

APPENDICES

Appendix A1: First order conditions for the household optimisation model

$$\frac{\partial \ell}{\partial L_H} = \lambda_1 \frac{\partial X_H^H}{\partial L_H} - \lambda_5 = 0 \quad (A1.1)$$

$$\frac{\partial \ell}{\partial L_G} = \lambda_2 \frac{\partial G_q}{\partial L_G} - \lambda_5 = 0 \quad (A1.2)$$

$$\frac{\partial \ell}{\partial L_V} = \lambda_3 \frac{\partial V_N}{\partial L_V} - \lambda_5 = 0 \quad (A1.3)$$

$$\frac{\partial \ell}{\partial L_o} = \lambda_4 W_o - \lambda_5 = 0 \quad (A1.4)$$

$$\frac{\partial \ell}{\partial Y_G} = \lambda_2 \frac{\partial G_q}{\partial Y_G} - \lambda_4 P_Y = 0 \quad (A1.5)$$

$$\frac{\partial \ell}{\partial N} = \lambda_3 \frac{\partial V_N}{\partial N} - \lambda_4 P_N = 0 \quad (A1.6)$$

$$\frac{\partial \ell}{\partial X_M} = \frac{\partial U}{\partial X_M} - \lambda_4 P_M = 0 \quad (A1.7)$$

$$\frac{\partial \ell}{\partial X_H^H} = \frac{\partial U}{\partial X_H} \frac{\partial X_H}{\partial X_H^H} - \lambda_1 = 0 \quad (A1.8)$$

$$\frac{\partial \ell}{\partial X_H^S} = \frac{\partial U}{\partial X_H} \frac{\partial X_H}{\partial X_H^S} + \lambda_4 P_H = 0 \quad (A1.9)$$

$$\frac{\partial \ell}{\partial X_H^P} = \frac{\partial U}{\partial X_H} \frac{\partial X_H}{\partial X_H^P} - \lambda_4 P_H = 0 \quad (A1.10)$$

$$\frac{\partial \ell}{\partial G_q} = \frac{\partial U}{\partial X_G} \frac{\partial X_G}{\partial G_q} - \lambda_2 = 0 \quad (A1.11)$$

$$\frac{\partial \ell}{\partial V_N} = \frac{\partial U}{\partial X_N} \frac{\partial X_N}{\partial V_N} - \lambda_3 = 0 \quad (A1.12)$$

$$\frac{\partial \ell}{\partial G_q^P} = \frac{\partial U}{\partial X_G} \frac{\partial X_G}{\partial G_q^P} - \lambda_4 P_G = 0 \quad (A1.13)$$

$$\frac{\partial \ell}{\partial G_q^S} = \frac{\partial U}{\partial X_G} \frac{\partial X_G}{\partial G_q^S} + \lambda_4 P_G = 0 \quad (A1.14)$$

$$\frac{\partial \ell}{\partial V_N^P} = \frac{\partial U}{\partial X_N} \frac{\partial X_N}{\partial V_N^P} - \lambda_4 P_V = 0 \quad (A1.15)$$

$$\frac{\partial \ell}{\partial V_N^S} = \frac{\partial U}{\partial X_N} \frac{\partial X_N}{\partial V_N^S} + \lambda_4 P_V = 0 \quad (A1.16)$$

$$\frac{\partial \ell}{\partial \lambda_1} = X_H^H(L_H, \beta; \Omega) - X_H^H = 0 \quad (A1.17)$$

$$\frac{\partial \ell}{\partial \lambda_2} = G_q(L_G, K_G, Y_G, \alpha) - G_q = 0 \quad (A1.18)$$

$$\frac{\partial \ell}{\partial \lambda_3} = V_N(L_v, N, \theta) - V_N = 0 \quad (\text{A1.19})$$

$$\frac{\partial \ell}{\partial \lambda_4} = P_H X_H^S + P_G G_q^S + P_V V_N^S + L_o W_o + E - P_M X_M - P_H X_H^P - P_G G_q^P - \quad (\text{A1.20})$$

$$P_V V_N^P - P_Y Y_G - P_N N = 0$$

$$\frac{\partial \ell}{\partial \lambda_5} = L_T - L_H - L_o - L_G - L_v - L_z \quad (\text{A1.21})$$

Appendix A2: Logical rules for hydrological dynamics in the modelled wetland

Capillarity (CR_t): Based on knowledge and reasonable assumptions by hydrologists working in the studied wetland, it is assumed that capillary rise only occurs when the groundwater level is less than 1m below ground level ($ge = 719m$) and capillarity is estimated at 30mm/month. Therefore the equation for capillarity is as follows:

$$CR_t = \text{If } (GWL_t > ge - 1) \text{ then } (1 * 30 * 12) \text{ else } 0 \quad (A2.1)$$

Groundwater seepage (GS_t): Groundwater seepage is assumed to occur only if the wetland groundwater level is higher than the water level in the river and is modelled as follows:

$$GS_t = \text{If } (GWL_t < 718.5) \text{ then } (0) \text{ else } (2 * 2.5 * 30(((GWL_t - 710)^2 - (Rs - 710)^2)))/400 \quad (A2.2)$$

Recharge from irrigation (IS): It is assumed that diverted irrigation water (DW) depends on the geometry of the diversion canal. According to Chiron (2005) the diverted irrigation water is estimated at 0.13 cubic metres per second, which we convert to cubic metres per year. As 94% of the diverted irrigation water is assumed to recharge the wetland, IS is modelled as:

$$IS_t = 0.94 * DW / (120 * 10) \quad (A2.3)$$

DW=diverted irrigation water (in cubic metres per year) = $(0.13 * 3600 * 24 * 30) * 12$



**Appendix A3: Wetlands-based livelihoods agronomic and socio-economic
household questionnaire**

Interview No: _____

Name of Respondent _____

Name of Village: _____

Village Head _____

Ward _____

Date: _____

Name of interviewer: _____



Section A: GENERAL ²⁰HOUSEHOLD INFORMATION (Human Assets)

A1 Please state the relationship of the respondent to the head of the household: ____

KEY 1 1.Head of household; 2.Wife; 3.Child; 4. Grandchild; 5.Parents; 6.Siblings; 7.Farm laborer; 8.Other members (includes household helpers)

A2 Household size: _____

A3 Can you please give the following information for all the household members starting with the household head

	Gender	Age	Relation to household head	Marital status	Number of years in education	Professional qualification/ training	Occupation/ activity	Residential status 1-stays home permanently 2-stays away permanently 3. stays home and away	Reason why member is not staying within the household
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
	<i>Key 1.Male 2.Female</i>	In years	use key 1 above	1: Married or living together 2: Never married 3: Previously married (divorced, separated, widowed) 4: Not applicable (child < 16 years)		1.none 2. farming 3.carpentry 4.brickmaking 5.knitting and sewing 6.teacher 7. other (specify)	1. Permanently employed 2. Not permanently employed 3. Self employed 4. Full-time farmer 5. Farm laborer 6. Unemployed 7.student 8.Other (specify)		<i>1.Married 2. Working in farm, town or city 3. Working abroad 4. other</i>

²⁰ A **household** is defined as all the persons registered on the same residential site. Children (even when older than 18) not staying at home anymore, but being registered at their parents address should be considered.

Section B: Physical and Natural Asset Ownership and Access

B1. Productive assets

List productive assets that you have No productive asset

Type of productive asset Use key 2	Number owned and working	How was it acquired? 1. Purchased 2.donated 3.inherited 4. other (specify)	When was it acquired? (year of acquisition)

Key 2: 1.Hand hoes, 2.Shovel, 3.Plough, 4.Harrow, 5.Wheelbarrow 6.Sledge 7.Trailer/cart 8.Tractor 9.car, truck, lorry 10. Water storage 11. Fishing equipment 12.irrigation equipment 13 other (specify)

B2. Domestic assets

List domestic assets that you own

Type of domestic asset Use key 3	Number owned and working	How was it acquired? 1. purchased 2.donated 3.inherited 4. other (specify)	When was it acquired? (year of acquisition)

Key 3: 1.Motorcycle 2.Bicycle 3.Radio 4.Television 5.Telephone 6.Sewing machine 7.Stove 8.Solar power 9.Fridge 10.Other (specify)

B3. Housing

What type of housing do you have?

- Mud bricks and iron roofed
- Mud bricks and grass thatched
- Mud bricks asbestos roofed
- Pole and dagga and grass thatched

- Cement bricks, iron roofed

How many rooms do you have in your homestead? _____

B4. Sanitation

What type of toilet do you have at your homestead?

