

**ROLE AND LOSS OF BIODIVERSITY: IMPLICATIONS FOR LOCAL
COMMUNITY OF HANGU DISTRICT, KHYBER PAKHTUNKHWA**



Department of Environmental Economics

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<i>Date of Interview</i>	

<i>Study Area</i>	<i>District Hangu</i>
<i>Village</i>	

Pakistan Institute of Development Economics, Islamabad

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Survey Questionnaire (2016)

This Survey is being conducted, as part of an M Phil degree at the Department of Environmental Economics at PIDE, Islamabad in order to find out the responses of the local community about the role and loss of biodiversity in district Hangu. The following questions are thus purely for academic purposes. No personal information, whatsoever, will be used or shared with anyone in anyway other than the purpose mentioned above. This information and identity of respondent will be kept confidential. Your cooperation is highly appreciated.

Questionnaire and Interviews Points

A Interview from Owner of Protected Areas (sample size: 20)

Age	Employment	Location of HH	HH size	Education	Experience	Income

1. Have you protected this area for animals and plants conservation? Yes , No¹

2. From how many years this area is protected?

3. For what purpose this area was used before sparing it as protected area?

Agriculture Land=1 Forest Land =2 Barren Land=3

4. What is the nature of your protected area?

For animals=1 for plants=2

5. What kind of species is available in your protected area?

Birds =1 Mammals=2 Plants=3

¹ 0= No , 1= Yes

6. How much land is covered by your protected area (in hectares)?

7. Do you allow hunting in your protected area? Yes , No

8. If yes for Q-7, then for how many days per week hunting is allowed?

9. Do you give registration to hunters for hunting in your protected area? Yes , No

10. If yes for Q-9, how much is the registration fee?

11. What kind of penalties do you impose if somebody is hunting without permission in your protected area?

Monetary fine =1 taking away guns =2 taking away birds=3 any other=4

12. What, in your opinion, are the effects of hunting on biodiversity (particularly which specie)?

Positive=1 , Negative=2

13. Are there any additional facilities for breeding these species in order to conserve biodiversity?

Yes , No

14. Do you bear any cost to keep your protected area safe? Yes , No

15. If yes then how much?

16. Is this your only source of income? Yes , No

17. If government puts restriction on the ticket of hunting that you allow in your protected areas then what would be your alternate source of income?

Government Jobs=1 Private Jobs =2 Other Sources=3

B Questionnaire for the Selected/Local residents (sample size: 100)

Age	Occupation ²	Location of HH ³	Income	Family size

Section (a) For Water Availability

1. How many natural springs are there in your area?
2. Has the number of these springs declined overtime in your area? Yes No
3. If yes then from how much time?
5 years=1 10 years=2 15 years=3 20 years=4 25 years=5 30 years=6
4. Also specify the reason?
Climate change=1 construction of dam=2 overgrazing=3 any other=4
5. Are there any wetlands in your area? Yes No
6. If yes, then how many?
7. Is there any dam in your area? Yes No
8. Have you made any artificial lakes / water reservoirs in your area? Yes No
9. Have you ever seen birds like grey /black francolin or choker partridge around wetlands or springs on your area? Yes No
10. If yes then how frequently?
Everyday=1 every week=2 every moth=3 every season=4 every year=5
11. What do you think is the role of wetlands and dams in conservation of these bird species?
Positive=1 , negative=2 , no role=3

Section (b) For Land use change

1. Size of the plot (in canal)?
2. Have you bought this land or inherited from your forefathers? Yes No

² Wage worker=1, Government job=2, Business man= 3

³ Sarozai =1, Naryab /Torawari =2, Srazmaka =3, Dalan/ Doaba=4 ,Karbogha=5

3. If yes, then since how long you are keeping this land?
Last 5 years=1 Last 10 years=2 Last 15 years=3 Last 20 years=4 Last 25 years=5
4. What was the use of this land before construction of buildings and infrastructure?
Forest land=1 Barren land =2 Agricultural land=3 Any other (specify)=4
5. Do you think that the availability of species like grey francolin and black francolin are affected due to these contractions in this area with the passage of time? Yes No
6. Have ever seen black francolin and grey francolin in this area? Yes No
7. Do you hear the voices of these birds in morning and afternoon? Yes No
8. How often are these species seen nowadays?
Everyday=1 every week=2 every month=3 every season=4 others =5
9. How often these species were seen before these housing and roads construction in this area?
Everyday=1 every week=2 every month=3 every season=4 others=5

