use type	1960s	1970s	1980s	1990s	2000s	2010s
Livestock grazing						
Agriculture						
Conservation						
Forest						
Natural features (Swamps,rivers)						
Settlements						
Urban/built up areas/social facilities						
Fallow						

2. What land use types are observed in the following land tenure systems?

Land tenure type	Land use type
Communal land	
Private land	
Trust land	

3. What land makes good land for the following land uses and how is it allocated?

Land use type	Why is it ideal for the land use type?
Livestock grazing	
Agriculture	
Conservation	
Forest	
Natural features (Swamps,rivers)	
Settlements	
Urban/built up areas/social facilities	
Fallow	

4. What percent of available communal land used by communities for farming is allocated for:

Subsistence food provision? -----

Income generation activities such as commercial farming-----

Livestock keeping? -----

PART B: Changes in land use types

5. What are the main causes of land use change in Mara?
6. i) Was there a peak in land use change? Yes.....No.....
ii) When was the peak?.....
iii) What was the cause of the peak?.....
7. i) What are the main factors affecting livelihood patterns in Mara?
ii) In what ways have climate change, availability of natural resources and human population growth affected livelihood patterns observed in Mara?

Social or environmental situation	Livelihoods types practiced	
	Males	Females
Increase in droughts		
Increase in rainfall		
Availability of natural resources e.g. wildlife, forests		
Human population increase		
Increase in education levels		
Increase in infrastructure and built-up areas		
Increase in land subdivision		
Increase in community based natural resource management		

- iii) Do these patterns vary according to literacy levels or income levels?

Social or environmental situation	Livelihoods practiced/Livelihood pattern	
	Primary education	Secondary or tertiary education
Increase in droughts		
Increase in rainfall		
Availability of natural resources e.g. wildlife, forests		
Human population increase		
Per capita decrease in livestock		
Increase in infrastructure and built-up areas		
Increase in land subdivision		
Increase in community based natural resource management		

- iv) Are there any seasonal, monthly or yearly variations in livelihood patterns?

8. Were there major climatic, cultural or economic events in the history of Mara that changed people's livelihoods? What coping strategies were used?

Historical events that changed people's livelihood	Livelihood changes that occurred	Coping strategy used
Climatic event(s)		
Cultural events		
Economic events		
Government policy		
Other		

9. What local organizations/public programmes have the greatest influence on the choice of livelihood patterns?

10. Which natural resource is most important for income generation/accessing adequate food?

11. i) What is the percent prevalence of pastoralism compared to other livelihoods in Mara after Kenya's independence in 1963?

High 65-100%)? -----

Medium (30-65%)? -----

Low (0-30%)? -----

- ii) What makes pastoralists change to other livelihoods? Rank the reasons below from highest to lowest with 1 and 7 being the least and most important reasons for change respectively.

Reason of changing from pastoralism to other livelihoods	Rank
Droughts	
Human population growth and socio economic development	
Land subdivision and fear of losing land	
Little income from pastoralism	
Government policy	
Livestock competition for pasture and water with wild animals	
Livestock competition for pasture and water with agriculture	
Other	

- ii) What livelihood types do pastoralists prefer to adapt to?

Part D: Land management

12. What drivers of land use change can be addressed through better management of land/natural resources, policy intervention and community institutions?

Driver of land use change	Intervention			
	Better management of resources	Community benefiting from available resources	Formation of community institutions	Government policy
i)				
ii)				
iii)				
iv)				

13. What are the main causes of land subdivision in Mara?

14. Is land rotation system for farming and livestock practised in Mara?

Yes -----

No -----

15. i) Is there enough land for all?

Yes -----, why-----

No -----, why-----

ii) What currently happens in cases of land scarcity?

iii) What currently happens in cases of human migration?

Table S1: Adjusted Residual for Chi-square test of association between land tenure and land use type.

	Adjusted Residual				
	Livestock grazing	Agriculture	Wildlife conservation	Settlements	Social facilities
Communal land tenure	1.1	-0.4	1.1	-2.9	3.3
Private land tenure	-1.1	0.4	-1.1	2.9	-3.3

Table S2: Adjusted Residual for Chi-square test of association between study area and land use type.

	Adjusted Residual				
	Livestock grazing	Agriculture	Wildlife conservation	Settlements	Social facilities
Amboseli	-1	1.1	-1.2	-2	0.1
Mara	-1	-4.4	2.1	1	2.3
Loita Plains	0.2	2.9	-7	-0.7	-2.2