



# CHILGHOZA VALUE CHAIN STUDY DISTRICT CHITRAL

**DIRECTORATE OF NON TIMBER FOREST PRODUCTS,  
KHYBER PAKHTUNKHWA FOREST DEPARTMENT  
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## 1. BACKGROUND

Chilgoza pine is an important forest tree species distributed in southern parts of Chitral. Besides various environmental services, this species plays an important role in the livelihood of communities living close to the forest. Pine nuts harvested from this tree are one of the major non-timber forest products of Chitral and are traded internationally. Unshelled pine nuts are highly valued in international markets; in recent years the price of chilgoza nut has increased remarkably local villagers receive 6000 Pakistani rupees per kilogram. The baseline information on the volumes of chilgoza production in Chitral and its economic contribution to the seasonal income of the local people was not conducted previously and only rely on the estimation for the production.

The Directorate of NTFP Khyber Pakhtunkhwa Forest Department started worked on Chilgoza value chain during 2020-21 & 2021-22 under the project Titled **“Mapping, Digitizing, value Addition and marketing of NTFP in collaboration with NTFP Directorate”** Forest department to study the Chilgoza status and value chain and other associated issues with chilgoza in Chitral.

### 1.1 District Chitral

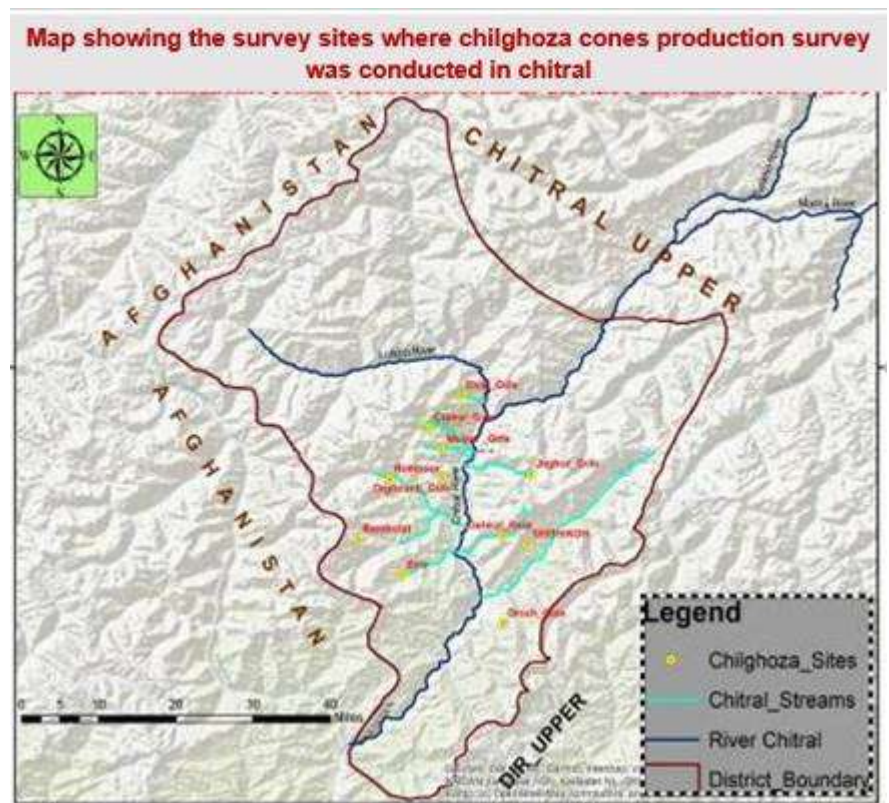
The District of Chitral is located in the extreme northeast of KP. It is the largest district of a province with a 14850-sq.km area covering 20% of the provincial landscape while its share in population is only two percent of the province KP. It has a common boundary with Afghanistan on the north and west, with northern areas of Pakistan on the east, and with the districts of Dir and Swat towards the south. The total population of the region is approximately 319000 (population census 1998, Government of Pakistan). The total number of households is about 42,500, which are scattered in 30 different valleys in form of small settlements. The district remains cut off from the rest of the world for at least five months of the year in winter owing to heavy snowfall on two gateways to the region lawari pass and shandur pass in the north and south of the district respectively. Human settlements, wildlife, and vegetation in Chitral depend directly and indirectly on the river systems that are fed mostly by the glaciers on the high mountains. Generally, the land-use system can be characterized as an integrated agro-pastoral economy relying on a combination of irrigation cultivation and animal husbandry. The rural people depend largely on the subsistence of agriculture, forest, and non-timber forest products like chilgoza pine nuts for their sustenance and household income.



