Market Assessment and Value Chains Analysis in Khyber Pakhtunkhwa and Balochistan

Final Report

AID

IFAD
INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

PPAF
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Submitted by: Associates in Development Pvt. Ltd

Acknowledgment

This study has been carried out by Associates in Development Pvt. Ltd. (AiD) as part of International Fund for Agriculture Development (IFAD) funded project titled 'National Poverty Graduation Project (NPGP)'. The implementation management is being led by Pakistan Poverty Alleviation Fund (PPAF).

A wide range of public and private sector stakeholders as well as local community members were consulted to gain insights into identified value chains. We appreciate the time, local knowledge and insights shared by these respondents to inform the study.

From PPAF, the entire MER team under the leadership Mr. Zahid Hussain (General Manager, Monitoring, Evaluation and Research, and ESM) extended all required coordination support and guidance. The Partner Organizations of PPAF for implementation of NPGP including SABAWON, Lasoona and Balochistan Rural Support Program (BRSP) also assisted with field roll out of the study. AiD acknowledges and appreciates this support.

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0 LIST OF ACRONYMS

AID	Associates in Development
ARI	Agricultural Research Institute
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
KII	Key Informant Interview
MAPs	Medicinal and Aromatic Plants
MFIs	Micro Finance Institutions
NARC	National Agriculture Research Center
NPGP	National Poverty Graduation Programme
NDMA	National Disaster Management Authority
NTFP	Non-Tinder Forest Products
PARD	Pakistan Academy for Rural Development
PARC	Pakistan Agriculture Research Council
PPAF	Pakistan Poverty Alleviation Fund
PMIFL	Prime Minister interest Free Loan
SMEDA	Small and Medium Enterprise Development Authority
TVET	Technical and Vocational Education Training
VC	Value Chain

1 EXECUTIVE SUMMARY

Pakistan Poverty Alleviation Fund (PPAF) has received a grant from International Fund for Agriculture Development (IFAD) for 'National Poverty Graduation Program (NPGP)', which aims to 'assist the ultra-poor and very poor in graduating out of poverty on a sustainable basis; simultaneously improving their overall food security, nutritional status and resilience to climate change'. To achieve this objective, the program is designed to catalyze change at the grassroots to pull people out of poverty, building largely (but not exclusively) upon BISP beneficiaries and leveraging Prime Minister's Interest Free Loan (PMIFL) to develop a 'seamless service' where the poorest can move from consumption support to asset transfers to interest fee loans to microcredit.

Under NPGP, PPAF commissioned Associates in Development (AiD) Pvt. Ltd. to conduct a 'Market Assessment and Value Chain Analysis' in 13 target districts of Khyber Pakhtunkhwa and Balochistan provinces. The objective of the study is to identify and systematically analyze off-farm and on-farm potential pro-poor value chains that could be taken forward under the NPGP to improve livelihoods, living conditions and income generative capacities of poor households, especially of the women and youth in the targeted UCs.

AiD Pvt. Ltd. carried out the market assessment study with a team of technical experts and a field research team in two phases. The Phase 1 comprised of clustering the targeted union councils of NPGP in KPK and Balochistan based on the homogeneity of ecosystem (plants, animals, geography, water channels, streams, urban or peri-urban characteristics, mountainous terrain, type of markets and means of livelihoods being practiced) and proximity to each other. The project area was divided into 14 clusters. In Phase 1, secondary literature review was carried out to identify the key value chains at the district level and KIIs were carried out with key government and civil society actors to validate the findings of secondary literature review and identify more value chains/ trades which were less explored and had the potential. Based on the insights obtained from the KIIs, a scoring of VCs was carried out and VCs with high potential and relevance for the poor population in each district were prioritized. Overall, 12 VCs were prioritized at the end of Phase 1. These include Walnut, Honey, Small Scale Poultry Farming, Small Scale Goat Farming, Handicrafts & Dress Making, Maize, Medicinal & Aromatic Plants, Persimmon, Pine Nuts, Grapes, Guar and Mungbean.

In the Phase 2, in depth assessment of these prioritized VCs was carried out, which entailed assessment of the market and growth potential, value addition, technology, financing gaps and marketability of various trades within these VCs which were relevant to the poor. In Phase 2, the key value chain actors were consulted through KIIs and FGDs in each target area.

This report presents the methodology and findings of the market assessment study. After presenting the context of the market assessment and value chain analysis study, the report presents approach and methodology adopted at both phases, followed by presentation of results. Under the results of Phase 1, the scoring and prioritized VCs are presented. The results of Phase 2 provide the market dynamics of each prioritized VC; the barriers, constraints and opportunities that exist in general and poor population in particular; trades which are relevant to poor segments of population and have high potential of engagement of women and youth, the asset package required for each trade and the training institutes across Pakistan who are offering relevant skills development trainings. Towards the end, a summary of cost benefit analysis of all trades is presented.

While the report provides recommendations for each value chain/ trade separately in the main body, one key recommendation for PPAF's consideration is presented here. In line with the TORs and NPGP project design, asset package worth 60,000 to 75,000 PKR and their respective cost benefit analysis are presented. However, some of the trades (particularly the on farm ones) will provide seasonal employment opportunities. AiD recommends that to provide year-long employment and income generation opportunities, PPAF should consider packaging support to one beneficiary family in multiple trades. For example, a family can be provided support in Maize processing primarily and this support can be complemented with small scale poultry farming or honey bee keeping.

2 THE CONTEXT OF MARKET ASSESSMENT AND VALUE CHAIN ASSESSMENT IN KPK & BALOCHISTAN

Pakistan Poverty Alleviation Fund (PPAF) being a lead apex institution for community driven development in the country, works on multi-dimensional aspects of poverty addressing economic, social and institutional aspects. PPAF has received a grant from International Fund for Agriculture Development (IFAD) for 'National Poverty Graduation Program (NPGP)', which aims to 'assist the ultra-poor and very poor in graduating out of poverty on a sustainable basis; simultaneously improving their overall food security, nutritional status and resilience to climate change'. To achieve this objective, the program is designed to catalyze change at the grassroots to pull people out of poverty, building largely (but not exclusively) upon BISP beneficiaries and leveraging Prime Minister's Interest Free Loan (PMIFL) to develop a 'seamless service' where the poorest can move from consumption support to asset transfers to interest fee loans to microcredit.

Under NPGP, PPAF commissioned Associates in Development (AiD) Pvt. Ltd. to conduct a 'Market Assessment and Value Chain Analysis' in 13 target districts of Khyber Pakhtunkhwa and Balochistan provinces. The objective of the study is to identify and systematically analyze off-farm and on-farm potential pro-poor value chains that could be taken forward under the NPGP to improve livelihoods, living conditions and income generative capacities of poor households, especially of the women and youth in the targeted UCs. The assessment also aims to assist the NPGP team in adopting a systematic approach to involve the private sector in the identified UCs to strengthen pro-poor value chains. Based on the findings of the market/ value chain assessment, NPGP will approach the relevant private sectors to establish the linkages with the Common Interest Groups (CIG). In addition, the assessment will help identify gaps and constraints in knowledge, technology, access to finance and backward and forward linkages which need to be addressed under the NPGP.

2.1 Specific Objectives of Market & Value Chain Assessment Study

The specific objectives of the market assessment, as per the Terms of Reference (TOR), are as follows:

- Mapping and analysis of existing value chains of on-farm and off-farm products/services for targeted poor in NPGP targeted areas.
- Identify list of potential value chains for the target districts of NPGP wherein an individual household can work and earn a decent living as well as different households having common interest can also work and earn decent living.
- Define the potential market for each of the suggested value chain.
- Define what value addition PPAF can bring in to the identified value chains.
- Identify the knowledge gaps, input supply issues, technology gap, and financial access and issues related to backward and forward market linkages.
- Identify relevant training institute(s) to build the capacity of the intended beneficiaries in that particular segment which they are going to identify as a gap.
- Assess the potential for growth, profitability and employability of local economic sectors to strengthen pro-poor value chains and to integrate products/services of the target poor with the high-yielding value chains.
- In line with the proposed programme interventions, identify backward and forward market dynamics and opportunities and assess and map the supply and demand of services in the targeted areas.

- Develop an understanding of the economic potential and gaps present at district level to:
  - Give informed choices to target beneficiaries for productive assets and technical and vocational trainings.
  - Avoid market saturation by a distribution of particular type asset or training.
- Recommend value chains for each of the target district that have maximum benefit for the target poor and to help maximize the outputs of given assets, training and interest free loan which would lead to improvement of livelihoods of the target poor in particular as well as improvement of the local economy in general.

3 STUDY APPROACH AND METHODOLOGY

AiD Pvt. Ltd. mobilized a team of technical experts and carried out the study from September to December 2019. Overall conceptual framework of the assessment is presented in Figure 1.

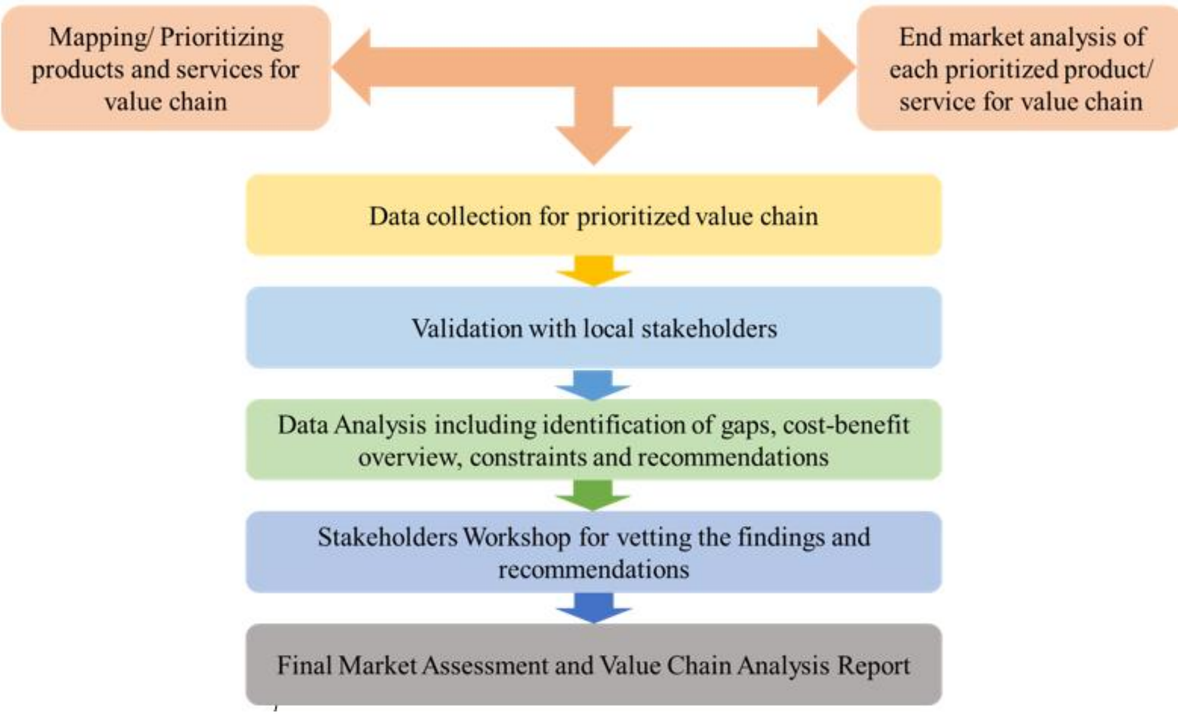


Figure 1. Conceptual and methodological framework for market assessment and value chain analysis

A two-phased approach was adopted. In the first step of Phase 1, review of secondary literature was conducted for mapping relevant pro-poor value chains. At the second step of Phase 1, a team of Field Researchers conducted key informant interviews (KIIs) with relevant public and private sector actors at the district level to collect further information on key pro-poor value chains and validate the findings of secondary literature review. Based on the insights gained from review of secondary literature and primary data collection, the identified value chains were scored by the technical experts. After scoring, 3-5 value chains/ trades were selected in each district for in depth analysis in Phase 2. The phase 2 primarily comprised of data collection at the union council level within the target districts to conduct Focus Group Discussions (FGD) and KIIs with male and female community members and other relevant actors to get a deeper understanding of the actors involved, market dynamics, profitability and key constraints/ gaps in various aspects. The details of methodology of two phases is presented below:

3.1 Phase 1: Mapping & Prioritization of Value Chains

Phase 1 of market assessment and value chain analysis focused on identification and prioritization of value chains across all 13 districts. The underlying guiding principle was identification of value chains with high potential of participation of poor segments of population and potential to earn income in the local and wider economic context. The technical team of experts including the Team Leader, who is a Livelihoods Development and Agriculture Expert, Value Chain Specialist, Enterprise Development Specialist and Gender Expert carried out a review of available secondary literature to identify the pro-poor economic sectors and relevant and profitable value chains in the contexts of target NPGP districts. Following key documents were reviewed:

- Compendiums on the production of various crops, fruits and vegetables published by Ministry of National Food Security and Research
- Development Statistics of Khyber Pakhtunkhwa (published by Pakistan Bureau of Statistics)
- Area and sector (on and off farm) specific value chain and market assessment studies conducted under ongoing and past donor funded projects/ programs including USAID, IFAD, DFID, UNDP, FAO, GIZ, KFW, European Union and World Bank
- Generic and sector specific data and studies published by public sector entities including SMEDA, TEVTA, NDMA and think tanks

The literature review provided an overarching understanding to the technical team on the key on and off farm sectors relevant in the contexts of target districts. As a next step, the information collected from secondary sources was to be validated and complemented through primary data collection at the district level. Based on the technical expertise of the project team and insights gained from secondary literature review, the Team Leader and Value Chain Specialist developed the data collection tools focusing on identification of pro-poor value chains in the target districts and clustering of target union councils based on homogeneity of geographic, economic and other relevant characteristics. A team of 10 Field Researchers was hired from across target districts of KP and Balochistan for data collection. After receiving PPAF's approval on data collection tools, a two-day training was organized in district Shangla. The organization of training in one of the study districts provided an opportunity to conduct piloting of study design and data collection tools. Based on findings of piloting, minor adjustments were made to the tools.