- 1. No toilet 2. Pit latrine 3.ventilated pit latrine/blair toilet 4.flush toilet with septic tank



5. Water use

Which source of water do you use for the following activities during each season ?

i) Dry season:

Water for	Source (use key 4)	Location 1.homestead 2.dryland 3. wetland 4. downstream	Distance from homestead (in metres)	Water use on the spot at home elsewhere diverted
Drinking				
Cooking				
Washing clothes				
Bathing				
Sanitary use or ablutions				
Washing household utensils				
Building purposes				
Watering of small livestock(eg rabbits, poultry)				
Watering of large livestock				
Watering gardens				
Other specify				

Key 4 1.private tap within homestead or yard 2.neighbors tap 3. communal tap 4. borehole 5.spring
6.dam 7.well/pond/stagnant water 8.river/stream 9. other



(ii) Wet season

Water for	Source (use key 4)	Location 1.homestead 2.dryland 3. wetland 4. downstream	Distance from homestead (in metres)	Water use on the spot at home 3.elsewhere 4.diverted
Drinking				
Cooking				
Washing clothes				
Bathing				
Sanitary use or ablutions				
Washing household utensils				
Building purposes				
Watering of small livestock (eg rabbits, poultry)				
Watering of large livestock				
Watering gardens				
Other specify				

How do you perceive the quality of water that you use for drinking and cooking? (ask the question for each source used for drinking and cooking)?

Very safe moderately safe not safe

If not safe, why do you think it is not safe? Smell Colour Upstream pollution
 Unsafe use of the source Lack of protection Other
(specify)_____

Do you treat the water (e.g. for drinking, or for other uses?) in any way? How?
Filtering through cloth Chloride Sand filter Boiling Other
(specify)_____

4. Do you experience any disease, which you think is related to the poor quality of water? Yes
 No

If yes, list the diseases_____

—

Who is affected in the family?_ Children under 5years School going children (between
5 and 15years of age) Adult females (>18years) Adult males (>18years)
Everyone in the family

How often did this happen during the last month? 6 months? Year?

How many days is the affected person (and family members) absent from income generating
activities due to the illness in the past
month?_____6months?_____year?_____

Do you use any protective measures against malaria or diarrhoea? Yes No

If yes, what protective measures do you use?_____



How many plots do you use (location, area, uses e.tc for the table below)

If yes specify

Location of plot 1. homestead 2. wetland 3. dryland 4. irrigation scheme 5. other	Number of plots	Total area (in acres and hectares)	What are the plots used for? (Key 5)	Mode of acquisition (Key 6)	Who in the household has access to this land?(use Key 1)

Key 5.Plots used as 1.Arable land 2.Grazing land 3.Garden 4.other

Key 6. Mode of acquisition 1. Purchase 2. Resettled under Government program 3. Inherited land 4. Land for all community members 5.other

Section C: Use of Wetland Resources

C1. Wetland goods collection

Did you collect some plant materials or catch some animals in the wetland during the past cropping season?

Type of material	Yes	No	If yes specify which plants or animals (or for which use in case of water)	If yes, was it for own consumption?		Was it for selling?	
				Yes	No	Yes	No
1. Domestic fire wood							
2. Edible plants							
3. Building material							
4. Medicinal plants							
5. Craft material							
6. Fish							
7. Animals							
8. Water							
9. Other							

How did you get permission to undertake these activities?



Did you notice any changes in the availability of wetland resources in the last 5 years?

Yes No

If yes, for which resources?

Resources	Changes in supply of resource?		Changes in time spent on collection?	
	Increase	Decrease	Increase	Decrease
1. Domestic fire wood				
2. Edible plants (wild) specify which plant _____				
3. Building material				
4. Medicinal plants				
5. Craft material				
6. Fish				
7. Game				
8. Water				
9. Other				

[indicate with one, two or three stars * the importance of the change]

C3. Conflict about wetland use

Are there any conflicts or tensions about wetland use during the last 5 years?

Yes No

If yes, elaborate (Who was involved? What was the reason of the conflict? Which resources are concerned?)

Have some of these conflict/tensions been resolved?

Yes No

If yes, elaborate (Who was involved? What was the reason of the conflict? Which resources are concerned? How was it resolved?) _____

Are you satisfied with the way the conflict was resolved?

If not satisfied, how best do you think this could have been resolved?

Section D: Livestock production

Do you keep any livestock in your farm? Yes No

If yes, answer the following questions

D1. Livestock products

Living animals

Livestock categories	How many at the beginning of the last cropping season	How many born?	How many dead?	How many purchased?	How many sold?	How many used for own consumption?	How many exchanged? (+/-)	How many at the end of the last cropping season?
Cattle								
Donkeys								
Sheep								
Goats								
Poultry								
Rabbits								
Pigs								

Milk production

Do you produce milk? Yes No

If yes, how many cows or goats that produce milk do you have at present?

Cows _____ Goats _____

How much milk do they produce per day at present?

Cows _____ Goats _____

Does the number of cows or goats producing milk vary over the year?

Cows Yes No Goats Yes No

If yes fill the table below

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cows												
Goats												

Does the quantity of milk per cow or goat vary over the year?

Cows Yes No Goats Yes No

If yes indicate in the table below the quantity produced per cow or goat (specify unit _____)

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cows												
Goats												

What are the causes of the variation?

Which quantity of milk do you use each day for household consumption?

_____ Unit _____

Is the production enough all over the year to cover your needs? Yes No



If not, when do you experience shortages?

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

How do you cope with milk shortages?

Reduce or suppress milk consumption

Buy milk from other farmers quantity bought _____ price _____

Buy milk from shop quantity bought _____ price _____

Other specify _____

Draught power

Do you use some of your livestock for plowing or transport? Yes No

If yes, how many animals and of which type do you use for this?

Type of animals	Number	Use 1.Plowing 2.transport 3. Other (specify)
Cows		
Oxen		
Donkeys		

How many days did you use them the last cropping season for your own needs and what area did you plough with your own animals?

Type of animals	Days used for transport	Plowing	
		days	area
Cows			
Oxen			
Donkeys			

(Specify unit _____)

Do you rent or lend your animal for plowing or transport? Yes No

If yes specify how many days in the last cropping season and the area plowed?

Type of animals	Days used for transport	Plowing	
		days	area
Cows			
Oxen			
Donkeys			

What did you receive in exchange?

Cash How much for one day? _____

Labour How many man-days for one day of work?

other specify _____

Manure production

Do you collect the manure produced by your animals for fertilizing your plots?

Yes No



If yes, from which animals (collect manure produced at night in the kraal)

- Cattle
- Goats/sheep
- Donkeys
- Pigs
- Poultry

How many carts (or other mean of measure) of manure did you collect the last cropping season? _____

On which crop and what area did you apply the manure?

Do you exchange or give away manure to your relatives or neighbors? Yes No

If yes, how many carts during the last cropping season? _____

What did you receive in exchange?

- Cash How much for one cart?
- Labour How many man-days for one cart?
- other specify

Other livestock products

Did you get other animal product in the last cropping season? Yes No

If yes, specify,
Which product? _____
From which animal? _____
The quantity produced? _____
For which use (sale, own consumption, exchange) _____
If sold or exchanged specify price or against what? _____

D2. Source of feed / grazing

D11. Do you let your livestock graze in the wetlands? Yes No

D12. If yes, indicate the periods when you let your livestock graze/browse in the wetlands?

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cattle												
Donkeys												
Goats												
Sheep												

Indicate on the map which part of the wetland you use for livestock grazing?

D13. If no, why? _____

D14. Which other grazing area do you use for your livestock? (locate them on the map)



D15. Indicate the periods with which you collect in this area?

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cattle												
Donkeys												
Goats												
Sheep												

Do you control grazing? Yes No

If yes, how? _____

D16. Do you cut grasses or bushes to feed your livestock? Yes No

If yes specify

Which plants? _____

Where did you collect them? (dryland, wetland, irrigation scheme; locate on a map) _____

At what time of the year?

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

For which and how many animals? _____

What quantity did you collect? _____

How much time did you spend in collection? (indicate units) _____

Who in the household did it? _____

D17. Do you cultivate forage to feed your livestock? Yes No

If yes specify

Which crops? _____

Where did you cultivate them? Dryland , wetland , irrigation scheme [locate on a map]

At what time of the year?

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

For which and how many animals? _____

What quantity did you harvest? _____

For which and how many animals was the forage used? _____

What is the mode of distribution? (free grazing, in the kraal...) _____

[for agricultural practices fill in a crop information sheet]

D18. Do you use crop residue for feeding your livestock? Yes No

If yes specify

From which crops? _____



On which plot? Dryland , wetland , irrigation scheme
[locate on a map]

For which and how many animals? _____

What is the mode of distribution? (free grazing, in the kraal...) _____

What quantity did you use? _____

At what time of the year is it used?