## 1.1 The Survey Area

The following areas/sites for the current survey were selected in collaboration with the Forest Department during a meeting held in August 2021 at NTFP Directorate Chitral chaired by Mr. Noor Rehman Assistant Director Chitral and attended by Mr. Ejaz Ahmed Coordinator of Chilghoza Project launched by FAO at Chitral and concerned field staff of Chitral.

1. Kalash Valley Birir
2. Kalash Valley Bumburate
3. Shishikoh Valley
4. Ayun Valley
5. Chitral Gol
6. Moleen Gol
7. Shali Gol
8. Jughoor Gol
9. Orguch
10. Jinjiratkoh
11. Drosh
12. Kalash Valley Rumboor





## **2 Survey Methodology and Framework**

### **2.1 Objectives of the study**

The objectives of the survey were as under:

- a) to assess the chilgoza pine nut production in the selected valleys
- b) Find the existing value Chain of the chilgoza nut in the area and economic valuation
- c) Assess gender roles in the Chilgoza value chain
- d) To enlist issues and problems associated with chilgoza pine nut harvesting and collection

### **2.2 Limitations of the Study**

The limitations of the production of the cone survey were as under: -

- e) Limited human resources available for the survey
- f) Some respondents were hesitating in given data because of fixation on forest duty on chilgoza pine nuts

### **2.3 Methodology:**

#### **2.3.1 Questionnaire survey**

A questionnaire data collection method was used to collect the baseline data on chilgoza Pine nut production and value chain in District Chitral. 120 collectors, middlemen, and traders were interviewed. The following questionnaires were developed and used to collect the data

1. Questioner for collectors/owners
2. Questioner for middleman
3. Questioner for businessman
4. Questioner for elders/committees

#### **2.3.2 Focus Group Discussions:**

FDGs were also conducted in three different valleys to collect baseline data on chilgoza pine nut production, value chain,, and issue associated with chilgoza trade and its harvesting was collected.



### **2.3.3 Stakeholder Consultations**

Consultations with the following was also conducted on the Chilghoza Pine nuts production, status, and issues related to the cone harvesting and processing.

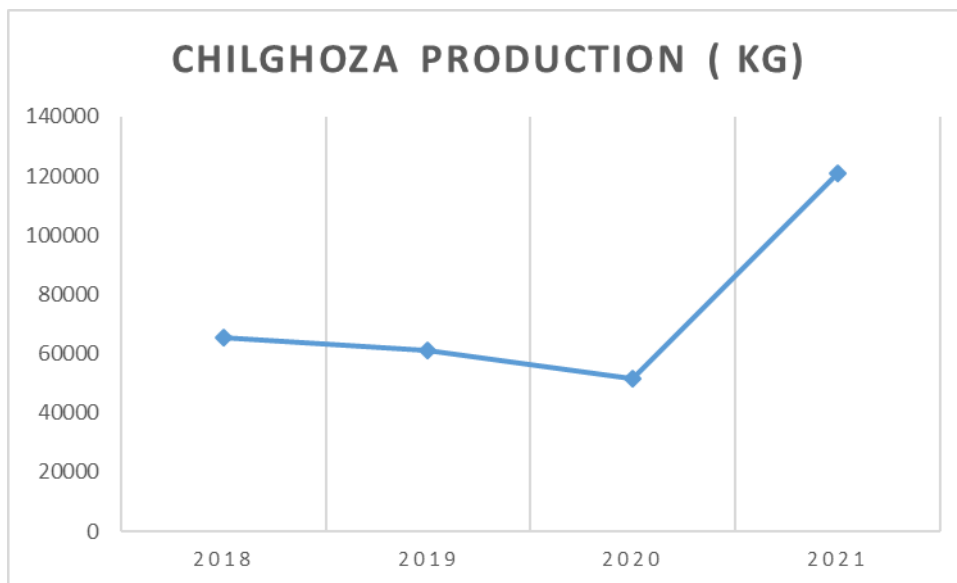
- DFO Forest Chitral
- SDFO Drosh North
- SDFO Chitral
- Manager WWF-Pakistan Chitral
- Manager Ayun and Valley Development Organization
- Chilghoza Trader Association Chitral
- Directorate of NTFP Chitral