Overall, 7-8 KIIs were carried out in each district with the following actors:

- Officials of District Agriculture Department
- Officials of District Forest Department
- Officials of District Livestock Department
- Officials of District Labor Department
- Traders of livestock, honey and agricultural products
- Community notables
- Officials of District Social Welfare Department
- Representatives of local NGOs
- Officials of Vocational Training Centre
- Academics/ Professors at Gomal University Agricultural Department

In South and North Waziristan, the visits to districts could not be conducted due to unavailability of No Objection Certificate to enter the district. To collect value chains and market related information for these districts, the teams visited the markets of neighboring districts of Dera Ismail Khan, Tank and Bannu. The rationale behind that was that the local population of South and North Waziristan relies heavily on purchase and sale of local produce and services in these neighboring districts. A large number of locals of two target districts visit these markets on a regular basis.

A table containing the list of stakeholders met in each target district is attached as Annex 1.

At the first step of data synthesis, the clustering of target union councils was done. The results are provided in the next section.

At the second step, in each cluster, the trades and value chains identified from secondary and primary research were scored for following eight (08) indicators. Each of these indicators/ parameters were assigned score on a scale of 0 to 100. The scoring was done to help the team prioritize most relevant and profitable value chains relevant to NPGP objectives. These are as follows:

1- Engagement of poor- the extent to which poor people are engaged in the value chain
2- Engagement of women- the extent to which women are engaged in the value chain
3- Engagement of youth- the extent to which youth are engaged in the value chain
4- Potential for enterprise development- the extent to which small enterprises could be developed in the value chain
5- Potential marketability- the extent to which the product could be sold in the market with a tangible profit
6- Export potential- the extent to which the product could be sold in other markets (inland and overseas)
7- Scope of further value addition
8- Insensitivity to extreme weather- the crop or value chain is not seriously affected by the extreme weather conditions

While 'production level' was intended to be one of the scoring criteria, the lack of availability of latest and reliable data on production level of identified value chains at cluster level meant that this key factor had to be excluded. In addition, engagement of disabled was another factor intended to be scored. However, AiD could not find too many insights into the disability status in the communities from the KIIs.

In each district, average score of identified VCs were calculated. Based on the average score, the value chains were classified as low, medium and high significance as per following criterion:

- Average score up to 40 = low significance;
- Average score between 41 and 80 = medium significance;
- Average score from 81 to 100 = high significance

Each parameter 1 through 8 (explained above) was assigned score on a scale of 0 to 100. Thus a product could have a maximum score of 800. It was then divided by 8 to have an average score (varied from 0 to 100). Based on the average score, the value chains were classified as low, medium and high significance [score up to 40 = low significance, score from 41 to 80 medium significance; score from 81 to100 high significance].

The results of scoring and prioritization exercise are presented in the subsequent sections.

3.2 Phase 2: In Depth Market Assessment and Value Chain Analysis of Prioritized VCs

Building on the cluster-wise list of prioritized value chains and trades, in the second phase, an in depth analysis of prioritized value chains and trades was carried out to assess market potential in the local context, identify knowledge, input supply, technology and financing gaps, propose pro-poor businesses within these value chains and trades and recommend scope of value addition. In terms of approach and methodology, this was a field research intensive phase where stakeholders of each value chain at the **union council level** were to be consulted to gain a deeper understanding of operational aspects, opportunities and barriers of the trade/ economic sector. These can be categorized into following:

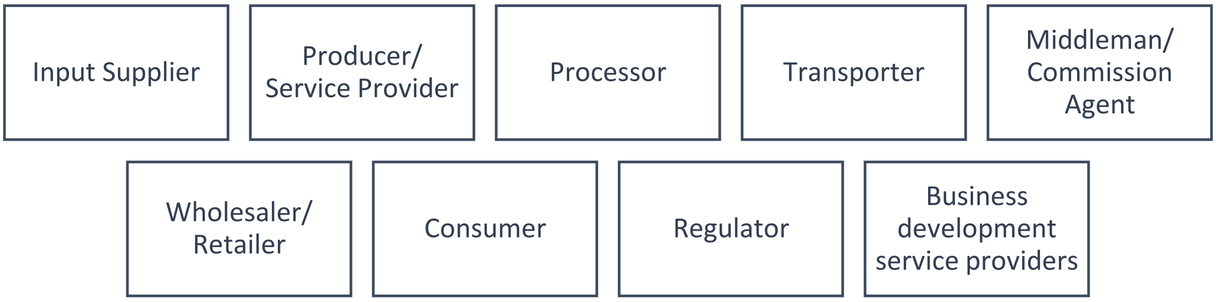


Figure 2: List of Stakeholders Interviewed/ Consulted in the Market Assessment Study

While a diverse range of value chains were to be studied for in depth analysis in multiple geographically diverse districts, and a wide range of actors were to be interviewed in each cluster, the resource and time limitation were major constraints. The technical team developed separate data collection tools for different VC actors. These included FGD guides, KII questionnaires and formats of value chain flowcharts.

A team of 17 field researchers was trained and mobilized (14 male and 3 female) to conduct FGDs and KIIs in the target districts. A summary of research informants is presented below:

Focus Group Discussions: Overall, 24 FGDs were conducted across 13 target districts with male and female producers. The details and dataset are attached as Annex 06 and Annex 07.

Key Informant Interviews: Overall, 577 KIIs were carried out in Phase 2 across 13 districts. These included 404 producers/ growers, 61 input suppliers, 58 Middleman, Commission Agents & Traders and 54 Wholesalers and Retailers. Please see the database of KIIs in Annex 07 for district and value chain specific number of KIIs conducted.

The data collected in this phase included pictorial depiction of value chain structure – product flow from farm to end market during the year, mapping functions and relationship (backward and forward linkages), supply and demand, and identification of gaps and constrains related to knowledge, technology, input supply issues, capacity gaps/ TVET related training needs, financial access etc. In addition, data on potential market for growth, profitability and employability were also collected.

All the completed questionnaires were reviewed and detailed information from the teams was solicited from the teams, where needed. The data were coded and a database was prepared in Excel for analysis.

3.3 Limitations of the Study

In view of the nature of NPGP project which will directly benefit women, AiD aimed to include women respondents in the study to generate insights which could help identify pro poor trades which have high potential of women participation. While women FGDs were conducted across multiple districts, this was not possible in all districts due to lack of availability of No Objection Certificate in newly merged districts of KP and southern KP.

Further, due to unavailability of No Object Certificate, area specific information from local actors in South Waziristan and North Waziristan could not be collected. Therefore, the target sectors[1] within these two districts have not been clustered and information related to value chains and trades was collected from the markets of neighboring districts where locals from these two districts come for trade.

Due to lack of availability of production data at the UC level, this key factor had to be excluded from the preliminary assessment and prioritization analysis at the Phase 1 of study. Moreover, lack of availability of meaningful data on potential for engagement of disable population meant that this factor also had to be excluded.

The time allocated for the study i.e. three months, was also not sufficient to collect and analyze large volumes of data. In the end, two time extensions were needed to complete the study. More time for data collection and financial resources would have allowed us to generate more reliable insights through selection of a larger sample for each prioritized VC in each area.

AiD team conducted a review of available data and literature published by the Government of Pakistan (GoP) on China Pakistan Economic Corridor (CPEC). The objective was to identify potential opportunities of linking the products of prioritized value chains with the provincial, national and international markets. Based on the details available on the communications infrastructure being built under CPEC, the access to products to national and international market will certainly improve. The GoP has published that special economic zones will be established in each province including KP and Balochistan) and industries relevant to prioritized value chains will be established there. The official information at this stage is tentative and very general. Amongst other industries, the GoP has identified food, vegetable and fruits processing and garments industries which are to be established in these special economic zones. The details of these are not available at this time though. Due to limitations of official data on the CPEC, the team could not carry out an industry-specific assessment of opportunities offered by the CPEC.

The Terms of Reference called for a very detailed multi-tiered multi-staged assessment of universe of on and off farm pro poor value chains across highly diverse geography of 13 districts of KP and

[1] These two districts are divided into sections and not union councils.

Balochistan. This study is very comprehensive in nature and is to inform the huge financial investment of up to 150 million US dollars and delivery of an extremely important poverty graduation program. PPAF rightly required the research firm to adopt a highly robust methodology of identification and prioritization of VCs followed by an in-depth assessment at the union council level. AiD has worked its level best to ensure that requirements of the TOR and PPAF's expectations are met. It is suggested that for future similar studies, the allocated budget should be in line with the expected robustness of approach and its significance in the context of overall program.

4 RESULTS OF PHASE 1 – CLUSTER-WISE IDENTIFICATION AND PRIORITIZATION OF VALUE CHAINS

4.1 Clustering of UCs

The clustering of UCs was done based on review of secondary literature, KIIs with district-level forestry, agriculture and labor department officials. Moreover, the Partner Organizations of PPAF for implementation of NPGP were also consulted. Specifically, the review of secondary literature focused on recording the type of ecosystem (plants, animals, geography, water channels, streams, urban or peri-urban characteristics, mountainous terrain, type of markets and means of livelihoods being practiced) and proximity to each other. The target districts were clustered into 14 clusters, which are presented in the below table.

Table 1: List of clusters formed in various districts based on similarities in UCs within the districts

S. No.	District	Number of UCs in Cluster	Name of UCs in the Cluster
1.	Dera Ismail Khan and Tank Cluster	26	Kech, Shor Kot, Ratta Kulachi, Yarik, Dhap Shumali & Mandhra, Musa Zai Sharif, Dera Dehat NO.I, Korai, Mahra, Paroa, Dewala, Ama Khel, Gulimam, Pai, Mulla Zai, Ghara Baloch, Ranwal, Shah Alam, Dabrah, Gomal, Sarangzona & Jatataar Tatta, Utar & Warspoon
2.	Shangla Cluster 1	2	Dherai & Pir Abad
3.	Shangla Cluster 2	2	Botial & Maira
4.	Kolai Palas Kohistan	12	Kuz Paro, Sharakot, Shelkin Abad, Haran, Kuz Sheryal, Batera, Mada Khel Abad, Kunshair, Bar sharyar, Kota Kot, Shared & Peach Bela
5.	Upper Kohistan and Lower Kohistan Cluster	16	Bari yar, Bar Jalkot, Kuz Jalkot, Siglo, Kuz Purwa, Seo, Karang, Karen, Gabral, Dobair bala, Dobair payeen, Dobair Khas, Pattan,Sangayoun , Ban Khud and Kayal
6.	Battagram Cluster 1	9	The targeted UCs in the Battagram Tehsil
7.	Battagram Cluster 2	5	The Targeted UCs in the Allai Tehsil
8.	Torghar Cluster	16	Mera Mada Khail, Khawar Mada Khel, Manja Kot Mada Khel, Palaso Hasson Zai, Garri Hasson Zai, Tilli Hasson Zai, Dar Bani Akazai, Bimbal Akazai, Kund Akazai, Dawar Mera, Judba Basi Khel, Bartooni Basi Khel, Shingaldar Basi Khel, Shatel Basi Khel, Hernail Basi Khel, Nusrat Khel
9.	South Waziristan and North Waziristan cluster	64 in SW and 27 in NW district	All targeted sectors in the district

10.	Zhob Cluster 1	5	UC Babu Mohallah, UC Ganj, UC Nasar Abad, UC Islamyar, Hassanzai, UC Laka Band
11.	Zhob Cluster 2	10	UC Sheikhan, UC Apozai, UC Hassanzai, UC Wala Akram, UC Omzha Vaila, Garda Babar, UC Murgha Kibzai, UC Shaighalo, UC Qamar Din Kareez, UC Shanghalu/ Shenghalu
12.	Sherani Cluster 1	4	UC Mani Khawa, UC Kapip, UC Ahmadi Darga, UC Mughal Kot
13.	Sherani Cluster 2	3	UC Shinghar North, UC Shinghar south, UC Dahnasar
14.	Jhal Magsi Cluster	9	UC Gandawa, UC Punjuk, UC Mir Pur, UC Khari, UC Pathri, UC Jahal Magsi, UC Kot Magsi, UC Hathyari, UC Barija

Union Councils in both North and South Waziristan have not been demarcated yet. Further, due to unavailability of No Object Certificate (NOC), area specific information from local actors could not be collected. Therefore, the target sectors within these two districts have not been clustered.