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

How much time do you spent in harvesting and distribution? (State units) _____

Who in the household does it? _____

D19. Do you experience feed shortages? Yes No

If yes when?

Livestock type	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

How do you cope with feed shortages?

Keep same number of animals

Sell animals

Buy feed

Other (specify) _____

D3. Livestock water

Which source(s) of water do you use for watering your livestock during the last cropping season? (locate on a map or indicate distance from homestead)

How do you have access to this source? _____

Is this water source sufficient for your needs? Yes No

If not sufficient, when do you experience shortages?

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

How do you cope with water shortages? _____

Is the quality of water appropriate for livestock watering? Yes No

If no, what are the consequences for the animals? _____



D4. Livestock production costs

Did you buy feed for your livestock during the last cropping season? (including complement, salt...)

What do you buy?	For which animals?	When?	Quantity	Price	From whom?

How much did you spend during the last cropping season on veterinary expenses?

	Dry season	Wet season	Total
Cattle			
Donkeys			
Goats			
Sheep			

When was the last time you build a new fence? _____

Do you recall the length of fence you built? _____

Do you recall the total cost of implement? _____

How many days of family labor did you spent? _____

Did you hire labor for that? _____

If yes how many days and what was the cost? _____

How many days of family labor did you spend during the last cropping season repairing fences? _____

Did you hire labor to repair fences? _____

If yes how many man-days? And what was the cost? _____

Did you buy some inputs to maintain the fence? If yes specify what and at what cost?

Did you have any other costs for your livestock?

D5. Livestock labor

How many persons of your household took care of livestock during the last cropping season? (if necessary distinguish per categories of livestock)

Categories of livestock	How many people?	Who in the household? [use key 1]	How many hours / day?	How many days / months?
Cattle				
Donkeys				
Sheep				
Goats				
Poultry				
Rabbits				
Pigs				
Total				

Did you hire other people to take care of your livestock? Yes No

If yes, specify for which activity? _____



How many people? _____

How many days per person? _____

When? [indicate number of man-days per month]

Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept

At what price or exchanged against what?

Section E: Crop production

E1. Which crop did you grow during the last cropping season

Type of land	Type of crop (use key 7)	Area planted (ha)	Total output (kg)	Qty sold (kg)	What was the price last season?	Qty consumed (kg)	Qty retained (kg)
1. wetland	[1]	[2]	[3]	[3]		[3]	[3]
2. dryland							
3. irrigation scheme							
4. backyard garden							
5. other (specify)							

[1] If the same crop is grown in several types of land use as many rows as type of land where the crop is cultivated

[2] locate the plot on the map

[3] if the respondent cannot express the quantity in kg use any appropriate container (grade, basket, cart...) and then assess the weight of an average container

Key 7: Types of crops grown – adapt the list of crops to the site

1. Rice	5. Bambara-nuts	9. Leafy vegetables	13. Peas	17. Madhumbe
2. Maize	6. Groundnuts	10. Onions	14. Sweet potatoes	18. Sugarcane
3. Sorghum	7. Soybean	11. Tomato	15. Potatoes	19. Citrus fruit
4. Barley	8. Rapoko	12. Sugar beans	16. Pumpkins	20. Banana
				21. other

E2. Crop management practices

Repeat this sheet for each plot/crop and cropping season

Type of land:



Crop: Plot number (refere

Cropping calendar: indicate with a line the time and duration of each operation

Operation	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.

[operations: 1. land preparation 2. sowing or planting,3. weeding 4. fertility management 5. pest control, 6. Harvesting 7. post-harvest]

How did you prepare the land for the last wet season?

Tractor donkey hoe

Which seed did you use? Farm seed bought normal seeds
bought improved variety

How did you do the weeding? Manual chemical

Did you use fertilizers? Yes No

If yes which type? mineral organic both

Did you experience any problems of pests? Yes No

If Yes, please state the type of pests and how you did control them

Type of pest	Method of control used	Severity of problem <i>1.very severe</i> <i>2.moderate</i> <i>3.not severe</i>

Did you rotate the use of pesticides? Yes No

Did you experience any problems of crop diseases? Yes No

If Yes state the type of diseases and how you did control them

Type of disease	Method of control used	Severity of problem <i>1.very severe</i> <i>2.moderate</i> <i>3.not severe</i>



Input use [use one row for each]

Input category [use key 8]	Input name	Quantity used for the total area	Unit	Price / unit	Origin [use key 9]

Key 8: 1.seeds or seedlings; 2. mineral fertilizers; 3. organic fertilizers; 4. pesticides; 5. containers; 6. packaging; 7.transport

Key 9: 1. farm production; 2. purchase; 3. gift from family or neighbor; 4. gift from government, NGOs

Labour use

Task	How many family members	Who in the family? [use key 1]	How many days per family member?	How many hired laborers?	How many days per hired laborer?
Land preparation					
Planting, sowing					
Weeding [*]					
Fertility management [*]					
Pest control [*]					
Harvest [*]					
Post harvest processing, shelling, threshing					
Other (specify)					
Other (specify)					

[*] if several operations of the same type indicate the total number of days

What was the total production for this plot the last cropping season? (specify the unit)

What quantity did you keep for household consumption?

What quantity did you retain for next planting season?

What quantity did you sell?

To whom did you sell?

At what price did you sell?

Section F. Access to Markets, credit and support services

F.1. Access to credit

Do you have any access to credit facilities? Yes No

If no, what is the major factor (s) hindering your access to credit facilities? _____

If yes, identify your major source (s) of credit in the past 5 years in the table below.



Source of credit	Major source of credit in the past 5 years (<i>tick</i>)	Amount borrowed per annum	When was credit taken (year)	Purpose of credit? (key 10)	Form of repayment (key 11)	Interest rate (additional amount paid back or %)
1. Individual lenders (relatives and friends)						
1. Individual lenders (not related to you)						
2. Farmer groups/organization						
3. Commercial banks						
4. Retailers						
5. NGO						
6. Government department						
7. Local municipality						
8. Other (specify)						

Key 10: 1. Purchase agricultural inputs 2. Purchase farm equipment 3. Purchase of livestock assets 4. Purchase building materials 5. domestic assets 6. family events 7. Other (specify)

Key 11: 1. Cash 2. Livestock 3. Labor 4. Other (specify)

For the sources of credit not used, what factors hinder you from using this credit facility? (key 12)

Key 12: 1. No credit is given by this source 2. Credit from this source is not easily accessible 3. Delays in processing of money 4. Lack of information on how the credit facility operates 5. Lack of trust 6. Lack of collateral 7. high interest rate 8. Length of credit not adapted 9. Other (specify)



F.2. Access to Markets

	Do you have access to markets for these items? 1. Yes 2. No	Main market used in the past 5 years (Key 13)	Distance of market from the village?	Do you have access to market information? (*) 1. Yes 2. No	What are the sources of market information? (Key 14)
Agricultural outputs					
Field crops					
in wetland					
in other land					
Horticultural crops					
in wetland					
in other land					
Other crops (specify)					
in wetland					
in other land					
Non-agricultural wetland resources					
Fish					
Reeds (including their processed products)					
Thatching grass					
Wild edible fruits					
Wild animals					

(*) prices, where and when to get supplies, product characteristics

Key 13: 1. Consumers in the village 2. Consumers in other villages in the locality 3. Local retailers 4. wholesalers/supermarkets 5. Farmer cooperatives/groups 6. Hotels and restaurants 7. Collection centres (GMB) 8. Processors 9. Others (specify)

Key 14: 1. Other people in the village 2. Farmer organizations/co-operatives 3. Local retailers 4. Radio programs 5. Newspapers 6. Extension officers 7. Wholesalers/supermarkets 8 Other (specify)

What are the major advantages of using these markets compared to others? _____

What are the main problems /limitations of using these markets?

List the markets you use for the following agricultural inputs

Agricultural inputs	Do you have access to markets for these items? 1. Yes 2. No	Main market used in the past 5 years (Key 15)	Distance of market from the village?	Do you have access to market information? (*) 1. Yes 2. No	What are the sources of market information? (use key 14)
Seeds					
Pesticides					
Fertilizers					
Animal feeds					
Farm implements					

(*) prices, where and when to get supplies, product characteristics

Key 15: 1. Other farmers in the village 2. Local retailers 3. Farmer cooperatives/groups 4. wholesalers/supermarkets 5. NGOs 6. Government 7. Other (specify)

What are the major advantages of using these markets compared to others?



What are the main problems /limitations of using these markets?

F3. Access to extension and other support services

Do you have access to extension services? Yes No

If no, explain why? _____

If yes, how many times did the extension agent visit you in the last six months?