### 3 Finding the survey

#### 3.1 Chilghoza collected and sale

In Chitral during the season, 2021 a total of 133 Metric Ton (120656 kg) of Chilghoza Nut was collected which is a record increase in the history of Chitral; previously this was not increased from 65 Metric tons. 1120 collectors were involved in the collection of chilghoza cones from different chilghoza forests in Chitral. The year-wise production of Chilghoza Pine Nuts from Chitral is as under:

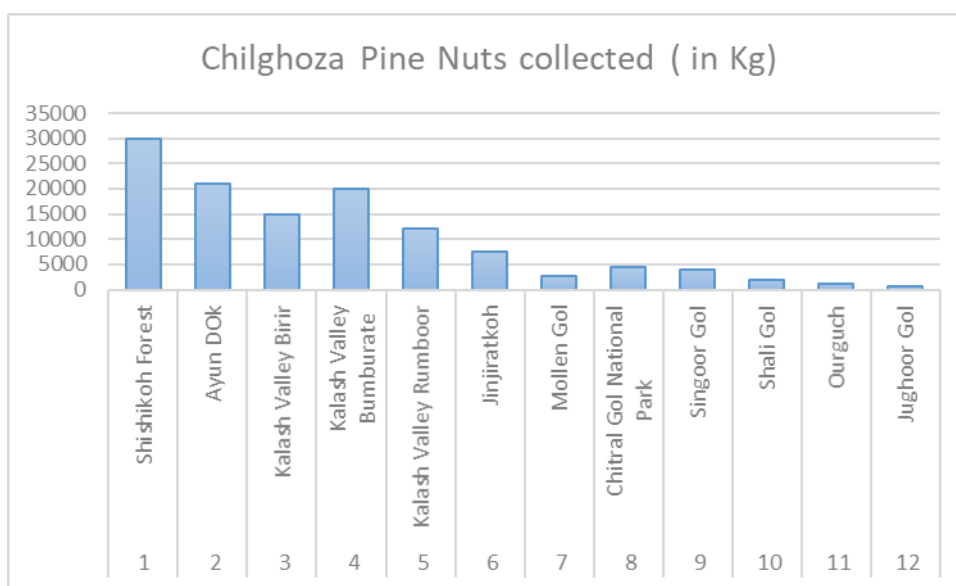




### 3.2 Village wise collectors

It was cleared from the survey data that the major of chilghoza pine nuts collected from Village Shishikoh Valley, Kalash Valley Birir, Bumburate, Rumboor, Chitral Gol, Ayun Dok Gehrata Gol, Moleen Gol, and Jinirate Koh Valley in Chitral.

Shishikoh valley produced the highest production (3000 Kg) Ayun Dok (21000) and followed by Bumburate, Birir, and Rumboor, while the lowest production was recorded from Jughoor Gol in Chitral. the below graphs show the overall picture of the village/valley wise chilghoza produced during the year, 2021 in Chitral.