4.2 Presentation of VC Identification and Prioritization Findings

The cluster-wise results of Phase 1 are presented in this section:

4.2.1 Upper Kohistan

Table 2. Prioritized value products of Upper Kohistan district

S. No.	Parameter	Score	District: Upper Kohistan									
			Walnut	Maize	Honey	Beans	MAPs	Potato	Tomato	Small Scale Goat Farming	Small scale Poultry Farming	Kitchen gardening
1	Engagement of poor	0-100	90	83	95	60	70	35	35	90	90	35
2	Engagement of women	0-100	83	87	90	45	40	20	15	80	97	30
3	Engagement of youth	0-100	90	55	95	25	70	30	30	70	70	30
4	Potential entrepreneurship for poor	0-100	85	85	80	70	55	40	40	80	80	40
5	Potential marketability	0-100	90	90	90	85	85	50	50	85	90	50
6	Export potential	0-100	90	90	90	90	90	70	70	80	60	70
7	Scope of further value addition	0-100	90	85	90	40	80	35	35	70	35	35
8	Insensitivity to extreme weather	0-100	90	35	85	35	70	30	30	80	40	30
Total score (1-8)			**708**	**610**	**715**	**450**	**560**	**310**	**305**	**635**	**562**	**320**
Average score = total score/8			**89**	**76**	**89**	**56**	**70**	**39**	**38**	**79**	**70**	**40**

Based on the average scores, following VCs were prioritized in district Upper Kohistan for detailed analysis:

- Honey
- Walnut
- Small Scale Poultry Farming
- Small scale goat farming
- Maize
- Medicinal & Aromatic Plants

4.2.2 Lower Kohistan

Table 3. Prioritized value products of Lower Kohistan district

S. NO.	Parameter	Score	District: Lower Kohistan								
			Walnut	Maize	Honey Bee Keeping	MAPs	Beans	Potato	Tomato	Small scale poultry farming	Small scale goat farming
1	Engagement of poor	0-100	70	83	70	70	70	30	30	90	95
2	Engagement of women	0-100	80	87	70	40	50	20	40	97	80
3	Engagement of youth	0-100	70	55	80	70	25	30	30	70	40
4	Potential entrepreneurship for poor	0-100	70	85	80	55	65	35	80	80	90
5	Potential marketability	0-100	75	90	90	85	75	45	80	90	95
6	Export potential	0-100	80	90	40	90	0	0	40	60	80
7	Scope of further value addition	0-100	50	85	80	80	40	20	70	60	80
8	Insensitivity to extreme weather	0-100	70	35	50	70	60	70	70	40	90
Total Score			**565**	**610**	**570**	**560**	**385**	**250**	**440**	**587**	**650**
Average Score (total score/8)			**71**	**76**	**71**	**70**	**48**	**31**	**55**	**73**	**81**

Based on the average scores, following VCs were prioritized in district Lower Kohistan for detailed analysis:

- Honey
- Walnut
- Small Scale Poultry Farming
- Small scale goat farming
- Maize
- Medicinal & Aromatic Plants

4.2.3 Kolai Palas Kohistan

Table 4. Prioritized value products of Kolai Palas Kohistan District

S. No.	Parameter	Score	District: KP Kohistan									
			Walnut	Maize	Honey Bee Keeping	Beans	MAPs	Potato	Tomatoes	Small Scale Poultry Farming	Small Scale Goat Farming	Kitchen Gardening
1	Engagement of poor	0-100	90	83	60	70	30	35	35	90	90	55
2	Engagement of women	0-100	83	87	85	45	40	20	15	97	70	70
3	Engagement of youth	0-100	70	55	30	25	40	30	30	70	40	10
4	Potential entrepreneurship for poor	0-100	85	85	80	70	55	40	40	80	84	80
5	Potential marketability	0-100	90	90	90	85	85	50	50	90	90	85
6	Export potential	0-100	90	90	90	90	90	70	70	60	70	80
7	Scope of further value addition	0-100	90	85	90	40	40	35	35	60	60	60
8	insensitivity to extreme weather	0-100	60	35	85	35	20	30	30	40	80	40
Total Score			**658**	**610**	**610**	**460**	**400**	**310**	**305**	**587**	**584**	**480**
Average Score (total score/8)			**82**	**76**	**76**	**58**	**50**	**39**	**38**	**73**	**73**	**60**

Based on the average scores, following VCs were prioritized in district Kolai Palas Kohistan for detailed analysis:

- Honey
- Walnut
- Small Scale Poultry Farming
- Small scale goat farming
- Maize

4.2.4 Shangla

Table 5. Prioritized value products of Shangla district

S. No.	Parameter	Score	District: Shangla											
			Red Persimmon	Black Persimmon	MAPs	Small scale poultry farming	Walnut	Potato	Tomato	Orange	Guava	Pear	Small scale goat farming	Kitchen Gardening
1	Engagement of poor	0-100	82	83	70	80	60	45	40	45	45	40	80	45
2	Engagement of women	0-100	60	45	40	70	85	20	15	10	10	15	77	85
3	Engagement of youth	0-100	50	40	70	50	50	40	15	25	20	15	60	15
4	Potential entrepreneurship for poor	0-100	70	80	55	85	55	55	80	70	75	45	75	40
5	Potential marketability	0-100	90	75	85	85	70	80	45	85	85	75	97	85
6	Export potential	0-100	90	90	90	90	85	70	50	90	90	90	50	45
7	Scope of further value addition	0-100	90	55	80	80	35	50	90	80	80	55	80	35
8	Insensitivity to extreme weather	0-100	85	85	70	90	85	45	15	55	80	55	90	55
Total score			**617**	**553**	**560**	**630**	**525**	**405**	**350**	**460**	**485**	**390**	**609**	**405**
Average score total score/8)			**77**	**69**	**70**	**79**	**65**	**51**	**44**	**58**	**61**	**49**	**76**	**51**

Based on the average scores, following VCs were prioritized in district Shangla for detailed analysis:

Shangla Cluster 1

- Red Persimmon
- Black Persimmon
- Walnut
- Medicinal & Aromatic Plants
- Small Scale Poultry Farming

- Small scale goat farming

Shangla Cluster 2

- Small Scale Poultry Farming
- Small scale goat farming
- Walnut
- Medicinal & Aromatic Plants
- Handicraft and Dress Making

4.2.5 Battagram

Table 6. Prioritized value chains of district Battagram

S. No.	Parameter	Score	District: Battagram								
			Walnut	Maize	Honey Bee Keeping	Beans	MAP s	Tomato	Small scale goat farming	Black and Red Persimmon	Small Scale Poultry Farming
1	Engagement of poor	0-100	80	80	94	50	80	30	100	30	100
2	Engagement of women	0-100	60	60	70	50	70	15	95	30	95
3	Engagement of youth	0-100	70	60	80	25	60	30	85	30	85
4	Potential entrepreneurship for poor	0-100	80	70	80	65	40	35	90	40	90
5	Potential marketability	0-100	100	80	77	75	70	45	100	50	100
6	Export potential	0-100	85	60	95	30	60	40	80	60	80
7	Scope of further value addition	0-100	80	50	100	40	40	30	90	50	92
8	Insensitivity to extreme weather	0-100	100	60	60	40	60	30	90	70	90
Total score			**655**	**520**	**656**	**375**	**480**	**255**	**730**	**360**	**732**
Average score (total score/8)			**82**	**65**	**82**	**47**	**60**	**32**	**91**	**45**	**92**

Based on the average scores, following VCs were prioritized in district Battagram for detailed analysis:

Battagram Cluster 1

- Walnut
- MAPs
- Honey
- Small Scale Poultry Farming
- Small scale goat farming

Battagram Cluster 2

- Maize
- Small Scale Poultry Farming
- Small scale goat farming
- Walnut
- Honey

4.2.6 Torghar

Table 7. Prioritized value products of district Torghar

S. No.	Parameter		District: Torghar							
		Score	Maize	Wheat	Tomato	Kitchen Gardening	Small Scale Poultry Farming	Small scale goat farming	Handicrafts and Dress Making	Tourism
1	Engagement of poor		90	50	60	70	100	100	50	90
2	Engagement of women	0-100	70	40	80	80	80	90	90	0
3	Engagement of youth	0-100	80	30	70	60	70	80	65	50
4	Potential entrepreneurship for poor	0-100	60	40	30	20	100	75	90	90
5	Potential of marketability	0-100	50	20	60	10	80	85	96	70
6	Export potential	0-100	40	30	0	10	90	90	90	0
7	Scope of further value addition	0-100	20	20	80	0	60	70	80	70

8	Insensitivity of extreme weather	0-100	70	50	60	50	70	90	95	80
Total score		**0-100**	**480**	**280**	**440**	**300**	**650**	**680**	**656**	**450**
Average score			**60**	**35**	**55**	**38**	**81**	**85**	**82**	**56**

Based on the average scores, following VCs were prioritized in district Torghar for detailed analysis:

- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming
- Maize

4.2.7 Tank

Table 8. Value products of Tank district

S. No.	Parameter	Score	District: KP Tank									
			Sugarcane	Wheat	Pottery	Rice	Date	Tomato	Handicrafts and Dress Making	*WAAN*	Small scale goat farming	Small Scale Poultry Farming
1	Engagement of poor	0-100	80	90	75	90	80	75	65	75	95	90
2	Engagement of women	0-100	60	75	70	90	20	65	90	90	84	84
3	Engagement of youth	0-100	20	40	30	50	30	60	80	30	70	70
4	Potential entrepreneurship for poor	0-100	80	70	70	30	70	70	100	40	92	90
5	Potential marketability	0-100	80	90	90	60	70	70	90	40	80	94
6	Export potential	0-100	50	50	80	50	90	80	100	30	70	70
7	Scope of further value addition	0-100	60	50	80	20	95	60	80	25	84	80
8	Insensitivity to extreme weather	0-100	95	60	60	80	80	80	96	50	80	87
Total score			**525**	**525**	**555**	**470**	**535**	**560**	**701**	**380**	**655**	**665**
Average score (total score/8)			**66**	**66**	**69**	**59**	**65**	**67**	**88**	**45**	**82**	**83**

Based on the average scores, following VCs were prioritized in district Tank for detailed analysis:

- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming

4.2.8 Dera Ismail Khan

Table 9. Prioritized value products of D. I. Khan district

S. No.	Parameter	Score	District: KP D I Khan										
			Sugar cane	Wheat	Maize	Rice	Dates	Seasonal Vegetables	Small scale goat farming	Handic rafts and Dress Making	Halwa	Small Scale Poultry Farmin g	Lemon
1	Engagement of poor	0-100	80	80	50	80	85	75	85	65	50	90	90
2	Engagement of women	0-100	80	75	35	60	90	65	80	90	70	84	65
3	Engagement of youth	0-100	60	40	30	25	70	60	60	80	60	70	65
4	Potential entrepreneurship for poor	0-100	60	95	70	80	40	80	75	100	40	90	65
5	Potential marketability	0-100	60	90	90	85	50	90	100	90	30	94	70
6	Export potential	0-100	30	40	0	80	50	50	60	100	40	70	70
7	Scope of further value addition	0-100	70	85	95	75	80	35	100	80	70	80	60
8	Insensitivity to extreme weather	0-100	70	60	60	70	60	15	91	96	75	87	20
	Total score		**510**	**565**	**430**	**555**	**525**	**470**	**651**	**701**	**435**	**665**	**505**
	Average score = (total score/8)		**64**	**71**	**54**	**69**	**65**	**59**	**81**	**88**	**54**	**83**	**63**

Based on the average scores, following VCs were prioritized in district DI Khan for detailed analysis:

- Handicrafts and Dress Making

- Small Scale Poultry Farming
- Small scale goat farming

4.2.9 Zhob

Table 10. Prioritized value products of Zhob district

S. No.	Parameter	Score	Wool Management	Small scale poultry farming	Small scale goat farming	Pine Nut	Kitchen Gardening	Handicrafts and Dress Making	Wheat	Garlic	Apricot	Grapes	Maize
1	Engagement of poor		70	100	100	70	70	80	100	80	70	100	70
2	Engagement of women	0-100	80	80	80	50	70	70	40	50	50	40	50
3	Engagement of Youth	0-100	60	80	100	60	30	70	100	70	80	100	80
4	Potential entrepreneurship for poor	0-100	50	80	100	60	30	80	70	60	80	70	80
5	Potential of marketability	0-100	60	80	100	80	20	80	60	50	60	60	60
6	Export potential	0-100	80	80	100	70	0	60	40	40	50	80	50
7	Scope of further value addition	0-100	70	90	80	50	40	70	70	70	80	70	80
8	Insensitive to extreme weather	0-100	60	90	80	50	20	90	70	50	89	70	80
Total Score		**0-100**	**530**	**680**	**740**	**490**	**280**	**600**	**550**	**470**	**559**	**590**	**550**
Average score (total score/10)			**66**	**85**	**93**	**61**	**35**	**75**	**69**	**59**	**70**	**74**	**69**

Based on the average scores, following VCs were prioritized in district Zhob for detailed analysis:

<u>Zhob Cluster 1</u>

- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming
- Grapes

Zhob Cluster 2

- Chalghoza/ Pine Nuts
- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming
- Grapes