Section (c) **Loss of biodiversity**

1. Have you ever hunted in your area? Yes No
2. If yes for Q-1 then since how long
Last hunting season=1 , A year ago=2 , 2 years ago=3 , Once in a life=4
3. Do you hunt now? Yes No
4. Do you think that some species disappeared in last 20 years in your area? Yes No
5. If Yes for Q-4 then specify the species?
Black francolin=1 grey francolin=2 choker partridge=3 others=4
6. Also state the reason of disappearing?
Overhunting=1 conflicts=2 deforestation=3 other specific reason=4
7. Do you think that the availability of black francolin and gray francolin is affected over time?
Yes No
8. If yes, then since how long?
Last 5 years=1 last 10 years=2 last 15 years=3 others=4
9. How often were these species seen before 2000?
Every day=1 Every month=2 Every season=4 Every year=5
10. How often do you see these species now?
Every day=1 Every month=2 Every season=3 Every year=4

Section (d) **Conflicts**

1. Nature of conflicts generally you face in your area?
Armed conflicts=1 Human-carnivore conflicts=2 Personal/family conflicts=3 Any other (specify)=4
2. Have you ever observed gun fire in your area? Yes No
3. If yes for Q-1 then what is the main purpose
Festivals=1 Family conflicts=2 Refreshment=3 Human-carnivore conflicts=4
4. How often do you hear gun fire at village sides?
Every day=1 once in a week=2 once in month=3 any other=4
5. In which direction do people fire guns?
Residential areas=1 Mountains=2 Special walls constructed for cultural events=3
Any other (specify) =4
6. Do you think that the number of birds have been declined in past few years in your area due to any conflict? Yes , No
7. If yes for Q-5, then what, in your opinion, are the major causes of species loss in Hangu?
Deforestation=1 hunting=2 cultural festivals firing=3 conflicts firings=4
8. Which specie is totally lost?
Choker partridge=1 Sisai bird=2 wild cats=3 Khapyanga=4 chong=5

Section (e) **Income and Livelihood Dependency**

On plant species-

1. What is your source of income?
Government employ=1 Private job/business=2 Semi-government employ=3
Any other (specify) =4
2. How much income do you earn from the following:

Product	Income earned in rupees per month
Mazari palm	
Chong	
Khapyanga	
Spenalai	
Shaar	
Other Sources of income	
Total	

3. Do you think that the amount of the products mentioned in Q-2 reduced from the collection point's overtime? Yes No
4. Do you sell these products mentioned in Q-2 in bulk or sell after proper grading it?
In bulk=1 After grading it =2 I don't know=3
5. Do you bring these for own use or you sell these plants?
Own use=1 Selling purpose=2
6. Do you think that after properly grading these products, the net revenue can be increased?
No Yes
7. Do you think that the time of collecting these products increased with decline in these products?
Yes No
8. What is your perception about the stock availability of these plants compared to past time?
Increased=1 Decreased=2 Remains the same=3
9. If Decreased for Q-8, than has your income decreased due to the less availability of these plants?
No Yes
10. Do you think the education of your children is affected because of income decline from these species? Yes No
11. Do you think the health expenses of your children are affected because of income decline from these species? Yes No
12. If government completely bans the collection and use of Mazari palm and Chong, then what will be your alternate source of income?

Remittances =1 Wage work=2 Business=3

13. Do you think that using Mazari palm and Chong on a wide scale cause loss of biodiversity of these species? Yes No

On animal species-

1. How often do/did you hunt the following species?

Species	Frequency of hunting per month ⁴		Number of species hunt per month ⁵		Method of Hunting	Abundance of species (Prioritize please)	Reason of change in Time spent of hunting ⁶
	Before 2000	After 2000	Before 2000	After 2000			
Black Francolin							
Choker partridge							
Grey Francolin							
Any other							

2. Do you think that the government can restrict hunting of species in your area?

Yes No

3. Do you think that the government restrictions are effective in protecting the species?

Yes No

4. If government completely bans the capture and hunting of these bird species, then what will be your alternate source of income?