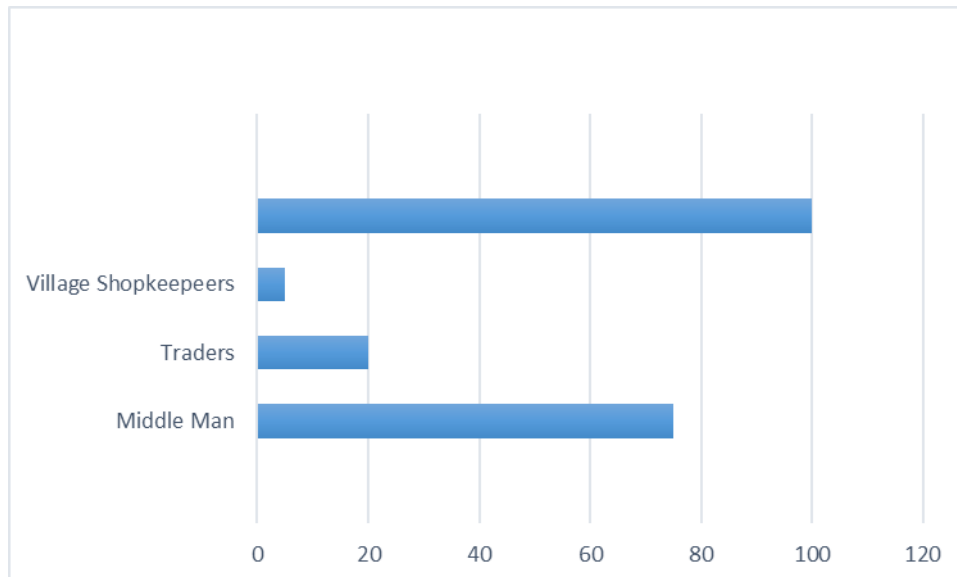






### 3.3 Main Buyer of pine nuts from collectors

To assess the main buyers of Chilghoza Pine nut in District Chitral, the respondents were asked about the main buyers of pine nut and the data confirmed that middle man were the main buyers (75 %) followed by traders (20%) and village shopkeepers (5%).



### 3.4 Average buying price

The average-buying price per kg of chilghoza pine nuts seeds during the season 2021 from Chitral was Rs 3200 per kg maximum and Rs. 2800 per kg for minimum was recorded, however, the roasted pine nuts in Kalash Valley Bumburate sold @ Rs. 5500 per kg.

### 3.5 Gender role

Women in the area play a vital role in the chilghoza value chain, and they are the primary labor force during the season. However, because of local social structures, women were only assigned limited indoor tasks, such as seed extraction from cones, seed storage, and grading. Women are also in charge of removing gums from cones and storing them. Their skill, however, is always low and requires additional improvement through capacity building.

### 3.6 Chilghoza Cone /seed extraction

Once cones are collected from forests they are brought to villages and piled on the ground or a roof top. Cones are dried immediately to prevent mold development that results in seed deterioration. The drying process is completed between two months by spreading the cones on the dried ground exposed to air and sunlight. This drying process is slow and depends on the climatic situation. On average it takes one month for cones to dry in the open. Usually, cones of chilghoza pine are dried in the open under sunlight in Chitral.



### **3.7 Income - overall to the local people**

From the analysis of the data, it is indicated that the total income generated from the sale of chilghoza pine nuts from Chitral is about Rs. 422.296 Million /- an equal to 2184017.36 USD. 7840 households were in directly and 1120 persons were directly involved in chilghoza collection from the area and Chilghoza Pine nuts contributed their seasonal income of average Rs.377, 050(1950.02 USD) per season and considered as safety net for the local people. Discussions with local people in several villages during the Focus group revealed that the majority of the local people received loans from local shops in the valleys and paid back the loans after selling their chilghoza pine nuts to the middleman/traders. It was also recognized that 70% of the money raised from the sale of chilghoza nuts is spent on household necessities (Ghee, Grain Flour, sugar, Tea etc.).

### **3.8 Total Revenue to Forest Department**

The Chitral Forest Division received revenue of Rs. 2.316 million rupees from the Chilghoza Pine Nuts Transport Pass under the Forest Duty and Forest Development Fund in the year 2021, which is the highest revenue ever collected from Chilghoza Pine Nuts. The list of Forest Duty and Forest development funds collected up to 6/12/2021 is given in Annexure A.

## **4 Conclusion**

It has been found that chilghoza generates remarkable income to the local population, with an average household earning Rs. 377, 050 and the income rising in a good seed year. The chilghoza forest, in addition to providing various ecosystem services to the local inhabitants, also acts as a safety net for them. Better income may be generated from these forests with effective planning, incentives, and long-term management of the chilghoza pine forest ecosystem in the area.