4.2.10 Sherani

Table 11. Prioritized value chains of district Sherani

S. No.	Parameter	District: Sherani										
		Score	Handicrafts and Dress Making	Wool management	Small Scale Poultry Farming	Small Scale Goat Farming	Desi Ghee	Chilghoza	Wild Olive	Grapes	Maize	Apricot
1	Engagement of poor	0-100	100	70	100	100	50	75	70	70	80	50
2	Women involvement	0-100	100	80	100	100	90	30	40	60	80	60
3	Engagement of youth	0-100	90	60	80	100	20	75	40	70	79	60
4	Entrepreneurship potential for poor	0-100	80	50	90	100	60	60	50	60	60	60
5	Potential of marketability	0-100	70	60	100	100	50	90	50	70	50	50
6	Export potential	0-100	70	80	50	50	20	80	60	50	40	50
7	Scope of value addition	0-100	90	70	100	100	60	70	60	60	70	70
8	In sensitive to Extreme Weather	0-100	70	60	90	90	70	40	20	50	50	30
Total Score			**670**	**530**	**710**	**740**	**420**	**520**	**390**	**490**	**509**	**430**
Average score			**83.75**	**66**	**88**	**91**	**52**	**65**	**49**	**61**	**64**	**54**

Based on the average scores, following VCs were prioritized in district Sherani for detailed analysis:

Sherani Cluster 1

- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming
- Maize

Sherani Cluster 2

- Grapes
- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming
- Maize

4.2.11 Jhal Magsi

Table 12. Prioritized value chains of district Jhal Magsi

S. No.	Parameter	District: Jhal Magsi							
		Score	Handicrafts and Dress Making	Wheat	Guar Phalli	Maize	Mung Beans	Small Scale Poultry Farming	Small Scale Goat Farming
1	Engagement of poor people	0-100	100	80	90	70	100	90	90
2	Women Involvement	0-100	90	80	70	70	80	80	80
3	Engagement of youth	0-100	70	70	80	80	80	70	70
4	Entrepreneurship potential for poor	0-100	80	60	60	80	70	90	80
5	Potential of marketability	0-100	70	60	50	60	60	80	70
6	Export potential	0-100	70	40	90	50	50	50	50
7	Scope of value addition	0-100	50	60	100	80	70	60	60
8	Insensitive to extreme weather	0-100	100	30	70	30	70	70	70
	Total score		**630**	**480**	**610**	**520**	**580**	**590**	**570**
	Average score		**79**	**60**	**76**	**65**	**73**	**74**	**71**

Based on the average scores, following VCs were prioritized in district Jhal Magsi for detailed analysis:

Jhal Magsi

- Guar Phalli
- Mungbean
- Handicrafts and Dress Making
- Small Scale Poultry Farming
- Small scale goat farming

4.2.12 North Waziristan

Table 13. Prioritized value chains of district North Waziristan

S. No.	Parameter	District: North Waziristan									
		Score	Pine Nut	Tomato	Potato	Apple	Small Scale Poultry Farming	Small Scale Goat Farming	Waan	Date	Plum
1	Engagement of poor people	0-100	80	65	60	60	90	90	80	60	50
2	Women Involvement	0-100	30	30	30	30	90	90	70	20	30
3	Engagement of youth	0-100	80	50	60	60	70	70	60	40	30
4	Entrepreneurship potential for poor	0-100	60	70	50	30	80	80	50	50	30
5	Potential of marketability	0-100	80	70	50	60	70	70	50	60	60
6	Export potential	0-100	80	20	20	40	40	40	20	30	50
7	Scope of value addition	0-100	60	70	60	70	50	50	40	50	70
8	Insensitive to extreme weather	0-100	60	30	50	40	70	70	40	50	40
	Total score		**530**	**405**	**380**	**390**	**560**	**560**	**410**	**360**	**360**
	Average score		**66**	**51**	**47**	**49**	**70**	**70**	**51**	**45**	**45**

Based on the average scores, following VCs were prioritized in district North Waziristan for detailed analysis:

- Pine Nut
- Small Scale Poultry Farming
- Small Scale Goat Farming

4.2.13 South Waziristan

Table 14. Prioritized value chains of district South Waziristan

S. No.	Parameter	District: South Waziristan							
		Score	Pine Nut	Apple	Peach	Plum	Tomato	Small Scale Poultry Farming	Small Scale Goat Farming
1	Engagement of poor people	0-100	80	60	60	50	65	90	90
2	Women Involvement	0-100	30	30	30	30	30	90	90
3	Engagement of youth	0-100	80	60	50	30	50	70	70
4	Entrepreneurship potential for poor	0-100	60	30	30	30	70	80	80
5	Potential of marketability	0-100	80	60	60	60	70	70	70
6	Export potential	0-100	80	40	50	50	20	40	40
7	Scope of value addition	0-100	60	70	30	70	70	50	50
8	Insensitive to extreme weather	0-100	60	40	30	40	30	70	70
	Total score		**530**	**390**	**340**	**360**	**405**	**560**	**560**
	Average score		**66**	**49**	**42**	**45**	**51**	**70**	**70**

Based on the average scores, following VCs were prioritized in district South Waziristan for detailed analysis:

- Pine Nut
- Small Scale Poultry Farming
- Small Scale Goat Farming

5 RESULTS OF PHASE 2 – DETAILED ANALYSIS OF PRIORITIZED VC

The results of in-depth analysis of prioritized VCs are presented in this section:

5.1 Honey Value Chain

Honey is a high potential pro-poor value chain. The national and international markets are well-developed and there is a consistent demand of the product amongst domestic, industrial and export markets. According to Pakistan Agriculture Research Council (PARC), Honeybee flora is present on vast areas in all the provinces particularly Khyber Pakhtunkhwa and can support more than 2,000,000[2] honeybee colonies. Four species of honeybees are found in Pakistan. Three are indigenous and one is imported and established in Pakistan. The indigenous species are Apis dorsata, Apis cerana, and Apis florea. The occidental species is Apis mellifera. The analysis of secondary data and KIIs with market actors and public sector stakeholders shows that there is a huge potential to develop/ strengthen honey bee keeping value chain in Battagram, Upper Kohistan, Lower Kohistan and Kolai Palas Kohistan. A key contributing factor of prioritizing this value chain is the multitude of employment and income generation opportunities offered to poor segments of local population at various steps of the supply chain.

Some of the varieties of honey and honey related products currently being produced in the province, as per a value chain study conducted by Helvetas Swiss Inter-Cooperation[3] in Tarnab which is one of largest provincial market of honey, include:

- Ber
- Palosa
- Bhaikar
- Citrus
- Shaftal
- Royal jelly
- Natural Wax
- Pollens
- Dry fruits added to honey
- Indigenous Honey

Figure 3: A picture of indigenous honey bee hive which is traditionally produced by small scale producers in target districts

While latest data on demand is not available, a study conducted by Helvetas Swiss Intercooperation at Agricultural Research Institute Tarnab in 2005 noted following demand and supply figures:

Table 15: Demand and supply of various varieties of honey in KPK (data from 2005)

Sr. #	Variety	2005	2006	2007
		Supply (Tons)	Supply (Tons)	Supply (Tons)
1	Ber	2,925	3,162	2,272

[2] According to a research study published by Trade Development Authority of Pakistan on Honey in 2015
[3] Honey Value Chain Analysis by Muhammad Asad Salim and Kamal Ahmed, March, 2009

2	Palosa	1,872	2,023	1,454
3	Bhaikar	800	1,000	600
4	Citrus	1,872	2,023	1,454
5	Shaftal	800	1,000	600
6	Royal jelly	--	--	--
7	Natural Wax	--	--	--
8	Pollens	--	--	--
9	Dry fruits added to honey (0.5 kg)	--	--	--
10	Indigenous Honey	--	--	--

According to data published by PARC, the demand and supply has increased considerably. Despite that, the national and international export demand is much higher and remains unmet from local production.

5.1.1 Key Actors of Value Chain

The below table presents, major actors/ stakeholders at micro, meso and macro level and have an impact on the value chain:

Table 16: Key Micro, meso and macro level actors of Honey Value Chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input Suppliers dealing with Bee Hives, Separators, Caps, Gloves, Wax etc.) ▪ Producers (Household and Co-op) ▪ Middlemen, Collectors, Bulking Agents ▪ Processors (semi and secondary processing agents) ▪ Traders (domestic and foreign markets) ▪ Export Agents (Provincial, national and overseas markets) ▪ Distributors, Wholesalers ▪ Retailers (general stores, supermarkets) ▪ Consumer (domestic household, commercial, industrial, export market)	▪ ARI Tarnab ▪ NTFP Directorate ▪ PCSIR Laboratories ▪ Agricultural University Peshawar ▪ Transporters, ▪ Banks and MFIs ▪ Cooperatives, Producers groups/ Organizations ▪ Non-governmental organizations ▪ Local trade associations/ unions ▪ Training Service Providers ▪ Pakistan Agricultural Research Council ▪ Pakistan Beekeepers Association ▪ All Pakistan Bee Keepers, Exporters, and Honey Traders Association	▪ Department of Animal Quarantine ▪ Ministry of Agriculture Production ▪ Police Department ▪ Customs Department

In the context of the four districts where the honey value chain has been prioritized, the team carried out interviews with a range of the above listed actors to understand the relationships and supply chain.

5.1.2 Map of Honey Value Chain

Based on the insights obtained, the value chain map showing the relationships at all levels is presented below:

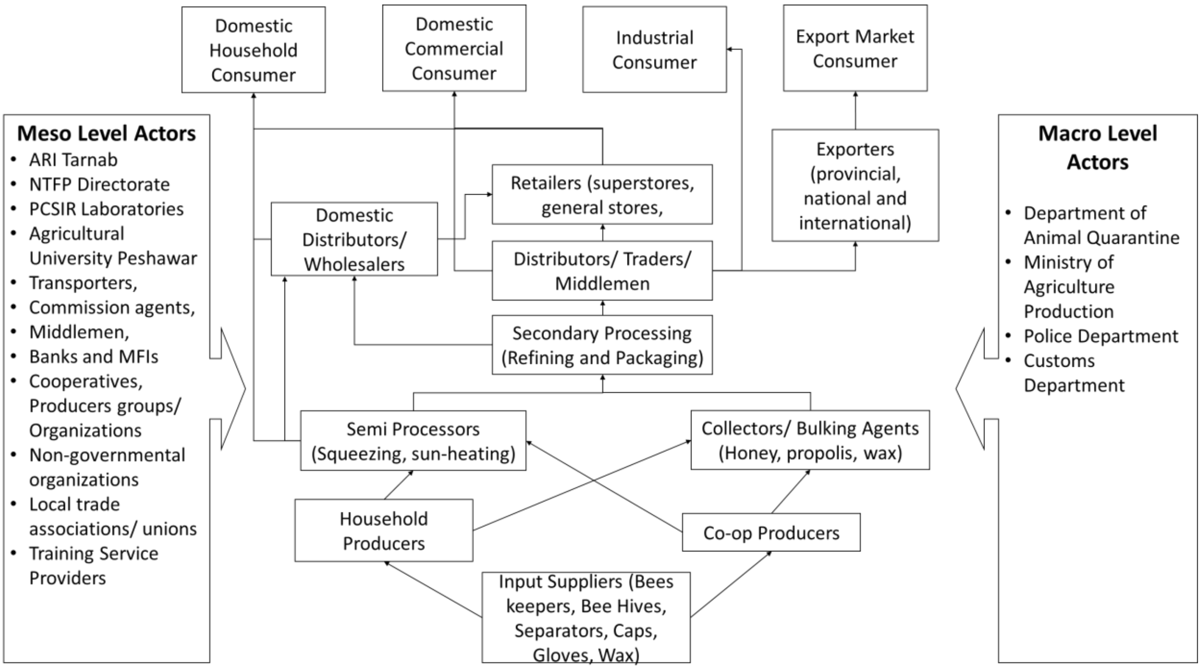


Figure 4: Map of honey value chain

5.1.3 Market Dynamics

The direct beneficiaries of NPGP can be engaged at various steps of the value chain, particularly in the ones which are circled. A study of production and market supply shows that a small-scale producer, producing indigenous honey, typically produces 5-15 kilograms of honey per annum. The honey production is done on seasonal basis. There is one seasonal cycle of production each year i.e. September to January. In producing ***indigenous*** honey, the small-scale producers suffer from use of outdated technology, equipment and methods. In the same regions, large scale producers using modern methods of honey bee keeping do not produce higher aggregate but also per unit quantity.

Table 17 Supply Cycle of Honey Value Chain

Supply areas (sources)	Period of supply	Markets
Local Household Honey Bee Farmers	2 seasons per annum	Domestic wholesale and retail markets

The indigenous honey produced by small scale apiaries is partially consumed at the household and remaining quantities are sold to other households, which range from 5-10 KG per annum. Even after meeting domestic demand, they are able to complement their overall household income by selling locally.

While the local traders and middlemen sell a small proportion of locally produced honey in markets of Swat, Peshawar and Rawalpindi, they stated that the demand for pure honey is not being fully met in the outside markets, and there is a huge potential of improving the produce. The local traders and middlemen revealed that they get a higher price of honey if it is properly processed and packed. Due to higher price obtained through export, they prefer to sell it in outside markets or to tourists.

According to data collected in FGDs and KIIs with micro level actors, the highest potential of employability and income generation for poor households lie in backward supply chain of honey. While they stated that middlemen, stocking/ bulking agents can be added to increase the access to town markets where these medium-scale traders are placed, increasing production at local level can offer employment to relatively larger number of populations.