What kind of advice do you get from the extension agents? _____

Do the extension agents advice you on specific aspects on wetland management?

Yes No

If yes, what aspects of wetland management do they advice on?

Fill in the table below on household access to other support services

Services	Is the service available in the area? 1. Yes 2. No	Do you use it or have you used it in the past 5 years? 1. Yes 2. No	Reasons for not using the service (Key 16)
Public transport			
Private transport			
Savings			
Health services			
Educational services			
Other government support services (specify)			
Private (NGO) service support programs (specify)			
Other (specify)			



Key 16: 1. I don't require the service and I am not part of the group 3. Service is too expensive 4. Quality of service not to standard 5. Other (specify)

F.4. Membership to social groups

Is there any member of the household belonging to a social group or network?

Yes No

Who in the household is a member of this group and what is his/her relationship to household head?

(repeat questions which follow for every household member who belongs to a social group)

Type of social group the household member belongs to?

Farmer association

Credit or savings group

Professional association

Wetlands committee

Other village committee

Burial society

Other (specify) _____

Does the person hold a particular position within the social group?

Yes No

If yes, what is the position held?

How active is the member in the social grouping? How many times per year does the person participate in the meetings of the social group?

What are the benefits of joining this social group? _____

When there is a decision to be made in this organisation/group, how does this usually come about?

Leader imposes decision without consultation of other group members

Leader decides and informs other group members

Leader consults other members of the group first and then makes a decision

Group members make a decision together

Other (specify)



Section G: Income, budget

G1. What are the different sources of income available to your household? State the amount you receive from every source per month or during the last cropping season.

Key 1. 1.Head of household; 2.Spouse; 3.Child; 4. Grandchild; 5.Parents; 6.Siblings; 7.Farm laborer; 8.Other members (includes household helpers)

Source	Form of income 1.cash 2.kind	Who earns the income? Use key 1.	How long have they been engaged in this activity?	Average amount per month	Average amount for the last cropping season	Is it a regular or once-off income? If once-off what is the period of earning?
1. Crop production						
2. Paid job						
3. Non agricultural independent (self)activities e.g brick making, fishing						
4. Informal activities (e.g gold panning)						
5. Remittances						
6. Social grants						
7. Other (specify)						

Among these sources of income which ones are the most variable?

What are the main causes of variability?

G2. Household budget

How is the average annual income (in cash) distributed among the following categories of expenses?

[use 25 or 50 stones or sticks to represent the total annual income and ask the respondent to distribute them among seasons and then among categories of expenses. Use cards with drawing to represent the various categories of expenses]

Categories of expenses	Wet season	Dry season
Basic food (oil, salt...)		
Other food		
House		
Clothing		
House		
Religious expenses		
Family & social events		
School fees & uniforms		
Health		
Crop inputs		
Livestock inputs		
Livestock		
Farm implements		
Domestic assets (specify)		
Electricity		
Water		
Savings		
Misc.		

G.3 Food supply and security

These questions should preferably be asked of the person responsible for food preparation or of another adult who was present permanently and ate in the household during the reference period

F3.1. Number of eating occasions

During the previous 24-hour period, did you or anyone in your household consume...

Eating Occasion	Yes	No
Any food before a morning meal		
A morning meal		
Any food between morning and midday meals		
A midday meal		
Any food between midday and evening meals		
An evening meal		
Any food after the evening meal		
Number of eating occasions for the household (per day)		

G3.2 Food diversity

These questions refer to the household as a whole, not any single member of the household

Now I would like to ask you about the types of food that you or anyone else in your household ate yesterday during the day and at night. Please include the food prepared and consumed at home and the food prepared at home and consumed outside.

G3.3.1 Was yesterday a normal day for the household (e.g., no funeral or feast or special event)? Yes No

If No, choose another day of the previous week that was normal

G3.3.2 Did you or anyone else in the household ate yesterday...

Read the list of food groups. Place a 1 in the box if anyone in the household ate the food in question; place a 0 in the box if no one in the household ate the food

1. Any bread, rice noodles, biscuits or any other food made from millet, sorghum, maize, rice, wheat? [Cereals]
 2. Any potatoes, yams, manioc, cassava, or any other foods made from roots or tubers? [Roots and tubers]
 3. Any vegetables?
 4. Any fruits?
 5. Any beef, pork, lamb, goat, rabbit wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats? [Meat]
 6. Any eggs?
 7. Any fresh or dried fish or shellfish?
 8. Any foods made from beans, peas, lentils or nuts? [Pulses / legumes / nuts]
 9. Any cheese, yoghurt, milk or other milk products?
 10. Any foods made with oil, fat or butter?
 11. Any sugar or honey?
 12. Any other foods, such as condiments, coffee, tea?
- Total number of food groups [from 0 to 12]



G3.4. For each type of food indicate how much you require for your household per month. Then indicate the main sources of this type of food during the last cropping season

[Give the respondent ten stones or sticks and ask him/her to distribute them according to the main sources of food for cereals. Then repeat the question for each type of food. Use a table with explicit drawings to represent the different sources of food]

Type of food	How much do you require for the household per month	Unit	01. Purchase	02. Household production from wetland	03. Household production from other land	04. Wild food from wetland	05. Wild food from other land	06. Gift	07. Government or NGO program	08. Other	99. Don't know
1. Cereals											
2. Roots/tubers											
3. Legumes											
4. Fruits											
5. Vegetables											
6. Milk/milk products											
7. Eggs											
8. Meat											
9. Fish											

G3.5 Now I would like to ask you about your household’s food supply during different months of the year. When responding to these questions, please think back over the last 12 months.

G3.5.1. In the past 12 months were there months in which you did not have enough food to meet your family’s needs? Yes No

G3.5.2. If yes, which were the months (in the last 12 months) in which you did not have enough food to meet your family’s needs?

Aug.	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Total nb of months

Working backward from the current month, put a 1 in the box if the respondent identifies that month as one in which the household did not have enough food to meet their needs

G3.5.3. How does your household cope with food shortages?

Section H. Household Perceptions on Wetland Management and Human Well-Being

In your own opinion, do you think people have sufficient understanding on management of wetlands?

Yes No

If yes, what are the main sources of information on wetland management in the area?

What aspects of wetland management do these sources cover?

Do you think this information adequately covers the wetland management issues people need to understand? Yes No

If no, what aspects of wetland management do you think people need further elaboration on?

In your own opinion, do you think degradation of wetland resources is a problem in the area?

Yes No

If yes, what do you think are the proximate causes of degradation of wetland resources in your area?



In what ways is degradation of wetland ecosystems affecting the well-being of people in your area?

How do you cope with the effects of wetland degradation on your well-being?

In general, what are the major factors constraining the use of wetlands for supporting livelihoods in your area?

What do you think should be done to improve management of wetlands so that the community continues to derive benefits from them?

Is there any information that you think would be useful for the research project?

Thank you for your cooperation

Appendix A4: Household questionnaire used for economic valuation of provisioning services of the Ga-Mampa wetland

Source: Adekola (2007)

Section 1

Interview No: _____

Name of Respondent: _____

Sex: Male [] Female []

Age/ Year of Birth: _____

Marital Status: Married [] Single [] Divorced [] Widowed []
] Living together

Educational Level: _____

Main Occupation: _____

Number in Household: _____

Monthly Household Income _____

Position in Household: _____
(In relation to head of household)

Name of Village: _____

Date/ Time Begin: _____



Section 2

1. How long have you been staying in this village? From Birth [] Years []
2. Do you derive any benefits from the wetland? Yes [] No []
3. Do you own a plot in the wetland? Yes [] No []
4. Which of the following activities have you ever used the wetland for in the past?
 - [] Cropping
 - [] Grazing
 - [] Edible plant collection
 - [] Building material collection
 - [] Arts and craft materials collection
 - [] Fuelwood collection
 - [] Fishing
 - [] Hunting
 - [] Drinking water
 - [] Water for washing
 - [] Water for bathing
 - [] Others (Specify) _____
5. Which of these have you used the wetland for in the last one year?
 - [] Cropping
 - [] Grazing
 - [] Edible plant collection
 - [] Building material collection
 - [] Arts and craft materials collection
 - [] Fuelwood collection
 - [] Fishing
 - [] Hunting
 - [] Drinking water
 - [] Water for washing
 - [] Water for bathing
 - [] Others (Specify) _____
6. Did you give out your plot (all or part) to another person to use either for cropping or grazing in the last year? Yes [] No []
7. If yes for what purpose? _____
8. How much/ what did you collect in exchange? _____

If yes to any in 5 above, then please go to the relevant section in Appendix.