Remittances only=1 wage work=2 business=3 any other (specify)=4

5. Do you think that the capturing /hunting of grey, black francolin and choker on a wide scale is the loss of biodiversity of these species? Yes No

⁴ 1= I don't hunt , 2= sometimes , 3= every month , 4= once in a season

⁵ 1= sometimes , 2= every week , 3= every month , 4 = once in a season

⁶ Coding for reasons: climate change=1, conflicts=2

C Questionnaire for Farmers (sample size: 30)

Age	Gender	Farming experience in years	Income in Rs/month	Family size of farmer
	0= Female 1= Male			

1. What are the main crops in your farms?

Grains (Wheat/ maize/ rice) =1 vegetables=2 any others=3

2. Do you have fruit trees on you farms? No Yes

3. Do you use spraying technology in farming? No Yes

4. Do you use pesticides on your crops? No Yes

5. Do you observe insects on crops in your filed? No Yes

6. Have you ever used pests' sprays on fruits trees? No Yes

7. Have ever seen francolins in your fields? No Yes

8. Do you think that the number of francolins and choker declined overtime in your fields? No

Yes

9. If yes, then from how many years?

3 years=1 5 years=2 10 years =3 15 years =4

D Interview Points for Woodcutter (sample size: 30)

Age	Location of the HH	Income in Rs. PM	Family size
	⁷		

1. How often do you go for cutting wood per month?
Every day=1 every week=2 few days in a week=3 once in a month=4
2. How do you cut trees?
Saw=1 axe=2 any other=3
3. Since how long you are cutting wood in years?
4. Do you think that the forest cover reduced overtime? Yes No
5. Do you thing that area under shrubs is declining? Yes No
6. If yes for Q-5, do you think the gray & black francolin declined with it? Yes No
7. What type of plants declined overtime?
Medicinal plants=1 timber tress=2 shrubs=3
8. For what Purpose you cut wood?
Selling purpose=1 Own use=2 Any others (specify)=3
9. Time spent in collecting wood per day? -----
10. How, in your opinion, wood cutting affects biodiversity?
2 hours=1 4 hours=2 6 hours=3 more (specify) =4
11. How many plants you have planted in general? -----
12. When you cut trees, do you plant a tree in return? Yes No
13. If government completely bans the woodcutting in this area, then what would be your alternate source of income?
Remittances=1 wage work=2 business=3 any other=4

⁷ 1=Sarozai , 2= Naryab , 3= Dallah /Doaba , 4= Srazmaka , 5=Torawari , 6= Karbogha Sharif

E Interview Points for Wood sellers (sample size: 20)

Age	Gender	Location of the HH	Income in Rs. PM	Family size	No of members employed in HH
	0=Female 1=Male	⁸			

1. From how many years you are selling wood? -----
2. What is the unit of selling logs?
Trolley=1 Stack=2 tons=3
3. What is the per unit price of ton? -----
4. What is per unit price of stack? -----
5. What is the per unit price of trolley? -----
6. How many trips do you make per day? -----
7. At what price per unit you sell Mazari palmor chong? -----
8. Do you think that as compared to past, the natural supply of Chong and Mazari palmis declined?
No Yes

⁸ 1= Sarozai , 2= Naryab, 3=Karbogha , 4= Doaba /Torawari

F Questionnaire from Hunters (sample size: 20)

Age	Occupation	Location of Respondent	Experience of hunters (in years)