The purchase and selling price have also increased over the last three years which is attributed to inflation, higher price of inputs, low supply and higher demand.

As for regulatory environment is concerned, none of the actors in the value chain are required to conform to any mandatory regulations. Neither do they require any license to start work at any step of the value chain. The market dynamics of high demand and lack of any strict regulations make the entry into this value chain easier for poor population.

The market information on prices of inputs, selling prices, disease outbreak, precautionary measures and weather conditions is not formally shared by government or private sector and the actors rely on informal sources i.e. actors linked to the value chain, to get this information. Some of the traders have tried to set up refining and packaging units locally. However, their lack of ability to work at scale tends to drive the per unit cost of processing higher, which tends to affect the competitiveness of local honey to a small extent.

While the interviewed value chain actors were not fully aware of the potential impacts that CPEC can have on the value chain, the technical team understands that improved communications infrastructure will be helpful in accessing new markets within the country. The increased footfall of visitors to these districts will also help increase the sale in local markets to some extent.

5.1.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The below table presents the barriers at various steps of domestically produced honey bee value chain. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Table 18 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Low quantities of honey produced at household level Reliance on indigenous methods of honey bee keeping	Continued reliance on local knowledge and outdated equipment/ methods for production and lack of exposure Remote location of district and UCs where a government or non-government program has not adequately met the potential	Information and awareness raising on production, collection and processing methods to help improve quantity of honey produced at household level and increase in income of poor beneficiary households Improve capacities of local producers to perform primary processing i.e. sun heating and squeezing, without losing too much produce.	There is massive potential of promoting modern honey bee keeping methods by providing knowledge, infrastructure and access to finance. Production can be increased and household income generation improved through provision of training, toolkit/ equipment. Moreover, the aspiring beneficiaries should be linked to microfinance institutions to bridge the financing gaps.	Provide training on Honey Bee Keeping Provide toolkit to beneficiaries to start production at household level Organize exposure visits for beneficiaries to successful production enterprises Provide advisory and extension services to producers
Input Suppliers	Modern equipment for honey bee keeping (bee hives, boxes, wax and protective materials) is not available in local markets	Lack of demand of equipment due to low awareness of modern methods High price of equipment available in town markets	Promotion of production of inputs at local level	Identification and training of local artisans, carpenters and interested project beneficiaries in production of inputs	Provision of training and toolkit on making boxes and beehives Provision of training and toolkit for making protective materials Exposure visit of input suppliers to similar SMEs in the area

Processors	Low price of honey produced at HH level	Local markets lack processing expertise. There is lack of actors who provide modern refining and packaging services.	Develop a cadre of local secondary processing agents who can refine and package the product locally	Aspiring producers, middlemen, bulking agents and project beneficiaries should be capacitated to perform secondary processing at the local level. They should be provided equipment, training and linkages development support to start their processing enterprises. Successful enterprises should be linked to MFIs to expand their businesses	Provision of training to interested locals in secondary processing methods i.e. refining and packaging. Development of linkages with primary producers and traders. Provision of toolkits to initiate their enterprises. Linkages development to MFIs
Wholesalers/ Traders	Poor marketability and sale of locally produced honey	The low quantity of honey produced meets domestic demand. There is little room of exploring external markets for sale of local honey	The increase in locally produced honey can help meet the demand at provincial, national and international levels	While these agents will not be direct beneficiaries of project, engaging them can help promote demand and sale of local honey. Strengthening of backward linkages of local wholesalers and traders with producers and processors to access increased supply Strengthening of forward linkages of local wholesalers and traders with large traders, industrial customers and exporters to sell the locally produced honey.	Training of wholesalers and traders in market expansion methods. Linkages development with high end markets

5.1.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Carpenter for making honey bee farming boxes/ bee hives
- Input supplier of protective materials/ gear for honey bee farming
- Honey Production
- Honey Processor
- Honey Selling

5.1.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Table 19 Proposed Asset Packages for NPGP Beneficiaries for honey value chain

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Carpenter for making honey bee farming boxes/ bee hives**	Training on honey bee hives and box making	Training of artisans/ carpenters on making the boxes
		Toolkit	Provision of a toolkit comprising of tools needed to make honey bee keeping boxes. This may include carpentry tools along with a package of inputs needed to make the products.
		Exposure visit	Exposure visit of trained beneficiaries to medium and large-scale input suppliers of boxes
2	**Input supplier of protective materials/ gear for honey bee farming**	Training on making protective materials for honey bee farming	Training of women on making protective materials including caps, gloves and other materials
		Toolkit	Provision of a toolkit comprising of tools needed to make protective materials. This may include stitching machines along with a package of inputs needed to make the products.
		Exposure visit	Exposure visit of trained beneficiaries to medium and large-scale input suppliers of protective materials
3	**Small Scale Honey production**	Training on Honey Bee Keeping	The training will include the input supplies, their use, production methods, precautions, disease identification and treatment methods, honey extraction, handling, primary processing and storing techniques.
		Toolkit/ equipment	A package of tools needed for small scale honey bee production including bee hives, boxes, wax and protective materials.

		Exposure visit	Organizing exposure visits for trained beneficiaries to other small scale honey bee farmers in the district to observe and learn from successes.
4	**Processing Service Provider (Squeezing, Refining, Packaging)**	Training on secondary processing of honey	Training will include modules on squeezing, refining and packaging methods along with types and use of equipment needed for processing.
		Toolkit	Provision of a toolkit comprising of tools needed to process honey at household level. Interested beneficiaries can start small scale enterprise of honey processing at local level
		Job placement support	Facilitating job placement with medium and large-scale honey producers and industrial honey processors
5	**Honey Seller**	Training on collecting honey from small scale producers	The training will include modules purchasing and negotiation skills, account and credit management, collection, storage and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and storage equipment.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as middlemen, traders and honey retailers

5.1.7 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on honey bee farming is offered by a range of actors across Pakistan.

Table 20 Training Institutes for Trades Related to Honey Bee Farming

Training on Honey Bee Farming (managing bees, maintaining bee hives, extraction, packaging etc.)	Pakistan Agricultural Research Council (PARC)	Islamabad
	Hashoo Foundation	Rawalpindi and Multiple Districts of KPK
	Human Appeal Pakistan	Faisalabad
	Alfalah Development Foundation	Peshawar
	Shah Farms	Karachi
Training on Input Supplies including Boxes, Bee Hives and Protective Materials	The agricultural universities and other research institutes can be approached to design a customized course, since this course is not being offered by any institute currently.	Not Applicable
Middleman/ Commission Agent	A business studies institute and technical expert of honey bee keeping can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not Applicable

5.1.8 Recommended Set of Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the honey value chain in target districts of Battagram, Upper Kohistan, Lower Kohistan and KP Kohistan are presented below. NPGP team can make an informed decision based on this on the type and level of engagement for honey value chain development:

Set of Interventions for Honey Value Chain	Resource Intensity
Option 1: Improving honey bee productivity, thus increasing employment and income generation prospects of poor segments of population by promoting: o Adoption of modern production and processing practices; o Promote off farm enterprises for supply of inputs such as carpenters, medicinal suppliers, wax makers, filtration machine etc. o The beekeepers should be provided with information regarding the availability of flora with proper time specification o Provision of technical, advisory and linkages facilitation support to processing service providers at local level o Adopt an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in production and processing	MINIMUM
Option 2: Improving marketability of local produce A: Improve the bargaining powers of the poor and small producers through: o Formation of Common Interest Groups/ association/ cooperatives B: Supporting improvement in marketability and market access of locally produced honey through: o Developing small outlets; o Developing and facilitating linkages between local and external stakeholders of the value chain. o Promoting branding and appropriate packaging o Training the beekeepers in market mechanisms and basic business techniques o Facilitating linkages of local wholesalers and traders with provincial, national and export markets	INTERMEDIATE
Option 3: Facilitating access to extension and business development services including: o Microfinance institutions o Linkages development with leasing companies o Advisory and technical support service providers	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: o Development of quality standards and good bee keeping management practices o Implementation of legal framework to ensure regulatory oversight	MAXIMUM

5.2 Medicinal and Aromatic Plants (MAPs)

Medicinal plants are amongst the oldest forms of human healthcare known to date. Medicinal plants and their derivatives contribute more than half of all clinically administered drugs of modern day. In addition, the traditional healthcare practitioners predominantly rely in MAPs for medicinal purposes. Owing to the importance of medicinal plants and herbs, the demand at provincial, national and international level is huge and consistent. In 2017, herbal medicinal products market worldwide was valued at a little more than $130 billion. The herbal medicines are expected to grow at a CAGR of 7.6 percent for the next decade showcasing potential for the niche market.[4].

Similarly, the aromatic plants are important input elements in a range of aromatic, food and other products. These are not only used locally but have a huge market at industrial level.

Fortunately, much of the world's rich medicinal plants habituate in the developing world. Pakistan is enjoying a rich and diverse flora of almost 5700 species of which around 2000 are reported to be medicinally important. The country is among the top ten in exporting raw herbs, with more than 400 local herbal product companies involved in the industry. In Pakistan, Hamdard Laboratories, arguably Pakistan's most popular herbal pharmaceutical manufacturers is working towards jumping on the global herbal bandwagon.

Livelihoods of many households in the mid hills and high hills are partially dependent upon the trade of medicinal and aromatic plants for centuries. As in the mountainous farming systems much of the agriculture is primarily subsistence, MAPs have been a complementary cash-providing source. Majority of the rural households involved in the MAP collection and sale are living in adject poverty. Although the products collected have high value yet the collectors are unable to realise its actual value. The collector not only are unaware of its true value but also are unable to market it in the appropriate form for its potential value. While exploring the full potential, market dynamics and the gaps of MAPs across the province is a separate extensive research in itself, our rapid assessment revealed that the following main plants of medicinal importance are traded in Shangla, Upper Kohistan and Lower Kohistan districts. There are dozens of other MAPs which the forests of these districts produce, and poor and landless people collect and sell in the market to earn their livelihoods.

- Berberis lyceum Royle (Kwaray)
- Valeriana jatamansi (Mushki Bala)
- Viola serpense (Banafsha)
- Murshilla (Gojai)
- Lal Dana
- Morchella sp (Mushroom)
- Wild onion

5.2.1 Key Actors of MAPs Value Chain

The below table presents major actors/ stakeholders at micro, meso and macro level who are engaged or have an impact on the MAPs value chain:

Table 21: Key actors of MAPs value chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment

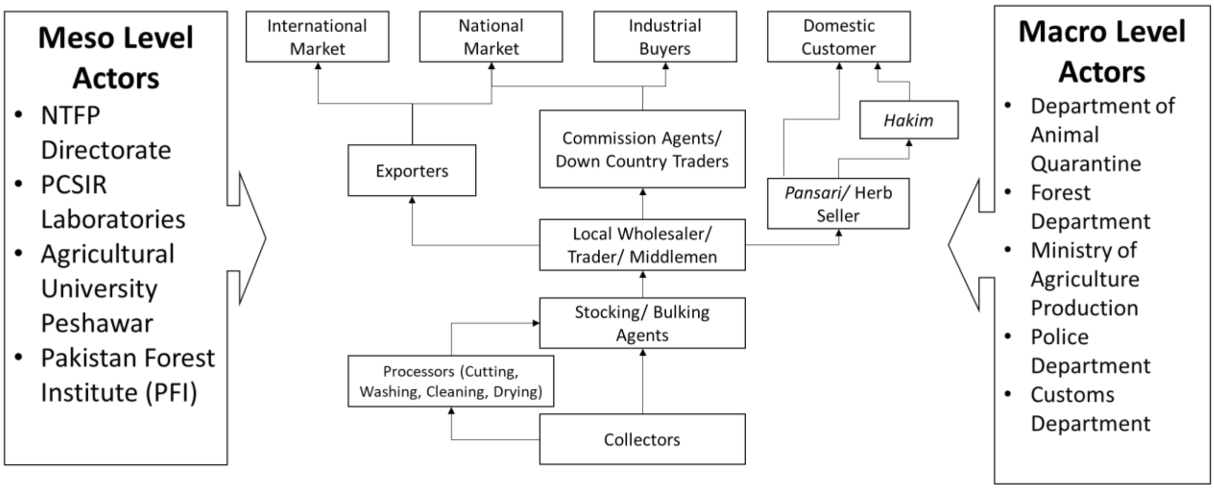
[4] https://www.pakistantoday.com.pk/2016/12/30/herbal-plant-medicine-a-billion-dollar-industry/

▪ Collectors (Men, women and children) ▪ Local Stocking/ Bulking Agents ▪ Processors (Refining) ▪ Traders (domestic and foreign market) ▪ Export Agents (Provincial, national and overseas markets) ▪ Distributors, Wholesalers ▪ Retailers (Pansaris, shopkeepers, hakims) ▪ Industrial buyers ▪ International Market	▪ NTFP Directorate ▪ PCSIR Laboratories ▪ Agricultural University Peshawar ▪ Pakistan Forest Institute (PFI)	▪ Department of Animal Quarantine • Forest Department ▪ Ministry of Agriculture Production ▪ Police Department ▪ Customs Department

In the context of the three districts where the MAPs value chain has been prioritized, the team carried out interviews with a range of the above listed actors to understand the relationships and supply chain.