### **4.1 Recommendation and suggestion**

- Capacity building in sustainable cones harvesting is highly needed for the local collectors in chitral
- Cone crushers need to be installed in different villages having chilghoza forests.
- Proper value chain development and e-commerce for the marketing of chilghoza pine need to develop and local youths need to engage in this sector.



## 5 Annexure

### 5.1 Forest duty & FDF collected by the Forest department during the year 2021 on Chilgoza Pine Nuts

TP No.	Dated	Name of TP holder	Detail of Chalghoza with cones			Duty @ Rs.100/-	FDF @ Rs.10/-	Total amount
			Maunds / Kg					
1	22.10.21	Muhammad Anwar r/o Basir Gilgit Baltistan	646.25	/	25850	64625	6463	71088
2	22.10.21	Zafar Iqbal r/o Azam Warsak South Waziristan	269.5	/	10780	26950	2695	29645
3	-do-	Asghar Khan r/o Datakhel North Waziristan	96.75	/	3870	9675	968	10643
4	26.10.21	Rahimullah r/o Beroon Yakatoot Peshawar	495	/	19800	49500	4950	54450
5	27.10.21	Gulab Khan r/o Siradargah Laki Marwat	827.5	/	33100	82750	8275	91025
6	-do-	Azizullah Khan r/o Pinda-khiel Distt: Bannu	129	/	5160	12900	1290	14190
7	-do-	Azizullah Khan r/o Pinda-khiel Distt: Bannu	104.5	/	4180	10450	1045	11495
8	-do-	Azizullah Khan r/o Pinda-khiel Distt: Bannu	120	/	4800	12000	1200	13200
9	-do-	Mehmood Khan r/o Siradargah Laki Marwat	1845	/	73800	184500	18450	202950
10	-do-	Muhammad Ayub r/o Huweed Distt: Bannu	510.45	/	20418	51045	5105	56150
11	-do-	Azmunir Khan r/o Huweed Distt: Bannu	1025	/	41000	102500	10250	112750
12	28.10.21	Amanullah Khan r/o Spinkamar South Waziristan	423.5	/	16940	42350	4235	46585
13	-do-	Muhammad Umar r/o Birmil South Waziristan	217.25	/	8690	21725	2173	23898
14	-do-	Muhammad Umar r/o Birmil South Waziristan	227.5	/	9100	22750	2275	25025
15	29.10.21	Azizullah Khan r/o Pinda-khiel Distt: Bannu	151.4	/	6056	15140	1514	16654
16	-do-	Azizullah Khan r/o Pinda-khiel Distt: Bannu	155	/	6200	15500	1550	17050
17	-do-	Taj Ali Khan r/o Pinda-khiel Distt: Bannu	260.52	/	10421	26052	2605	28657
18	01.11.21	Mir Sahib Khan r/o Siradargah Laki Marwat	300	/	12000	30000	3000	33000
19	-do-	Mehmood Khan r/o Siradargah Laki Marwat	337.5	/	13500	33750	3375	37125
20	-do-	Sher Muhammad r/o Siradargah Laki Marwat	790	/	31600	79000	7900	86900
21	-do-	Ghazi Khan r/o Data-Khiel Bannu	550	/	22000	55000	5500	60500
22	02.11.21	Mera Khan r/o Madakhel North Waziristan	129	/	5160	12900	1290	14190
23	-do-	Niazbat r/o Mamish-Khiel Bannu	224.25	/	8970	22425	2243	24668
24	-do-	Mehmood Khan r/o Siradargah Laki Marwat	240	/	9600	24000	2400	26400
25	-do-	Zangi Khan r/o Dass Chowk Bannu	193.5	/	7740	19350	1935	21285
26	-do-	Noor Muhammad r/o Huweed Distt: Bannu	422	/	16880	42200	4220	46420
27	-do-	Sard Ali Khan r/o Siradargah Laki Marwat	148.5	/	5940	14850	1485	16335
28	-do-	Minabat Khan r/o Surangi Distt: Bannu	1350	/	54000	135000	13500	148500
29	-do-	Wazira Khan r/o Madakhel North Waziristan	379.5	/	15180	37950	3795	41745
30	03.11.21	Muhammad Usman r/o Datakhel North Waziristan	279.5	/	11180	27950	2795	30745
31	10.11.21	Sharif Khan r/o Diyamir Gilgit	2050	/	82000	205000	20500	225500
32	-do-	Abbu Zar r/o Diyamir Gilgit	440	/	17600	44000	4400	48400
33	-do-	M.Naeem Khan r/o Siradargah Bannu	1343.75	/	53750	134375	13438	147813
34	-do-	Badshah Mir Khan r/o Shinbagh Attak	292.13	/	11685.2	29213	2921	32134
35	-do-	Sakhi Gul r/o Kotka Bannu	231	/	9240	23100	2310	25410
36	12.11.21	Aziz Khan r/o Madakhel North Waziristan	483	/	19320	48300	4830	53130
37	-do-	Rehmat Khan r/o Siradargah Laki Marwat	149.5	/	5980	14950	1495	16445
38	-do-	Zabta Khan r/o Siradargah Laki Marwat	307.5	/	12300	30750	3075	33825
39	-do-	Ghani Muhammad r/o Siradargah Laki Marwat	922.5	/	36900	92250	9225	101475
40	-do-	Badshah Mir Khan r/o Shinbagh Attak	315	/	12600	31500	3150	34650
41	23.11.21	Noor Ali r/o Drosh Bazar Chitral	430	/	17200	43000	4300	47300
42	-do-	Hakim Khan r/o Laki Marwat	155.87	/	6234.8	15587	1559	17146
43	06.12.21	Khairud Din r/o Garira Shahjehan (Seed Only)	120.25	/	4810	120250	0	120250
<b>Total: -</b>			<b>20088.37</b>	<b>/</b>	<b>803535</b>	<b>2117062</b>	<b>199681</b>	<b>2316743</b>