1. How often do you hunt?

Every day=1 every week=2 every month=3 once in a season=4

2. Which species you mostly hunt?

Grey francolin=1 black francolin=2 choker partridge=3 Any others (specify) =4

3. What is the nature of hunting place where you usually hunt?

Open access area=1 Protected area=2 any other (specify) =3

4. In which month of the year, the hunting season starts?

April –May=1 June- July=2

5. In which month of the year the season ends?

August – September=1 October – November=2

6. How much income do you get from hunting in Rs. per month? -----

7. Which species you find in abundance in the area where you go for hunting?

Grey francolin=1 black francolin=2 choker partridge=3 any others (others)=4

8. Which species you do not find in abundance in the area where you go for hunting?

Grey francolin=1 black francolin=2 choker partridge=3 any other=4

9. For what purpose you hunt?

Selling purpose=1 pleasure/game purpose=2 Both=3

11. Do you think that the number of the following species have been changed in your hunting area?

Tick the suitable option.

Species	Change due to Conflicts			Change due to Climate change			Change due to over hunting		
	Inc	Dec	Same	Inc	Dec	Same	Inc	Dec	Same
Black francolin									
Grey francolin									
Choker partridge									
Any other									

12. Do you think that with decline in the species, your monthly income from hunting has decreased?

Yes No

13. If yes for Q-12, then how much in Rs. PM -----

14. If government completely bans hunting in your area what would be your alternate source of income?

Remittances=1 government job=2 private job=3 any other (specify) =4

15. Are you aware of the fact that open-access hunting is affecting these bird species and their biodiversity? No Yes

G Interview Points for Honey Bee Keepers (sample size: 10)

Age	Income per month	Experience of bee keepers (in years)

1. How many boxes are there at your farm?
2. On average, how many bees are in one box?
3. Ownership status?
 Owned=1 wage workers=2 any other =3
4. How much quantity of honey you extract from one box?
5. In how many days it regenerate the same amount of honey after extraction?
6. What is the price of per kg honey at your farm?
7. Do you think the production of honey is decreasing overtime? Yes No
8. If yes then what are the reasons?
 Water non-availability=1 decline in farming=2 honey bees' health issue=3
 Predators =4
9. What are the factors influencing natural honeybee in your area?
 Water non-availability=1 Rapid increase in temperatures=2
 Fruits' farms and crops =3 Use of pests/fertilizers=4
10. Has the number of honeybee combs changed overtime? Yes No
11. If yes, what do you think are the reasons?
 Deforestation=1 decrease in water availability=2 pesticides' use=3
 Hitting combs=4

H **Interview Points for Shepherds** (sample size: 20)

Age	Income per month	Experience of shepherds (in years)

1. How many cattle do you graze every day?
2. What is the duration of grazing (in hours)?
3. Is there any restriction on grazing in this area? Yes No
4. If yes then what kind of restriction?
 Time bounding=1 area prohibition=2 fee charges=3 other another (specify)=4
5. What is the penalty in case of violations?
 Taking away the cattle=1 fines=2 any other=3
6. Is there any sign board on the way where you graze these cattle? Yes No
7. If yes then who imposed these restrictions?
 Government=1 informal institutions=2 private owners of the area=3
 I don't know=4
8. Do you use Mazari palm plants for cattle ropes and other related purposes? Yes No
9. Do you cut Mazari palm regularly when get free time from grazing cattle? Yes No
10. Do you think that open grazing and increasing cattle's are affecting the availability of Mazari palm and Chong species in the area? No Yes
11. Do you think that Mazari palm and Chong are declining day by day? Yes No
12. How you can guess if these species are decreasing with passage of time?
 Running off of greenery=1 Grazing timing increasing=2
 Clearly observable in comparison to pass decade=3
13. If government completely bans the collection and use of Mazari palm and Chong in your area what would be your alternate source of income?
 Remittances=1 wage worker=2 farming=3 any other=4
14. Are you aware of the fact that using Mazari palm and Chong on wide scale is affecting their biodiversity? No Yes

I Questionnaire for Local Experts⁹ (sample size: 10)

Age	Education

• **On Climate Change**

1. Do you think that rainfall has decreased overtime? Yes No

2. If yes then specify the influencing factors?

Climate change=1 deforestation=2 human activities=3 I don't know=4

3. Do you think that the snowfall has decreased overtime? If yes then specify the influencing factors?

Yes No

4. How frequently the snowfall is happening in the last 30 years?

Increasing=1 decreasing=2

5. Do you think that temperature of your area has increased in past 30 years? Yes No

6. If yes, then up to what extent? -----

7. Do you think that the change in rainfall and temperature has affected the birds and plants of this area? Yes No

8. If yes then explain how?

Increased=1 decreased=2

⁹ Local experts: DPO (Kohat), SHO, Chief Conservator officer and Forest Officers (Hangu).