5.2.2 Map of MAPs Value Chain

Based on the insights obtained, the value chain map showing the relationships at all levels is presented below:



5.2.3 Market Dynamics

The direct beneficiaries of NPGP can be engaged at collection, processing, stocking and as middleman. A study of collection trends and market supply shows that a poor and landless population work as collectors. The demand of species is guided by the middlemen and traders who either do semi processing at their end or sell it in raw form to provincial markets in Swat and Peshawar and down country markets of Lahore and Karachi. Since the collection is completely dictated by the middlemen and traders, the supply trends change from one area to other.

Market Demand: Due to time constraints, the market demand was extracted from the secondary sources. The following table shows the overall demand of some of the selected species of MAPs.

Table 22 Demand of Selected MAPs Species

Products	Trade Volume (Value in Rs.)				
	Behrain	Madyan	Mingora	Buner	Total
Morchella sp. (Gojai)	9700000	16975000	294750000	2250000	323675000
Viola serpense (Banafsha-flowers)	187500	2100000	920000	1155000	4362500
Viola serpense (Banafsha-leaves/mix)	140000	1834000	832000	885500	3691500
Colchicum luteum (Suranjan-Talakh)	510000	1275000	21000		1806000
Valeriana jatamansi (Mushke Bala)	390000	600000	455000		1445000
Saussurea atkinsonnii (Sharshamay)		162000	300000		462000
Berberis lycium (Kwaray)		45000	110000	297000	452000
Pistacia integerrima (Kakar Singhi)		18000	330000	85000	433000
Acer ceasium (Paindak)		400000	7200		407200
Adiantum capillus-veneris (Persosha)	80000	250000	800		330800
Podophyllum hexandrum (Kakora)	40000	160000	8000		208000
Bistorta amplexicaulis (Anjabar)	8100	117000	59400		184500
Bergenia ciliata (Zakhm e Hayat)		68750	300		69050
Dioscorea deltoidea (Kanis)		27500			27500
Paeonia emodi (Mameikh)		18000	4800		22800
Aconitum violaceaum (Zahar Mora)		21700			21700
Total	11055600	24071950	297798500	4672500	337598550

5.2.4 Local Market Demand:

Supply areas (sources)	Period of supply	Markets
Collected from local forests	Across the year	Local market/ Middlemen/ Commission Agents

Small quantity of these herbs and plants is sold locally for use by *Pansaris* and hakims. All of the remaining is sold to provincial, down country and international markets by various aggregators, traders and export agents.

In depth interviews with traders, middlemen and commission agents of MAPs in Shangla, Upper Kohistan and Lower Kohistan revealed that the current level of collection and sale is under 100 tons per annum. The enterprise of trading or middleman required an investment of up to 400,000 rupees. However, strong linkages with the down country and provincial markets are a pre-requisite.

The local traders and middlemen are compelled to sell large proportion of MAPs to external markets. This is not only dictated by the demand from these external markets but also the higher selling price received as compared to local market. Specifically, the respondents stated that external markets offer up to 20% more price than the local market.

In depth interviews with traders and wholesalers revealed that while the demand and supply has increased in the last three years at national level, the geo-political issues with the neighboring countries and the resultant ban on export to India has impacted the export sales and thus the overall economic potential of the MAPs. The local trade has not had much impact due to increasing national demand. The primary buyers of MAPs in bulk quantities from local traders are wholesalers and processors stationed in larger national markets.

The collection is not bound by any season and diverse range of locally available MAPs means that the value chain provides consistent annual income generation opportunity. The interviewed stakeholders agreed that the most potential for poor households lies in collection and semi processing of MAPs before selling to local traders. The investment required to access external markets and lack of linkages with industrial and retail buyers hinders the ability of poor households to start trading and work as commission agents.

The lack of knowledge of handling, storing and processing methods means that the collectors lose a significant portion of their collection. Moreover, lack of knowledge of profitable and marketable species in their areas also hinders the maximization of the local value chain potential. The traders and middlemen are directly affected by poor communications infrastructure and high cost of transportation.

The respondents stated that while they were unsure of the opportunities that CPEC will bring to their districts, they were confident that increased access to national and export market will be helpful in promotion of MAPs value chain in their areas.

5.2.5 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The below table presents the barriers in exploiting the full potential of MAPs. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Collectors	The current income generation potential is quite low vis-à-vis the level of effort involved. A significant portion of collection is lost before selling	Lack of roads mean that the production areas are hard to reach. High risk of physical injury during collection from pests and reptiles Low daily output/ collection Little knowledge of locally available species and their relative market potential Lack of availability of appropriate tools and protective gear	Improving the supply through availability of capacitated, equipped and knowledgeable local collectors Establishment of market information regarding quality, quantity and time of supply of various MAPs species.	Project beneficiaries who opt to work in this value chain as collectors should be provided knowledge of identification of locally available MAPs species, their use/ significance, safe and responsible collection methods and marketability. Moreover, local collectors should be given awareness and knowledge of semi processing methods of MAPs including washing, drying, cutting and safe storage	Provide a customized training to interested project beneficiaries on identification and prevalence of local MAPs species, their use in medicines and aromatic products, use of protective gear to collect the plants/ herbs and marketing of collected products. The training should also include modules on semi processing including washing, drying, cutting and safe storage The training should be complemented with provision of collector's toolkit
Processors/ Stocking Agents/ Middlemen	Inability to maximize sale price	Lack of awareness of market value of refined plants, as compared to raw collection Lack of knowledge of processing techniques to improve the marketability of collected materials	Capacitating existing market players regarding processing techniques to improve the marketability of collected materials	Interested collectors and separate cadre of processors should be developed as service providers who have good understanding of the processing techniques and marketability of refined and cleaned MAPs. Beneficiary households can be capacitated to provide processing services at local level	Provision of training to interested collectors and aspiring processors on washing, drying, cleaning and storing the MAPs for onward sale in market. Provision of toolkit for adoption of processing and refining techniques.
Wholesalers, Middlemen and Traders	Inability to maximize the domestic and export sales	Low quantity of MAPs collected Lack of linkages with external provincial and national markets	Engagement of wholesalers and traders and linking them with producers to improve efficiency of supply chain	The local wholesalers, middlemen and traders should be linked with provincial markets of Swat/ Mingora and Peshawar, the down country markets of Lahore and Karachi and	Training in market expansion methods for local traders, middlemen and wholesalers. Expanding market will increase the demand of local MAPs, thus impacting indirectly the intended beneficiaries who are involved in various steps of VC.

			Capacity building of wholesalers and traders to expand the market of local MAPs to external markets	exporters. Though wholesalers and traders are not direct intended beneficiaries of NPGP, their engagement to improve marketability and sales will in turn help strengthen the value chain, thus supporting the intended beneficiaries indirectly	Organization of an expo at provincial headquarters where local wholesalers, middlemen and traders can promote locally collected MAPs and national traders and exporters are invited.

5.2.6 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Unskilled labor as collectors
- Processor (Cutting, Drying, Cleaning, Packing, Transportation)
- Local Trader

5.2.7 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	Collector	Training on MAPs collection	A customized training on identification and prevalence of local MAPs species, their use in medicines and aromatic products, use of protective gear to collect the plants/ herbs and marketing of collected products. The training should also include modules on semi processing including washing, drying, cutting and safe storage
		Toolkit	A toolkit containing cutting and storing equipment. The equipment may include scissors, clippers, apron, gloves, plastic sheets, jars etc.
2	Processor (Cutting, Drying, Cleaning, Packing, Transportation)	Training on MAPs processing	Washing, drying, cleaning and storing the MAPs for onward sale in market.
		Toolkit	A toolbox containing equipment needed for processing of MAPs.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as middlemen, traders and MAPs retailers
3	MAPs Trader	Training on collecting MAPs from primary collectors	The training will include modules purchasing and negotiation skills, account and credit management, collection, storage and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and storage equipment.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as down country traders, industrial buyers, local *pansaris* and hakims

5.2.8 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on MAPs is offered by a range of actors across Pakistan.

Training on Processing of MAPs	Pakistan Agricultural Research Council (PARC)	Islamabad
	University of Agriculture Faisalabad	Faisalabad
	Individual trainer	Swat
Training on Collection of MAPs	This is a basic training and is not offered by any institute currently. The agricultural universities and research institutes should be hired to develop a customized course for beneficiaries.	Not applicable
Trader	A business studies institute and technical expert of MAPs can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not applicable

5.2.9 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the MAPs value chain in target districts of Shangla, Upper Kohistan and Lower Kohistan is presented below. NPGP team can make an informed decision based on this on the type and level of engagement for MAPs value chain development:

Set of Interventions for MAPs Value Chain	Resource Intensity
Option 1: Improving locally available MAPs collection, and increasing employment and income generation prospects of poor segments of population by promoting: o Adoption of informed, modern, safe and responsible collection methods o The collectors should be provided information regarding the availability of various marketable MAPs species o Provision of technical, advisory and linkages facilitation support to processing service providers at local level o Adoption of an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in processing and collection o One of the most important characteristics of the MAPs is its being organic. This *organic nature of the produce should be capitalized and explored for export marketing*.	MINIMUM
Option 2: Improving marketability of local produce A: Improve the bargaining powers of the poor and small collectors and local middlemen through: o Formation of Common Interest Groups/ association/ cooperatives B: Supporting improvement in marketability and market access of local MAPs through: o Facilitation of linkages between local traders and provincial, down country and international markets; o Training the local collectors, traders, processors and middlemen in market mechanisms and basic business techniques o Organizing expo at provincial level to showcase the local MAPs species to industrial buyers and export market traders o *Market information system should be initiated on pilot basis in selected markets*, particularly *to know the demand characteristics and demand of the end users* including industrial sector, hakims and export sector.	INTERMEDIATE
Option 3: Facilitating access to extension and business development services including: o Microfinance institutions o Advisory and technical support service providers o Extension service providers (government departments and non-governmental organizations)	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: o Development of MAPs extraction policy through working with forest Department (NTFP Directorate) o Implementation of legal framework to ensure regulatory oversight	MAXIMUM

5.3 Persimmon Value Chain

Black Persimmon (Tor Amluk) and Red Persimmon (Sur Amluk) are two fruits which are found in a number of districts in northern part of Khyber Pakhtunkhwa. The historical production area corresponds to the district of Swat, Shangla, Lower and Upper Dir, Kohistan and Torghar in the province of Khyber Pakhtunkhwa. The silty soil and climactic conditions of this area, surrounded by mountains, are ideal for fruit growing. District Shangla is particularly known for production of high quality of black and red persimmon. In addition to human cultivation of trees, the trees of black persimmon also grow in wild hilly terrains of the district. Therefore, it is quite common for low income and poor households to own up to 10 trees of black persimmon. These are small, cherry-sized fruit grown from seed at 600 – 800 m above sea level.

Red Persimmon (Sur Amluk) is another variant of the persimmon which is produced in this district. In Pakistan, generally it is called as "AMLOK" or "Japanese fruit", though its origin is China. Persimmons can be eaten fresh, dried or cooked. It is commonly used around the world in jellies, drinks, pies, curries and puddings. Amlok are grown on grafted trees and harvested manually. One tree produces an average of 180 kg of fruit. The ripe fruit has a high glucose content and is sweet in taste. Both varieties of persimmon offer high nutritional value and health benefits including heart health, reduction in inflammation, supporting healthy vision and keeping the digestion controlled.

Owing to high prevalence of the persimmon trees and the high quality of locally produced fruit, these form an important part of local economy. While the value chain is already established and is working efficiently, there is room for low income households engaged at various steps within these value chains to earn improved income from this trade.

5.3.1 Key Actors of Persimmon Value Chain

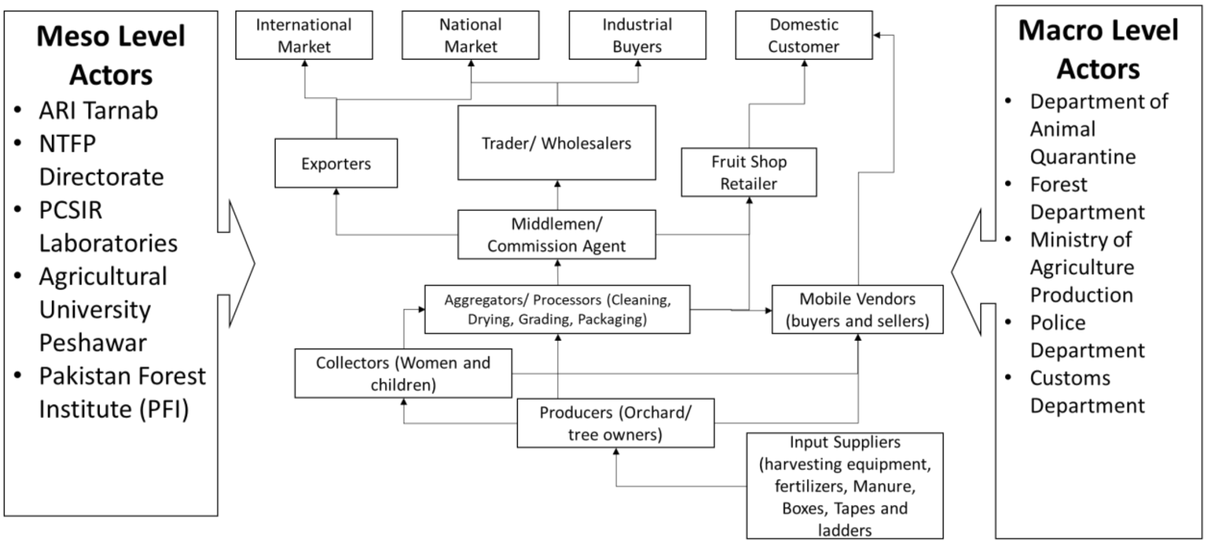
The below table presents major actors/ stakeholders at micro, meso and macro level who are engaged or have an impact on the value chain:

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (harvesting equipment, bags, sticks, fertilizers, manure, boxes, tapes, ladders, cartons) ▪ Producers ▪ Collectors ▪ Processors (grading, packaging) ▪ Mobile Vendors/ Middlemen/ Commission agents ▪ Wholesalers, Traders ▪ Retailers (Fruit shops, Fruits markets) ▪ Consumer	▪ ARI Tarnab ▪ NTFP Directorate ▪ PCSIR Laboratories ▪ Agricultural University Peshawar ▪ Pakistan Forest Institute (PFI)	▪ Department of Animal Quarantine ▪ Forest Department ▪ Ministry of Agriculture Production ▪ Police Department ▪ Customs Department

In the context of Shangla, districts where the Persimmon value chain has been prioritized, the team carried out interviews with a range of the above listed actors to understand the relationships and supply chain.