## 5.2 Area wise – production

S.NO	Name of Area	TotalPine Nuts collected ( in Kg)
1	Shishikoh Forest	30000
2	Ayun DOK	21000
3	Kalash Valley Birir	15000
4	Kalash Valley Bumburate	20000
5	Kalash Valley Rumboor	12000
6	Jinjiratkoh	7550
7	Mollen Gol	2800
8	Chitral Gol National Park	4500
9	Singoor Gol	4000
10	Shali Gol	1956
11	Ourguch	1250
12	Jughoor Gol	600
		<b>120656</b>

## 5.3 Questionnaire for Collectors

Value chain Pine Nut				
Name of Collectors _____				Avg. Quantity Collected Cones. _____ Seeds. _____
Respondent's name _____				Contact Number _____
Village _____				U/C _____
Respondent's Status: Owner _____ Tenant _____ Owner cum tenant _____				
Area/Forest Name from where collections have been made:				



**Collection Details Cones, Weight of Sack (What is the weight of one Sack \_\_\_\_\_)**

No. of persons involved in collection	Quantity Collected (Cones) Kgs	Quantity sold (Cones) Kgs	Avg. Selling price (Cones)		Main Buyer	Prior arrangement	Production Cycle	
			Min/ kg	Max/ kg			From	To

**Collection Details Seeds,**

Cost for extraction of seeds/bag ----- Time Required for Seed Extraction/bag----- /Sack

No persons were involved in the collection	Quantity Collected (Seeds) Kgs	Quantity sold (Seeds) Kgs	Avg. Selling price (Seeds)		Main Buyer	Prior arrangement	Production Cycle	
			Min/ kg	Max/ kg			From	To

Quantity of seeds obtained from 1 sack of cones ----kg Seeds

How many your family members are involved in Chilghoza collection: \_\_\_\_\_

What is the involvement of female folk in chilghoza collection:

\_\_\_\_\_

What type of activities female folk done:

\_\_\_\_\_

Children are involved in Chilghoza Collection:

\_\_\_\_\_

What type of activities they done:

\_\_\_\_\_

How do you extract the seeds from the cones?