9. Which other benefit(s) (apart from those listed above) do you derive from the wetland?

Regulation	Supporting	Cultural

10. Which benefits apart from those listed above are you aware of?

Regulation	Supporting	Cultural

11. Apart from livelihood resource generated from wetland use, what other sources of income do you have? (List)

Livelihood Resource Source	Importance	Livelihood Resource Source	Importance

12. From list above indicate importance in terms of contribution to household resources with asterisk (pebbles or beans)

13. Are you satisfied with the current benefits you derive from the wetland? Yes []

No []

14. Please explain your answer _____

15. Have you received information on how to use the wetland so you can derive **better** benefits?

Yes [] No []

16. If yes, who provided the information?

17. Through which medium? _____

18. Have you received any training on how to best use the wetland to benefit you? Yes [] No []

19. If yes, explain _____

20. Overall, how important is the wetland to you?

[] Extremely Important (5)

[] Very Important (4)

[] Important (3)

[] Fairly Important (2)

[] Not Important (1)

21. Please, can you kindly provide name(s) of other person(s) known to you using the wetland for the following purpose(s).

[] Cropping _____

[] Grazing _____

[] Wild plant collection _____

[] Building material collection _____

[] Arts and craft materials collection _____

[] Fuelwood collection _____

[] Fishing _____

[] Hunting _____

[] Drinking water _____

[] Water for washing _____

[] Water for bathing _____

[] Others (Specify) _____

20. Time End _____

Section 3

A. Cropping

1. How long have you been involved in cropping activity in the wetland? _____ Years
2. How many households do you know to be involved in cropping activity in the wetland in?
Mashushu _____, Mapagane _____, Mantlane _____, Moila _____, General _____
3. What is the size of the land you use for cropping?
Wetland _____ *Bambas*
Others (Specify) _____ *Bambas*
4. Has your wetland farmland size changed in the last two cropping seasons? Yes [] No []
5. Did the size of your farmland in the wetland change in the last five Years? Yes [] No []
6. Locate on a map where your farmland(s) is/are presently located in the wetland?
7. How do you get there (wetland cropping land from home)?
[] Walking, [] Cycle, [] Personal Transport, [] Public Transport
8. How long does it take to the farm from your home? _____ (Hours)
9. Is cropping your main occupation? Yes [] No []
10. Why do you crop in the wetland? _____
11. Are there other locations available for you to crop besides the wetland area? Yes [] No []
12. If yes, what is what/where is this alternative? (describe) _____
13. How accessible is this alternative to you? Free [] I pay [] _____ (ZAR)
14. Do you have possibility to do what you do in the wetland elsewhere? Yes [] No []
15. If yes, what is what/where is this alternative? (describe) _____
16. How accessible/available is this alternative? Free [] I pay [] _____ (ZAR)
17. In the absence of the wetland, how will you meet the cropping contribution of the wetland _____ to _____ your household? _____
18. In the past years have you ever experienced crop shortage in the wetland? Yes [] No []
19. If yes, when was this and how did you adjust, what did you do? _____
20. Which crops did you cultivate in the last 3 years per farming seasons?

Year 1 (2003/2004)		Year 2 (2004/2005)		Year 3 (2005/2006)	
Wet Season	Dry Season	Wet Season	Dry Season	Wet Season	Dry Season

21. What was your yield for these crops?

Crop	Year 1 (2003/2004)		Year 2 (2004/2005)		Year 3 (2005/2006)	
	Wet Season	Dry Season	Wet Season	Dry Season	Wet Season	Dry Season

22. How much are you willing to be paid to in lieu of your cropping right in the wetland
23. Once payment _____ (ZAR)
24. Over a period of time (indicate below)

Year					
Amount					

Repeat this sheet for each plot/crop for each cropping season in the last year.

Crop type: _____ **Size of plot used** _____ **Cropping**
season: _____

1. How did you prepare the land for the season?

Tractor donkey hoe did not cultivate

2. Which seed did you use?

Farm seed bought normal seeds bought improved variety

3. Did you do weeding? Yes No

4. How did you do the weeding? Manual Chemical

5. Did you use fertilizers? Yes No

6. If yes which type? Mineral Organic Both

7. Did you experience any problems of pests? Yes No

8. If Yes, please state the type of pests and how you did control them

Type of pest	Crop affected	Method of control used	Estimated cost of control	Severity of problem <i>1.very severe, 2.moderate, 3.not severe</i>

9. Did you experience any problems of crop diseases? Yes No

10. If yes state the type of diseases and how you did control them

Type of disease	Crop affected	Method of control used	Estimated cost of control	Severity of problem <i>1.very severe, 2.moderate, 3.not severe</i>



11. Input used [use one row for each type of input]

Input category [use key 2]	Input name	Quantity used for the total area	Unit	Price / unit	Source [use key 3]

Key 2: 1.seeds or seedlings; 2. mineral fertilizers; 3. organic fertilizers; 4. pesticides; 5. containers; 6. packaging; 7.transport; 8. Others

Key 3: 1. farm production; 2. purchase; 3. gift from family or neighbor; 4. gift from government, NGOs

12. Implement used [use one row for each type of input]

Implement category [use key 4]	Input name	Quantity used for the total area	Source [use key 5]	Price / unit	Length of Use	Estimated Life length of Implement

Key 4: 1.Tractors; 2. Hoes; 3. Cutlass; 4. Wheel Barrow; 5. Spade; 6. others ;

Key 5: 1. Farm production; 2. Purchase; 3. Gift from family or neighbor; 4. Gift from government, 5. NGOs, 6. Hire (from who? _____) 7 Borrow

13. Labor use

Task	Period operation was done	How many family members	Who in the family? [use key 1]	How many days per family member?	How many hired laborers?	How many days per hired laborer?	Cost of labor
Land preparation							
Planting, sowing							
Weeding [*]							
Fertility management [*]							
Pest control [*]							
Disease Control							
Harvest [*]							
Transport of Harvest							
Post harvest processing, shelling, threshing							
Other (specify)							

Key 1 1.Head of household; 2.Spouse; 3.Child; 4. Grandchild; 5.Parents; 6.Siblings; 7.Farm laborer; 8.Other members (includes household helpers)

[*] if several operations of the same type indicate the total number of days

14. Can you indicate average time you personally spend on your farm in the following months?

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept

Time Per
Person
Average
number of
persons

15. Did you loose any part of your yield to flood, thieves etc before harvesting? Yes No

16. If yes, what quantity?

Crop (Type)	Reason for Lost	Quantity Lost

17. What was the total yield for this crop? (specify the unit)

Crop (Type)	Size of plot used	Quantity of yield

18. Did you loose any part of your yield after harvesting? Yes [] No []

19. If yes, what quantity?

Crop (Type)	Reason for Lost	Quantity Lost

20. What quantity of this yield did you use for household consumption?

Crop type	Quantity

21. What quantity did you give out?

Crop type	Quantity

22. What quantity did you retain for next planting season?

Crop type	Quantity

23. What quantity did you exchange?

Crop type	Quantity exchanged	Exchanged for

24. With whom did you exchange? _____

25. Did you pay any other cost for this exchange? Yes [] No []

26. If yes how much and for what? _____

27. What quantity did you sell?

Crop type	Quantity	Price per unit

28. To whom did you sell? _____

29. Where did you sell it (i.e. local market, outside market)?

30. Did you transport to the market? Yes [] No []

31. If yes, how much did the transport cost? _____

32. In the last one year what is the highest and lowest price you sold this crop

Crop type	Highest Price	When (Period)	Lowest Price	When (Period)

33. Can you provide price you sold this crop in the last five years?.

Period	Price	Period	Price

34. What other products did you make from your crops? (list)²¹

Product	Product	Product

35. What else do you do with part of your yield? _____

General Questions

1. How will you describe benefits from cropping in the wetland in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] No Idea

2. What (indicator) did you use to suggest this change? (explain)

3. Are you aware of impacts your cropping activity is having on the wetland? Yes [] No []

4. If yes, please explain _____

5. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []

6. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits?

7. What did you do? _____

8. How much did the action cost you?

²¹ If any ascertain cost and amount made from this.

9. In the last 2 years has the community taken any action to ameliorate this impact? Yes
No
10. If yes what has been done to reduce impact so you could continue to have this benefit?

11. How much did this activity cost the community?

12. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes No
13. Which _____ organization?
14. What did they do? _____
15. How much did it cost them?

B. Collection of Edible Plants

1. How long have you been involved in collection of edible plants from the wetland?

2. How many households do you know to be involved in this activity in the wetland?
3. Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know __
4. Which type of plants do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

5. How often do you collect this type of plant in a month/year? _____
6. How many people involved in the collection per month for your household?