5.3.2 Map of Persimmon Value Chain

Based on the insights obtained, the value chain map showing the relationships of micro-level operators is presented below:



5.3.3 Market Dynamics

Many low-income households who own persimmon trees at their land are engaged in producing and selling the fruit. Since the tree naturally grows in the district, not much is needed in terms of inputs for black persimmon. Tor Amluk trees flower from February to April and fruit is ready for harvest in early November. The persimmons turn black at maturity and have a dark brown to black pulp with 4 – 6 seeds. The fruit turns black at maturity and has a dark brown to black pulp with seeds. One plant produces an average of 30 to 45 kg of fruit. The fruit is left to dry on the trees before being collected. Tor Amluk are harvested manually or with manual tools used to reach taller branches and fruits are knocked to the ground. The harvest time is selected by testing whether the fruit falls from the branch when shaken. In addition, poor households work in orchards for collection, grading, drying and packaging. The value chain is particularly relevant to women who work as skilled and unskilled labour in the collection process. Traditional and specific growing techniques have been passed down from generation to generation. The produce is sold locally for consumption as well as exported to other national and international markets.

As far red persimmon, the orchards and small-scale producers grow these through grafting. The fruit matures late in the fall and can stay on the tree until winter. In colour areas, the ripe fruit ranges from glossy light yellow-orange to dark red-orange depending on the species and variety.

The persimmon production provides seasonal employment to the small-scale producers and other poor households from September to January. They sell the fruits at the road sides to the tourists or on the wheel barrow on the road side.

In addition, some large traders purchase the entire orchards from the producers and hire the skilled labours for picking, grading and packing. The packed persimmons boxes supplied in big quantities to the markets in Lahore, Rawalpindi, Karachi and other cities. The exporters take money in advance from the main market commission agents and purchase the crop. Then the traders are bound to supply the product to these commission agents at the time of harvesting. During the fruit harvest season, score of workers can be seen in the gardens and orchards picking persimmon and earning a handsome amount of money.

Since the price of red persimmon is low during the season due to high supply, some skilled households also engage in drying the fruit using solar dryer and selling it during off season months. This not only helps provide yearlong income generation opportunity but also provides better sale price. Increasing the knowledge and skills of handling and storing the dried fruits can provide an avenue to poor households to earn more money from their produce.

In view of the above insights into market dynamics, the direct beneficiaries of NPGP can be engaged at various steps of the value chain, particularly at the input supplies, production, collection, aggregation and processing.

Supply areas (sources)	Period of supply	Markets
Small scale tree owners of black persimmon	Cultivation in February Harvest from August – November	Domestic wholesale and retail market
Small scale tree owners of red persimmon	Cultivation in February Harvest from August – November	Domestic wholesale and retail market
Services as unskilled labor for collection	Harvest from August – November	Local orchard owners Mobile traders
Services as skilled labor for collection	Harvest from August – November	Local orchard owners Mobile traders
Retail sellers	After the harvest from September to January	Road side or wheel barrow

Pest and insecticide attacks on the trees and collected fruit result in loss of produce. In addition, wind storms, heavy rains, flash floods and weather conditions also affect the production and sale. The large-scale producers interviewed stated that they tend to outsource collection, packing and transportation to external parties including local labor and mobile vendors. Some of them stated that they have seen increase in produce on usage of fertilizers and medicines on red persimmon trees.

A large proportion of small- and large-scale producers stated that they'd like to have the opportunities at local level to receive training on plant protection, packing, reducing wastage, disease identification and safe storage.

While some of the producers had obtained credit to expand their businesses, this was done predominantly by large scale producers. The sources of financing included Commission Agents, Mobile Traders and relatives. None of the producers had accessed credit through formal channel though. In case of first two, the condition of loan was obligation to sell the produce to these loan providers.

Much like other locally produced items, the local producers were confident that CPEC will provide increased opportunity to export the product across the country and increase the profit margins by reducing the cost of transportation. Moreover, they believe that wastage will also reduce as a result of decreased transportation time.

The inputs are readily available in the local markets including harvesting equipment, fertilizers, manure, boxes/ cartons, bags, tapes, sticks and ladders. Majority of these inputs were imported from other districts, especially Swat and were not produced locally.

The producers, input suppliers, middlemen and retailers all agreed that the prices of inputs and sale prices had increased in the past three years. In addition, the supply and demand of locally produced fruit has also increased.

5.3.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The below table presents the barriers at various steps of domestically produced Persimmon value chain. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Small Scale Producers	Inability to maximize income from production	Low number of trees owned Lack of knowledge of diseases, medicines and other protective measures Wastage of produce due to poor handling and storage techniques Lack of knowledge of primary processing (cleaning, drying and grading)	The poor households who own trees can increase their income by cultivating new trees and more effective and efficient management of available trees.	The knowledge and skill level of small-scale producers should be increased in cultivation, management, disease identification and prevention/ treatment, collection and storage The local small-scale producers should be provided equipment/ tools to perform primary processing i.e. cleaning, packing at household level to increase the sale prices Provision of new plants to the small-scale producers for increased cultivation	Provide new plants and collection and storage toolkits/ equipment to small scale producers. For Harvesting: Moveable ladder, long bamboo sticks and cloth sheets; For Packaging: Container/ storage box, Knives/ cutters, wrapping papers and cartons. Provide training to the small-scale producers on disease identification and treatment. The training should also include modules on basic processing skills
Collection Workers – Unskilled Labor	Low daily labor rates Physical hazards of collection work	Lack of skill to provide processing services in addition to collection Lack of access to protective gear	A large proportion of unskilled labor working on collection is from poor households. Their skills can be enhanced to get involved in the processing and packaging work	The unskilled labor should be provided protective gear to improve safety of collection work. The interested beneficiaries should be trained in processing skills to improve their income generation potential	Provision of safety gears to collectors and basic training on safe and effective collection methods Provision of training to unskilled labor on processing (drying, grading and packing) methods.
Mobile Agents/ Traders	Inability to enter the value chain as mobile traders/ middlemen	Lack of linkages with external markets and large traders Lack of investment to initiate the trading work Lack of enterprise development and management skills	If provided adequate capacity building opportunity and access to financial capital, a number of poor households can engage in the value chain as middlemen/ mobile traders. While they have	Interested project beneficiaries should be provided capacity building opportunity, linkages development facilitation support and knowledge of enterprise development and management to enter this market Access to credit facilities can help them build their businesses in future	Provision of training to interested beneficiary households in enterprise development and management. The training should include exposure visits to markets of provincial capital and other provinces.

			the downward social capital i.e. networks with producers, they are unable to utilize this to work as middlemen due to lack of linkages to external markets.		An extensive module on basics of enterprise development and management, particularly the local market dynamics, should be added. The training should be completed with provision of equipment/ inputs to initiate the work at small scale. Improving access to finance through provision of credit can also help them expand the business.

5.3.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Small Scale Producers/ Grower
- Service Provider as Processors (Drying, grading, packaging)
- Mobile Traders/ Middlemen
- Retailers (Fruit shops, Fruits markets)

5.3.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	Small Scale Producers/ Grower	Training on Small Scale Persimmon Production	Training on yield maximization methods, disease identification and treatment, harvesting/ collection and basic processing skills
		Toolkit and inputs	Provide new plants and collection and storage toolkits/ equipment to small scale producers. For Harvesting: Moveable ladder, long bamboo sticks and cloth sheets; For Packaging: Container/ storage box, Knives/ cutters, wrapping papers and cartons
2	Service Provider as Processors (Drying, grading, packaging)	Training on Persimmon Processing	Training on using solar dryers, grading and packaging of persimmon.
		Toolkit	A toolbox containing equipment needed for processing of persimmon.
		Job placement support	Facilitating job placement with medium and large-scale persimmon producers
3	Mobile Traders/ Middlemen	Training on collecting Persimmon from primary producers	The training will include modules purchasing and negotiation skills, account and credit management, collection, storage and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and storage equipment.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as down country traders, industrial buyers, local retailers

5	Retailers (Fruit shops, Fruits markets)	Equipment and enterprise starting inventory package	Provision of a package of equipment which can help beneficiaries start their enterprise. In kind financial assistance by filling starting inventory for sale to kick start the enterprise.
		Training on procurement of persimmon from local producers or middlemen.	A customized training course which will include modules on local supply chain of persimmon, efficient procurement and negotiations methods, enterprise management and expansion techniques.

Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on Persimmon farming is offered by a range of actors across Pakistan.

Training on fruit handling	ARI Saryab	Quetta
	ARI Mingora	Swat
	ARI Tarnab	Peshawar
Training on Persimmon Production at Small Scale	ARI Saryab	Quetta
	ARI Mingora	Swat
	ARI Tarnab	Peshawar
Mobile Traders/ Middlemen	A business studies institute and technical expert of fruit farming and handling can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not applicable
Retailers (Fruit shops, Fruits markets)	A business studies institute and a technical expert of fruit farming and handling can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not applicable

5.3.7 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the Persimmon value chain in target district of Shangla are presented below. NPGP team can make an informed decision based on this on the type and level of engagement for Persimmon value chain development:

Set of Interventions for Persimmon Value Chain in Shangla	Resource Intensity
Option 1: Improving productivity, thus increasing employment and income generation prospects of poor segments of population by: ○ Providing inputs to small scale producers ○ Improving knowledge of cultivation, harvesting and processing methods; ○ Provision of technical, advisory and linkages facilitation support to processing service providers at local level ○ Preparing a skilled cadre of processing agents at local level ○ Adopt an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in production, collection and processing	MINIMUM
Option 2: Improving marketability of local produce <u>A</u>: Improve the bargaining powers of the poor and small producers through: ○ Formation of Common Interest Groups/ association/ cooperatives <u>B</u>: Supporting improvement in marketability and market access of locally produced persimmon through: ○ Developing export outlets in the district; ○ Developing and facilitating linkages between local and external stakeholders of the value chain. ○ Training the producers in market mechanisms and basic business techniques	INTERMEDIATE
Option 3: Facilitating access to extension and business development services including: ○ Credit facilities (PMIFL and MFIs) ○ Agriculture extension services ○ Advisory and technical support service providers	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: ○ Advocating for improved physical infrastructure ○ Implementation of legal framework to ensure regulatory oversight	MAXIMUM

5.4 Small Scale Goat Farming Value Chain

The small scale goat farming value chain for Pakistan is highly informal. Despite that, it should be recognised that the goat value chain contributes significantly to the livelihoods of the majority of the poor. The results of the secondary and field research suggest that women and youth are highly involved in goat rearing at household level. The low financial capital, low cost of input and higher disease resistance as compared to other livestock are amongst the key factors contributing to high interest and involvement of poor households in the production.

In view of the context and intended beneficiaries of NPGP, the focus in subject market assessment was on small scale goat farming. The secondary and primary research shows that the value chain is relevant across all target districts of Khyber Pakhtunkhwa and Balochistan and has high potential of engagement of poor households at various steps of the chain.

The goat value chain main actors are linked vertically by the functions they perform at different levels of the value chain through moving a product or service from primary producers all the way up to the end markets. The producers relate with other value chain players vertically through sharing responsibilities for improving individual goat rearing.