• **On Institutionnel Arrangements**¹⁰

1. What, in your opinion, is the cause of decline in biodiversity of the species in your area?

Hunting=1 deforestation=2 lack of education=3 conflicts=4

2. Have you adopted any protection measures for the conservation of species which are threatened in Hangu? Yes No

3. If yes please identify in detail?

Penalty=1 quota system=2 fee charges=3

4. What are the policies made for the protection and conservation of species in Hangu district?

Restrictions=1 protected areas =2 forestation=3

5. Have you put any restrictions on illegal hunting and trafficking of these species? Yes No

6. If please specify these restrictions?

Penalties=1 strict management=2 any others=3

¹⁰ It covered formal institutions (DPO, SHO etc.) and informal institutions (Jirgah heads etc.) in Hangu.

J Questionnaire from Pinjayat/Jirgah Heads (Maliks) (sample size: 10)

Age	Occupation	Location of respondent
	¹¹	¹²

1. What is the name of your community organization, if any? -----
2. Are there any rules implemented on use of natural resources in this area? Yes No
3. Have you attended any meeting on the conservation of local biodiversity of this area with any government officials? Yes No
4. What are the causes of species' decline in Hangu?

Open access Hunting=1 deforestation=2 conflicts =3 specify if other=4

5. Is there any restriction on deforestation or hunting in your area? Yes No
6. What kind of restrictions is present to conserve the biodiversity in your area?
Penalty=1 quota system/standards=2 any other conservation policy=3
7. Who is the final authority to impose and charge penalty in case of violation?
Jirgah head=1 owner of protected area =2 any other (specify)=3
8. If there is no policy regarding conservation of these species, what in your opinion is the possible reason of it?

Abundance of species=1 species are of least importance=2 Negligence of institutions=3

9. Do you think that restriction should be imposed in Hangu to conserve these species, which otherwise will be extinct due to excess of hunting and other reasons?

¹¹ 1=government employ , 2=private job , 3= un-employed

¹² 1=Sarozai, 2= Naryab , 3= Karbogha , 4= Srazmaka , 5=Dallan

Yes

No

K Questionnaire from Hakeems / Local Medical Practitioners (Sample size: 10)

Age	Experience in years	Location of respondent	Income
		13	

1. What type of plants do you use in medicines?
 Herbs=1 roots /leaves of plants=2 any other (specify) =3
2. Is there any plant in Hangu, which is used in medicines? Yes No
3. Do you think that Mazari palm and Chong plants are widely used in medicines? Yes No
4. Do you buy these plants from markets? Yes No
5. What is the name of medicine which is made from these plants and for which disease it is applied?

6. Do you think that the availability of these plants is affected over the time? Yes No
7. If yes what are the reasons?
 Over use=1 burning mountains=2 climate change=3
8. Do you think that with the decline in the medicinal plants, the prices of medicinal plants increased?
 Yes No
9. Explain how it affected you products?
 Positively =1 negatively=2
10. Have you increased the prices of these medicines due to increase in inputs prices? Yes No
11. How is your income affected over the time in response to these medicinal plants?

¹³ 1=Tall city , 2= Doaba city , 3= Hangu Main city

Positively=1 negatively=2

12. What is your opinion about the conservation of these plants?

Restrictions should be imposed=1 protected areas should be made =2

Burning vegetation on mountains should be strictly ban=3

13. Are you aware of the facts that the biodiversity of these plant species is affected in your area?

Yes No

14. If government completely bans the use of chong in making of any products in your area, what would be your alternate source of income?

a) Remittances b) wage worker c) private job/business d) nothing

THANK YOU FOR YOUR COOPERATION