7. How long do each spend? _____
8. What is the total quantity you collect a month/year? _____
9. How long does it take to collect this quantity? _____ persons/month
10. In the last one year what quantity of each of these plants did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of Collection												
Quantity collected												

11. Describe availability of each type of plant in the wetland relation to farming seasons (for each plant)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

12. Which part of the wetland do you get these plants? Show it on the map for each type.
13. How long is it from your homestead to the place of collection? _____ (time)
14. How do you transport from the homestead to and from the place of collection



- [] Walking, [] Cycle, [] Private car, [] Public transport
15. Why do you choose the wetland as a place to collect wild plants? _____
16. Is/are these plants available in other places outside the wetland? Yes [] No []
17. If yes, where are they located? (describe or show on map)._____
18. Do you also get these plants from this source(s)? Yes [] No []
19. How accessible (right) is this source to you? _____
20. Is collection of wild plant your main occupation? _____
21. Which of these sources do you use the most? _____
22. How many people collect wild plant for your household? _____
23. Who are they? _____
24. Do you hire external labor to collect wild plant? Yes [] No []
25. If yes, how many per collection _____
26. Do you pay for the right to collect wild plant? Yes [] No []
27. If yes how much do you pay to collect these materials?
28. Do you use specific tools for collection of plants? Yes [] No []
29. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

30. What quantity (of each type of plant) do you use personally? (Per time month)

Type (Plant)	Quantity	Price

31. What quantity did you give out? (Per time month)

Type (Plant)	Quantity	Price

32. What quantity did you give out in exchange? (Per time month)

Type (Plant)	Quantity	Exchange for

33. What quantity did you sell? (Per month)

Type (Plant)	Quantity	Price

34. Where did you sell them? _____

35. To whom did you sell them? _____

36. Did you incur transport cost to sell? Yes [] No []

37. If yes, how much? _____

38. In the last one year what is the highest and lowest price you sold wild plants

Type	Highest Price	When (Period)	Lowest Price	When (Period)

39. Can you provide price you sold this wild plants in the last five years?.

Period	Price	Period	Price

40. Do you make other product from wild plants? Yes [] No []

41. If yes, what other products do you make from wild plants? (List)

Product	Product

42. In the last one year what is the highest and lowest price you sold these products?

Type	Highest Price	When	Lowest Price	When

43. What else do you use collected wild plants for? _____

44. How will you describe possibility to collect wild plant in the wetlands in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] No Idea

45. Are you aware of impacts your plant collection activity is having on the wetland? Yes [] No []

46. If yes list/explain _____

47. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []

48. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____

49. What did u do? _____

50. How much did the action cost you? _____

51. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []
52. If yes what has been done to reduce impact so you could continue to have this benefit?

53. In the last 2 years has any **external organization** taken any action to ameliorate these impacts? Yes [] No [] I don't know []
54. Which organization? _____
55. What did they do? _____

C. Collection of Building Material

1. How long have you been involved in collection of building materials from the wetland?

2. How many households do you know to be involved in this activity in the wetland?
Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know ____
3. Which type of building materials do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

4. Have you collected these materials in the last one year? Yes [] No []
5. How often do you collect each of these materials in a month/year? _____
6. How many people involved in the collection per month for your household? _____
7. How long do each spend? _____
8. What quantity do you collect a month/year? _____
9. How long does it take to collect this quantity? _____ persons/month
10. In the last one year what quantity of each of these materials did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of Collection												
Quantity collected												

11. Can you describe availability of each material in relation to farming seasons (for each plant)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

12. Which part of the wetland do you get these building materials? Show it on the map for each.
13. How long is it from your homestead to the place of collection? _____
(time)
14. How do you transport from the homestead to and from the place of collection
[] Walking, [] Cycle, [] Private car, [] Public transport
15. Why do you choose the wetland as a place to collect building materials? _____
16. Is/are these materials available in other places outside the wetland? Yes [] No []
17. If yes, where are they located? (describe or show on map) _____
18. Do you also get these materials from this source(s)? Yes [] No []
19. How accessible is this source to you? _____
20. Which of these sources do you use the most? _____
20. Is collection of building material your main occupation? _____



21. How many people collect building material for you? _____

22. Who are they? _____

23. Do you hire external labor to collect building material? Yes [] No []

24. If yes, how many per collection _____

25. Do you pay to collect building materials? Yes [] No []

26. If yes how much do you pay to collect these materials?

27. Do you use specific tools for collection of building materials? Yes [] No []

28. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

29. What quantity (of each type of material) do you use personally? (Per time month)

Type (Plant)	Quantity	Price

30. What quantity did you give out? (Per time month)

Type (Plant)	Quantity	Price

31. What quantity did you give out in exchange? (Per time month)

Type (Plant)	Quantity	Exchange for

32. What quantity did you sell? (Per month)

Type (Plant)	Quantity	Price

33. Where did you sell them? _____

34. To whom did you sell them? _____

35. Did you incur transport cost? Yes [] No []

36. If yes, how much? _____

37. In the last one year what is the highest and lowest price you sold building materials

Type	Highest Price	When (Period)	Lowest Price	When (Period)

38. Can you provide price you sold this building materials in the last five years?.

Period	Price	Period	Price

39. Do you make other product from collected materials? Yes [] No []



40. If yes, what other products? (List)

Product	Product

41. In the last one year what is the highest and lowest price you sold these products?¹

Type	Highest Price	When	Lowest Price	When

42. What else do you use collected materials for?

43. How will you describe possibility to collect building materials in the wetlands in the past five years? [] Increasing, [] Decreasing, [] Not changing, [] No Idea

44. Are you aware of impacts your collection activity is having on the wetland? Yes [] No []

45. If yes list/explain _____

46. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No

47. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____

48. What did you do? _____

49. How much did the action cost you? _____

50. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []

51. If yes what has been done to reduce impact so you could continue to have this benefit?

52. In the last 2 years has any external organization taken any action to ameliorate these impacts?

Yes [] No [] I don't know []

53. Which organization? _____

54. What did they do? _____

D. Arts and Craft Material Collection

- How long have you been involved in collection of craft materials from the wetland?

- How many households do you know to be involved in this activity in the wetland?
Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know

3. Which type of art and craft materials do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

- How often do you collect each of these materials in a month/year? _____
- How many people involved in the collection per month for you? _____
- How long do each spend? _____
- What quantity do you collect a month/year? _____
- How long does it take to collect this quantity? _____persons/month
- In the last one year what quantity of each of these materials did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of Collection												
Quantity collected												

10. Can you describe availability of each material in relation to farming seasons (for each)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

- Which part of the wetland do you get these art and craft materials? Show it on the map for each type.
- How long is it from your homestead to the place of collection? _____
(time)
- How do you transport from the homestead to and from the place of collection
[] Walking, [] Cycle, [] Private car, [] Public transport
- Why do you choose the wetland as a place to collect art and craft materials? _____
- Is/are these materials available in other places outside the wetland? Yes [] No []
- If yes, where are they located? (describe or show on map) _____
- Do you also get these materials from this source(s)? Yes [] No []
- How accessible is this source to you? _____
- Which of these sources do you use the most (rank) _____
- Is collection of art and craft material your main occupation?

- How many people collect art and craft material for you? _____
- Who are they? _____
- Do you hire external labor to collect material? Yes [] No []
- If yes, how many per collection _____
- Do you pay to collect art and craft materials? Yes [] No []
- If yes how much do you pay to collect these materials?
- Do you use specific tools for collection of art and craft materials? Yes [] No []

28. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

29. What quantity (of each type of material) do you use personally? (Per time month)

Type (Plant)	Quantity	Price

30. What quantity did you give out? (Per time month)

Type (Plant)	Quantity	Price

31. What quantity did you give out in exchange? (Per time month)

Type (Plant)	Quantity	Exchange for

32. What quantity did you sell? (Per month)

Type (Plant)	Quantity	Price

33. Where did you sell them? _____

34. To whom did you sell them? _____

35. Did you incur transport cost to sell? Yes [] No []

36. If yes, how much? _____

37. In the last one year what is the highest and lowest price you sold art and craft materials

Type	Highest Price	When (Period)	Lowest Price	When (Period)

38. Can you provide price you sold these materials in the last five years?

Period	Price	Period	Price

39. Do you make other product from collected materials? Yes [] No []

40. If yes, what other products? (List)

Product	Product

41. In the last one year what is the highest and lowest price you sold these products?"

Type	Highest Price	When	Lowest Price	When

42. What else do you use collected materials for?

43. How will you describe possibility to collect art materials in the wetlands in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] No Idea