\_\_\_\_\_

How much time required for extraction of seed after the collection:

\_\_\_\_\_

Do you have any roasting facility? \_\_\_\_\_



#### 5.4 Questionnaire for Middle Man

Value chain Pine Nut	
No of Traders _____	Avg Quantity Collected C. _____ S. _____ Avg Quantity sold C. _____ S. _____
Respondent's name _____	Contact Number _____
Market _____	Target _____
Respondent's Status: Aggregator _____ Processor _____ Aggregator cum Processor _____	

Trade details Avg weight of sack \_\_\_\_\_

No of suppliers	Main Seller	Quantity Collected (Cones) Kg	Quantity sold (Cones) Kg	Avg. Selling price (Cones)		Main Buyer	Prior arrangement	Avg. Selling price (Cones)		Production Cycle	
				Min/ kg	Max/ kg			Min/ kg	Max/ kg	From	To

Trade details

Cost for extraction of seeds ----- Time Required for Seed Extraction-----/Sack

No of suppliers	Main Seller	Quantity Collected (Seeds) Kg	Quantity sold (Seeds) Kg	Avg. Selling price (Seeds)		Main Buyer	Prior arrangement	Avg. Selling price (Seeds)		Production Cycle	
				Min/ kg	Max/ kg			Min/ kg	Max/ kg	From	To



### 5.5 Questionnaire for Businessmen

Which commodities do you normally buy?	Cones / Seed
When (which months) do you mostly buy? (create a market calendar for purchases)	
What is the typical volume of purchases over the season? (Average)	
From where do you normally acquire the commodities? (Areas)	
From whom do you normally acquire commodities? (Middle Man/ Aggregators/ Major Collectors)	
Do your buying practices change in bad years and, if so, how?	
Do you have any Advance buying Practices?	
When (which months) do you mostly sell? (create a market calendar for sales)	
What is the typical volume of sales over the season?	
Which commodities do you normally sell? (Cones / Seed)	
Where do you normally sell commodities? (Location)	
To whom do you normally sell? (Trader/ Processor)	
Do you have an advance Selling Commitments	
Do your selling practices change in bad years f so, how?	
Do you store commodities, for how long, and why?	
Do your storage practices change in bad years and, if so, how?	
Do you have your sport and, if not, how do you transport goods?	
Do you have access to credit?	
Do you belong to any market groups or associations?	
Where do you get your market information?	
Do you engage in contracting and how?	
What are the difficulties you face in either buying or selling commodities?	
What are the seasonal change in the Commodity Supply	



### 5.6 Questionnaire for Community Elders/ Conservation Committees

What are the community Mechanism for conservation of Chilgoza	
What is the procedure for starting of the Chilgoza harvest	
How do you assess the maturity of the chilgoza Pine	
When (which months) Collection is allowed (Start and End create Harvest Calendar for Different areas )	
What are the guiding principles for community	
Who are allowed for collection	
What is the don'ts in the Chilgoza collections in the area	
What is the control mechanism	
What types of offenses are generally observed in your area.	
What are the punishments for such activities	
What is the typical volume of Produced in different areas (Develop Area Production Sheet Location Wise)	
Which are the Bad Production years and How	
What is the typical volume of sales over the season?	
Do you have some processing facility	
Which commodities do you normally sell? (Cones / Seed)	
Where do you normally sell commodities? (Location)	
To whom do you normally sell? (Trader/ Processor)	
Do you have an advance Selling Commitments	
Do your selling practices change in bad years if so, how?	
Do you store commodities, for how long and why?	
Do your storage practices change in bad years, if so, how?	
Do you belong to any market groups or associations?	
Where do you get your market information?	





### **5.7 List of Consultation meeting**

1. Mr. Ejaz Ahmed (FAO Coordinator at Chitral)
2. Mr. Noor Rahman AD NTFP
3. Mr. Shafiqullah AKRSP
4. Mr. Tanveer Supervisor NTFP
5. Mr. Akhtar Nawaz Supervisor NTFP