44. Are you aware of impacts your collection activity is having on the wetland? Yes [] No []

45. If yes list/explain _____
46. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []
47. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____
48. What did u do? _____
49. How much did the action cost you? _____
50. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []
51. If yes what has been done to reduce impact so you could continue to have this benefit? _____
52. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes [] No [] I don't know []
53. Which organization? _____
54. What did they do? _____

E. Fuelwood Collection

1. How long have you been involved in collection of fuelwood from the wetland? _____
How many households do you know to be involved in this activity in the wetland?
2. Mashushu _____, Mapagane _____, Mantlane _____, Moila _____, General _____, I don't know _____
3. Which type of fuelwood materials do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

4. How often do you collect each of these materials in a month/year? _____
5. How many people involved in the collection per month for your household? _____
6. How long do each spend? _____
7. What quantity do you collect a month/year? _____
8. How long does it take to collect this quantity? _____ Hours
9. In the last one year what quantity of each of these materials did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of Collection												
Quantity collected												

10. Can you describe availability of each material in relation to farming seasons (for each plant)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

11. Which part of the wetland do you get these fuelwoods? Show it on the map for each type.
12. How long is it from your homestead to the place of collection? _____
13. How do you transport from the homestead to and from the place of collection
[] Walking, [] Cycle, [] Private car, [] Public transport
14. Why do you choose the wetland as a place to collect fuelwood? _____

15. Is/are these materials available in other places outside the wetland? Yes [] No []
16. If yes, where are they located? (describe or show on map. _____)
17. Do you also get these materials from this source(s)? Yes [] No []
18. How accessible is this source to you? _____
19. Which of these sources do you use the most (rank) _____
20. Is collection of fuelwood your main occupation? _____
21. How many people collect fuelwood for you? _____
22. Who are they? _____
23. Do you hire external labor to collect fuelwood? Yes [] No []
24. If yes, how many per collection _____
25. Do you pay to collect fuelwood? Yes [] No []
26. If yes how much do you pay to collect these materials? _____
27. Do you use specific tools for collection of fuelwood? Yes [] No []
28. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

29. What quantity (of each type of material) do you use personally? (Per time month)

Type (Plant)	Quantity	Price

30. What quantity did you give out? (Per time month)

Type (Plant)	Quantity	Price

31. What quantity did you give out in exchange? (Per time month)

Type (Plant)	Quantity	Exchange for

32. What quantity did you sell? (Per month)

Type (Plant)	Quantity	Price

33. Where did you sell them? _____

34. To whom did you sell them? _____

35. Did you incur transport cost? Yes [] No []

36. If yes, how much? _____

37. In the last one year what is the highest and lowest price you sold fuelwood?

Type	Highest Price	When (Period)	Lowest Price	When (Period)

38. Can you provide price you sold fuelwood in the last five years?.

Period	Price	Period	Price

39. Do you make other product from collected materials? Yes [] No []

40. If yes, what other products? (List)

Product	Product

41. In the last one year what is the highest and lowest price you sold these products?ⁱⁱⁱ

Type	Highest Price	When	Lowest Price	When

42. What else do you use collected materials for?

43. How will you describe possibility to collect fuelwood in the wetlands in the past five years? [] Increasing, [] Decreasing, [] Not changing, [] No Idea

44. Are you aware of impacts your collection activity is having on the wetland? Yes [] No []

45. If yes list/explain _____

46. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []

47. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____

48. What did you do? _____

49. How much did the action cost you? _____

50. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []

51. If yes what has been done to reduce impact so you could continue to have this benefit?

52. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes [] No [] I don't know []

53. Which organization? _____

54. What did they do? _____

F. Fishing (only relevant if actual fishing is done in the wetland)

1. How long have you been involved in fishing from the wetland? _____

2. How many households do you know to be involved in this activity in the wetland?
Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know
__

3. Which type of fish do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

4. How often do you fish in a month/year? _____

5. How many people involved in fishing per month for your household? _____

6. How long do each spend? _____

7. What quantity do you collect a month/year? _____

8. How long does it take to collect this quantity? _____ persons/week

9. In the last one year what quantity of each fish type did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of												

Collection												
Quantity collected												

10. Can you describe availability of fish in relation to farming seasons (for each plant)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

11. Which part of the wetland do you get these fishes? Show it on the map for each type.

12. How long is it from your homestead to the place of fishing? _____

13. How do you transport from the homestead to and from this place?

[] Walking, [] Cycle, [] Private car, [] Public transport

14. Why do you choose the wetland as a place to fish? _____

15. Is/are there alternative places outside the wetland you can fish? Yes [] No []

16. If yes, where are they located? (describe or show on map). _____

17. Do you also get fish from this source(s)? Yes [] No []

18. How accessible is this source to you? _____

19. Which of these sources do you use the most (rank) _____

20. Is fishing your main occupation? _____

21. How many people fish for you? _____

22. Who are they? _____

23. Do you hire external labor to fish for you? Yes [] No []

24. If yes, how many per collection _____

25. Do you pay to fish in the wetland? Yes [] No []

26. If yes how much do you pay?

27. Do you use specific tools for fishing in the wetland? Yes [] No []

28. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

29. What quantity (of each type of material) do you use personally? (Per time month)

Type (Fish)	Quantity	Price

30. What quantity did you give out? (Per time month)

Type (Fish)	Quantity	Price

31. What quantity did you give out in exchange? (Per time month)

Type (Fish)	Quantity	Exchange for

32. What quantity did you sell? (Per month)

Type (Fish)	Quantity	Price

--	--	--

33. Where did you sell them? _____
34. To whom did you sell them? _____
35. Did you incur transport cost? Yes [] No []
36. If yes, how much? _____
37. In the last one year what is the highest and lowest price you sold fishes?

Type	Highest Price	When (Period)	Lowest Price	When (Period)

38. Can you provide price you sold fish in the last five years?.

Period	Price	Period	Price

39. Do you make other product from fish? Yes [] No []

40. If yes, what other products? (List)

Product	Product

41. In the last one year what is the highest and lowest price you sold these products?^{iv}

Type	Highest Price	When	Lowest Price	When

42. What else do you use fish for?
43. How will you describe possibility to fish in the wetlands in the past five years?
[] Increasing, [] Decreasing, [] Not changing, [] No Idea
44. Are you aware of impacts your fishing is having on the wetland? Yes [] No []
45. If yes list/explain _____
46. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []
47. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____
48. What did u do? _____
49. How much did the action cost you? _____
50. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []
51. If yes what has been done to reduce impact so you could continue to have this benefit?

52. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes [] No [] I don't know []
53. Which organization? _____
54. What did they do? _____

G. Hunting

- How long have you been involved in hunting from the wetland? _____
- How many households do you know to be involved in this activity in the wetland?
Mashushu _____, Mapagane _____, Mantlane _____, Moila _____, General _____, I don't know _____
- Which type of games do you collect from the wetland? (List)

Plant Type	Plant Type	Plant Type

- How often do you hunt in a month/year? _____
- How many people involved in hunting for you per month? _____
- How long do each spend? _____
- What quantity do you collect a month/year? _____
- How long does it take to collect this quantity? _____ Hours
- In the last one year what quantity of each game type did you collect? (Optional)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Freq. of Collection												
Quantity collected												

- Can you describe availability of games in relation to farming seasons (for each plant)?

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Availability												
Harvesting period												

- Which part of the wetland do you get these games? Show it on the map for each type.
- How long is it from your homestead to the place of hunting? _____
- How do you transport from the homestead to and from this place?
[] Walking, [] Cycle, [] Private car, [] Public transport
- Why do you choose the wetland as a place to hunt? _____
- Is/are there alternative places outside the wetland you can hunt? Yes [] No []
- If yes, where are they located? (describe or show on map. _____)
- Do you also get hunt from this source(s)? Yes [] No []
- How accessible is this source to you? _____
- Which of these sources do you use the most (rank) _____
- Is hunting your main occupation? _____
- How many people hunt for you? _____
- Who are they? _____
- Do you hire external labor to hunt for you? Yes [] No []
- If yes, how many per collection _____
- Do you pay to hunt in the wetland? Yes [] No []
- If yes how much do you pay? _____
- Do you use specific tools for hunting in the wetland? Yes [] No []



28. If yes, fill table below

Type of tool	Number	Source (Rent, gift, inheritance etc.)	When did you acquire it	Averagely how long does it work	How much do you pay for it

29. What quantity (of each type of material) do you use personally? (Per time month)

Type (game)	Quantity	Price

30. What quantity did you give out? (Per time month)

Type (game)	Quantity	Price

31. What quantity did you give out in exchange? (Per time month)

Type (game)	Quantity	Exchange for

32. What quantity did you sell? (Per month)

Type (Fish)	Quantity	Price

33. Where did you sell them? _____

34. To whom did you sell them? _____

35. Did you incur transport cost? Yes [] No []

36. If yes, how much? _____

37. In the last one year what is the highest and lowest price you sold games?

Type	Highest Price	When (Period)	Lowest Price	When (Period)

38. Can you provide price you sold game in the last five years?.

Period	Price	Period	Price

39. Do you make other product from games? Yes [] No []

40. If yes, what other products? (List)

Product	Product

41. In the last one year what is the highest and lowest price you sold these products?^v

Type	Highest Price	When	Lowest Price	When

42. What else do you use games for?

43. How will you describe possibility to games in the wetlands in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] No Idea

44. Are you aware of impacts your hunting is having on the wetland? Yes [] No []
45. If yes list/explain _____
46. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []
47. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____
48. What did you do? _____
49. How much did the action cost you? _____
50. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []
51. If yes what has been done to reduce impact so you could continue to have this benefit?

52. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes [] No [] I don't know []
53. Which organization? _____
54. What did they do? _____

H. Water

1. How long have you been collecting water from the wetland? _____
2. How many households do you know to be involved in this activity in the wetland?
Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know ____
3. Which quantity of water for the following activities do you collect from the wetland during the week?

Water for	Source	Location on the map	Quantity Collected per day	Frequency of collection	Length of time using wetland for this purpose	Number of households
Drinking and cooking						
Washing clothes						
Bathing						
Building purposes						
Watering of small livestock(eg rabbits)						
Watering gardens						
Other specify						

4. Why do you collect water from the wetlands? _____
5. Do you have alternative to this? _____
6. If yes, do you also use this source(s)
7. How accessible is this alternative source to you? _____
8. Which of these sources do you use most (rank) _____
8. How many people collect water for your household? _____
9. Who are they? _____
10. Do you hire external labor to collect water? Yes [] No []
11. If yes, how many per collection _____
12. How much do you pay them? _____
13. Do you pay to collect water? Yes [] No []
14. If yes how much do you pay to collect water?

15. Do you use specific tools for collecting water? Yes [] No []

16. If yes, fill table below

Type of tool	Number	Source	When did you acquire it	Averagely how long does it work	How much do you pay for it

17. How do you transport to and from the place of collection

[] Walking, [] Cycle, [] Private car, [] Public transport

18. What quantity of water collected do you use personally? (Per time mentioned above)

19. What quantity do you give out?

20. What quantity do you sell?

21. What else do you use collected water for?

22. How will you describe possibility to collect water in the wetlands in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] I don't know

23. Are you aware of impacts your water collection activity is having on the wetland?

Yes [] No []

24. If yes list/explain _____

25. In the last 2 years (and maybe years prior) have you done anything to ameliorate this impact(s)? Yes [] No []

26. If yes what action have you taken (personally) to reduce impact so you could continue to have these benefits? _____

27. What did you do? _____

28. How much did the action cost you? _____

29. In the last 2 years has the community taken any action to ameliorate this impact? Yes [] No []

30. If yes what has been done to reduce impact so you could continue to have this benefit? _____

31. In the last 2 years has any external organization taken any action to ameliorate these impacts? Yes [] No [] I don't know []

32. Which organization? _____

33. What did they do? _____

34. Did you experience any water related disease in the last year?

35. If yes, explain (ascertain cost of treatment)

I. Livestock

1. How long have you been involved in livestock grazing activity in the wetland area?

2. How many households are do you know to be involved in livestock grazing?

Mashushu ____, Mapagane ____, Mantlane ____, Moila ____, General ____, I don't know ____

3. Is livestock rearing your main occupation? Yes [_____] No [_____]

4. Fill for each season (last two seasons)

Livestock categories	How many the season	How many born?	How many dead?	How many purchased?	How many sold?	How many used for own consumption?	How many do you give out as gift?	How many exchanged? (+/-)	How many today?
Cattle/ Cow									
Donkeys									
Sheep									
Goats									
Poultry									
Rabbits									
Pigs									

Milk production

5. How many cows or goats that produce milk do you have in the season? Cows ____ Goats ____

6. How much milk do each produce per week? Cows _____, Goats _____

7. What quantity of milk do you use for household consumption per week? _____

8. What do you do with the rest? _____

Draught power

9. Did you use some of your livestock for plowing or transport in cropping season? Yes No

10. If yes, how many animals and of which type did you use for this?

Type of animals	Number	Use [plowing, transport]
Cows		
Donkeys		

11. How many days did you use them last cropping season for your own needs and what area did you plow with your own animals?

Type of animals	Days used for transport	Plowing	
		days	Area
Cows			
Donkey			

(Specify unit _____)

12. Did you rent or lend your animal for plowing or transport last cropping season? Yes No

13. If yes specify how many days and the area plowed?

Type of animals	Days used for transport	Plowing	
		days	area
Cows			
Donkey			

14. What did you receive in exchange?

Cash

How much for one day?

Labour

How many man-days for one day of work?

other

specify

Manure production

15. Did you collect the manure produced by your animals for fertilizing your plots last cropping season?

Yes

No

16. If yes, from which animals and how did you collect it? (for example, collect manure produced at night in the kraal)

Cattle

Goats/sheep

Donkeys

Pigs

Poultry

17. How many carts (or other mean of measure) of manure did you collect in cropping season?

18. Did you exchange or give away manure to your relatives or neighbors? Yes

No

19. If yes, how many carts?

20. What did you receive in exchange?

Cash

How much for one cart?

Labour

How many man-days for one cart?

other

specify

Other livestock products

21. Did you get other animal product in the cropping season? Yes

No

22. If yes, specify,

Which product?

From which animal?

The quantity produced?

For which use (sale, own consumption, exchange),

If sold or exchanged specify price or against what?

Source of feed / grazing

23. Do you let your livestock graze in the wetlands? Yes No

24. If yes, indicate the periods when you let your livestock graze/browse in the wetlands?

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cattle												
Donkeys												
Goats												
Sheep												

25. Indicate on the map which part of the wetland you use for livestock grazing?

26. If no, why?

27. Which other grazing area do you use for your livestock? (locate them on the map)

28. Indicate the periods when you let your livestock graze/browse in this area?

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Cattle												
Donkeys												
Goats												
Sheep												

29. Did you cut grasses or bushes to feed your livestock last month? Yes No

30. If yes specify

Which plants,

Where did you collect them? (dryland, wetland, irrigation scheme; if wetland locate on a map)

For which and how many animals?

What quantity did you collect?

How much time did you spent in collection?

Who in the household did it?

31. Do you cultivate forage to feed your livestock? Yes No

32. If yes what quantity

33. For which and how many animals is the forage used?

34. What is the mode of distribution? (free grazing, in the kraal...)

35. Do you use crop residue for feeding your livestock? Yes No

36. If yes specify

From which crops,

On which plot? (dryland, wetland, irrigation scheme; locate on a map)

For which and how many animals?

What is the mode of distribution? (free grazing, in the kraal...)

What quantity did you use?

How much time did you spent in collection?

Who in the household did it?

Livestock production costs

37. Did you buy any feed for your livestock last cropping season? (Including complement, salt...)

What do you buy?	For which animals?	When?	Quantity	Price	To whom?



38. How much did spend last farming season on veterinary expenses?

	Dry season	Wet season	Total
Cattle			
Donkeys			
Goats			
Sheep			

39. Did you do any work on fences last farming season?

Type of work	Cost of implement	Number of days of family labour	Number of days of hired labour	Cost per day
Build a new fence				
Repair a fence				

40. Did you spend anything else for your livestock in cropping season?

41. How many people take your livestock for grazing for you? _____

42. Who are they? _____

43. Do you hire external labor to take your livestock for grazing? Yes [] No []

44. If yes, how many per time _____

45. Do you pay to graze your livestock? Yes [] No []

46. If yes how much do you pay? _____

47. Do your livestock drink from the wetland? Yes [] No []

48. If yes, what quantity/how often, for how long?

49. What other sources of water do you have for your livestock? (List)

50. Do you take water from the wetland for your livestock? Yes [] No []

51. What quantity? _____

52. Locate on the map where you get water for your livestock.

53. What other wetland products do your livestock feed on? (List)

54. How will you describe grazing potential in the wetland area in the past five years?

[] Increasing, [] Decreasing, [] Not changing, [] I don't know

55. Why do you graze your livestock's in the wetland? _____

56. Is/are these plants available in other places outside the wetland? Yes [] No []

57. If yes, where are they located? _____

58. Do you also get from this source? _____

59. How accessible is it to you? _____

60. If you do not have access anymore to graze in the wetland, what alternative do you have?