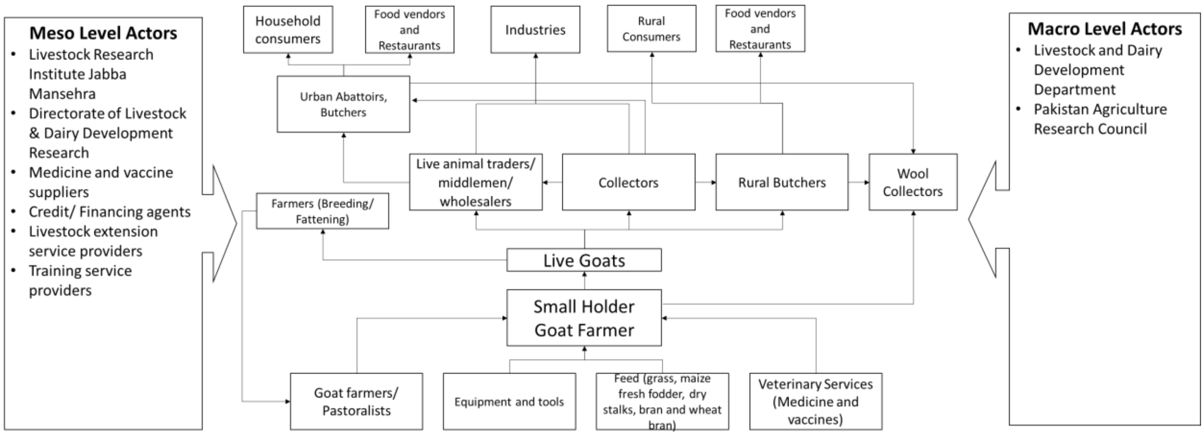
5.4.1 Key Actors of Value Chain

The below table presents various micro, meso and macro level stakeholders who participate or impact the value chain:

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (Goat farmers/ pastoralists, medicines, vaccination, feed (Grass, Maize fresh fodder, dry stalks, bran and wheat bran), butchering equipment, meat packaging supplies) ▪ Primary producers/ small holder goat farmers ▪ Live animal traders/ middlemen/ wholesalers ▪ Wool collectors/ traders ▪ Abattoirs/ Butchers ▪ Goat fattening/ rearing agents ▪ Meat retailers (butchers, supermarkets, restaurants) ▪ Consumer	▪ Livestock extension service providers ▪ Credit/ Financing agents ▪ Medicine and vaccine suppliers ▪ Training service providers ▪ Livestock Research Institute Jabba Mansehra ▪ Directorate of Livestock & Dairy Development Research	▪ Livestock and Dairy Development Department ▪ Pakistan Agriculture Research Council

5.4.2 Map of Small-Scale Goat Farming Value Chain

In the context of all 13 target districts of KP and Balochistan, the team carried out interviews with a range of the above listed actors to understand the relationships and supply chain. Based on the insights obtained, the value chain map showing the relationships of micro-level operators is presented below:



5.4.3 Market Dynamics

The direct beneficiaries of NPGP can be engaged at multiple steps of the value chain including farming of goats, collectors and butchers. The demand of goats and meat is high at domestic, community, rural and urban markets.

Supply areas (sources)	Period of supply	Markets
Local/ Domestic Farming	Across the year	Local and external markets
Butcher Shop	Across the year	Local markets

The inputs used in the production of goat meat are locally found in the production areas and usually they are for free because of the feeding systems used in raising goats. The main source of feed is crop residues, seconded by wheat bran, chickpeas, etc. Main inputs for the goat value chain include the goats for rearing; the maize fresh fodder, dry stalks, bran, wheat bran, etc., as extra feed for feeding the goats after returning from browsing grass or free ranging and tethering; and medication for treating and vaccinating goats against diseases.

As regards procurement of inputs accessibility to and availability of varieties required as well as related standards and information, there are no real procurement issues for inputs since most of the feed used in goat farming is free feed with the exception of bran which is used for supplementary feeding.

Seasonal fluctuations in feed supply and quality and infestations with parasites affect body weight changes and mortality, especially of kids. In all systems, crop residues are sometimes utilized when crops have been harvested.

Typically, a small holder farmer keeps an average of 6 goats. Collectors and traders, after buying the goats from farmers, sell the goats to butchers and sometimes they sell direct to end consumers. The butchers slaughter the goats and sell it as meat to end consumers at local markets and along the road sides. Goat meat retailers are the same butcher men who after slaughtering the goat, they start selling the goat meat per kg while the goat carcass is also sold to the aggregators of tanning industry. The majority of the goat meat is sold through the open markets in the rural areas.

Other stakeholders (Supporters and Influencers) are basically, service providers. They offer services such as supplying inputs to farmers, providing funding, goat breeding for improved goat characteristics and extension services. The frontline extension workers are means by which the Government through the Ministry of Livestock interfaces with and provides extension services to smallholder farmer.

Changing weather and climatic conditions are affecting the supply of raw materials for inputs especially natural vegetation. When there is a shortage of rainfall, there is a shortage of fodder.

Goat production is dominated by small-scale producers as individuals.

Among the constraints facing the goat value chain include low genetic potential of the goats considering that over 90% of the goat population is local, problems of providing improved husbandry and management (such as disease control and housing) is also very common, the absence of marketing policies, poor attitudes towards goat keeping and inappropriate extension strategies for goat keeping, are among the constraints facing the value chain.

As for meat processing, traditional methods are used to slaughter the goats and there is no refrigeration of meat and cutting it on machines. The skins are sold to aggregators who then sell to tanneries. The aggregators offer a little price of the skins, if it is bearing any cut. Secondary processing, packaging, marketing and distribution is also do in the supermarkets, which are found in big cities.

The goat output market is informal. Vendors who go around the villages looking for goats to buy and resale are the main buyers of goats. Butchers are another type of goat buyer. These buy goats from the primary producers in the villages or they buy from vendors who have already bought the goats from the primary producers. The market for goats at the primary producer level is of live goats. 71% of the sales are for live goat sales while only 14% of sales are sales in the form of goat meat. The butchers, once they have slaughtered the goats, they sell the meat to various end markets mainly to restaurants, local people at local markets and passers by the road side. Vendors apart from selling the live goats to butcher men, they also sell the live goats to restaurants and other end markets through individuals buying live goats for own slaughter for home use.

There is free entry and exit into the goat value chain. It is very easy to enter and exit the value chain because it does not require a lot of resources to start the business since the main investment cost are the goats for rearing.

5.4.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The barriers at different levels which hinder this are presented below. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producer/ Goat Farmers	Lack or low number of goats and poor breed of goats leading to low income generation potential	Lack of awareness of income generation potential of small-scale goat farming Lack of surplus production leading to little or no exposure of outside market Lack of access to good breed of goats Lack of investment to procure larger quantities of inputs to increase their production Lack of knowledge of modern small-scale goat farming practices which leads to loss of animals Lack of protection against outbreak of diseases	If technical and financial support is provided to poor beneficiary households, they can start exploiting the income generation potential of small-scale goat farming. In addition, increased production will offer increased opportunity of household consumption for dietary diversity and nutritional value to poor households (especially women and children).	Interested project beneficiaries should be supported in starting/ expanding small scale goat farming work. Support should be provided by providing them inputs to start farming and linking them to input suppliers to expand their work. Access to extension services should be ensured through privately trained cadre of extension workers under NPGP, private or public sector service providers.	Training of interested beneficiary households in modern small-scale goat farming methods. The training should include use of quality input supplies, the supply chain actors in their areas and accessing extension services. Linkages development of producers with input suppliers, vendors and middlemen to increase the production and sale of their surplus produce. Exposure visit of beneficiaries to successful small-scale goat farms in and around their areas. Provision of goats for starting/ expanding work. Provision of toolkit/ inputs to complement the technical support
Collectors	Low collection due to lack of social and financial capital and low supply of live animals	The new entrants face multitude of challenges in starting work as collectors. While they have the social capital and networking with small holder farmers, they lack linkages with the traders, middlemen and butchers. Difficulty in accessing remote villages to purchase goats and	With a number of small-scale producers already working on production and more to be supported under NPGP, a cadre of mobile vendors/ collectors can be developed. Collectors visit villages in their respective areas and buy goats from farmers. If provided adequate inputs to start the work including tools, transport and facilitation in	Interested project beneficiaries should be provided technical and financial support to start work as collectors. The support will include improving knowledge of small-scale goat farming trends and market dynamics. The financial support can be provided in the form of provision of equipment (storage,	Customized training of interested beneficiaries in goat collection, shelter and transportation methods. The training should also include business and financial management modules. Development of linkages of collectors with beneficiary producers and capacity building in expanding their enterprise. Provision of a toolkit/ equipment to facilitate

		transporting it to markets)	accessing production and sale markets, the value chain can be made efficient.	vehicle/ transportation facilities). Moreover, backward and forward linkages can help them work as important members of the value chain.	development of enterprise. This may include a small vehicle and storage bags. Development of linkages with potential buyers at the rural, town and city markets.
Butchers	Limited ability to start and/ or expand the butchering enterprise	Slaughtering, storing and packaging of meat requires technical knowledge. Lack of this knowledge does not allow the poor households to get maximum profit from goat meat sales. Lack of financial capital also limits the ability of aspiring butchers. Lack of technical skills to provide services as butchers to industrial and large-scale meat buyers	Providing services as skilled labor at large scale production units and small, medium and large-scale goat meat processing units can serve as a useful employable skill for the youth of beneficiary households. Youth can opt to find employment with large scale producers and traditional and large-scale processors. In addition, they may also opt to set up their own butcher enterprises.	Interested members of beneficiary households should be provided skills to help them offer their services to large scale goat farms and processing units. Moreover, they can also be provided technical and financial assistance in setting up their own small-scale butcher enterprises (meat shop etc.).	Training of interested youth of beneficiary households on various large meat processing units. Assisting the trained youth in job placement with large scale goat farms. Training interested youth in butchering, meat processing, packaging. The program can then facilitate their placement at town and city markets as well as large scale industrial processors. Training of interested households in establishing small scale butchering enterprises which can be set up at rural, town and city markets. They can be provided equipment and tools to start their enterprise. The training will also include modules on business expansion and linkages development with food vendors and retailers.

Since the value chain is well established in the target districts, a cadre of middlemen, traders and wholesalers already exists in each district. They are already working efficiently to maximize their profits. The linkages of poor project beneficiaries with these actors can be facilitated by the project to ensure that the above-mentioned actors can seamlessly become part of the value chain.

5.4.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Small Scale Goat Farming
- Goats Trader
- Skin collectors and sellers
- Butchers and Retail Meat Sellers

5.4.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	Small Scale Goat Farming	Training on small scale goat farming methods	This will include modules on inputs, goat farming methods, equipment needed. Equipment usage methods, diseases and treatment, feeding patterns and other relevant topics
		Tools and inventory	Feeding pots, cleaning equipment, milking tools and a herd of baby goats
		Facilitate linkages with extension service providers	Private, government or non-governmental service providers in the area
2	Goats Trader	Training on collecting goats from goat farmers	The training will include modules purchasing and negotiation skills, account and credit management, collection, storage, and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and preparation of storage space.
		Facilitation of forward and backward linkages development	Assisting the beneficiaries in developing linkages and strengthening networks with producers as well as middlemen, traders and butchers
3	Skin collectors and traders	Training on collecting skin from small scale goat farmers	The training will include modules purchasing and negotiation skills, account and credit management, collection, storage, and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and preparation of storage space.
		Facilitation of forward and	Assisting the beneficiaries in developing linkages and strengthening networks with producers as well as wool middlemen and traders

		backward linkages development	
4	Butchers & Retail Meat Sellers	Training on butchering of goats	Training on butchering, meat cleaning, processing and packaging.
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a butchering equipment, cage and furniture.
		Job placement support	Facilitating job placement with large scale and industrial meat merchants
		Equipment and enterprise starting inventory package	Provision of a package of inventory which can help beneficiaries start their enterprise. In kind financial assistance by filling starting inventory for sale to kick start the enterprise.
		Training on procurement of goats from small scale goat farmers or middlemen.	A customized training course which will include modules on local supply chain of goat farming, efficient procurement and negotiations methods, enterprise management and expansion techniques.

5.4.7 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on small scale goat farming is offered by a range of actors across Pakistan.

Small Scale Goat Farming	Government Vocational and training institutes/centers	All over Pakistan
	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	Punjab Skilled Development Fund	Lahore
Goats Trader Skin collectors and traders	A business studies institute and technical expert of MAPs can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not applicable
Butchers Retail Meat Seller	This is a basic training and is not offered by any institute currently. A customized course can be developed and delivered by technical sectoral experts and business studies academics.	Not applicable

5.4.8 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the Goat Farming value chain in target districts Khyber Pakhtunkhwa and Balochistan is presented below. NPGP team can make an informed decision based on this on the type and level of engagement for small scale goat farming value chain development:

Set of Interventions for Small Scale Goat Farming Value Chain	Resource Intensity
Option 1: Improving production of small scale goat farming, and increasing employment and income generation prospects of poor segments of population by promoting: ○ Adoption of modern goat farming methods (For instance feed lot fattening) ○ Improved access to quality inputs and extension services ○ Development of local enterprises and service providers who link production to markets ○ Provision of technical, advisory and linkages facilitation support to processing service providers at local level ○ Adoption of an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in farming methods	MINIMUM (Option 1)
Option 2: Improving marketability of local produce <u>A</u>: Improve the bargaining powers of the poor and small-scale producers and local middlemen through: ○ Formation of Common Interest Groups/ association/ cooperatives <u>B</u>: Supporting improvement in marketability and market access of small holder farmer through: ○ Facilitation of linkages between local vendors/ collectors with middlemen, wholesalers, processors, traders and food vendors; ○ Capacitating the local value chain actors (collectors, processors and middlemen) in market mechanisms and basic business techniques	INTERMEDIATE (Options 1–2)
Option 3: Facilitating access to extension and business development services including: ○ Credit facilities (PMIFL and MFIs) ○ Advisory and technical support service providers ○ Extension service providers (government departments and non-governmental organizations)	OPTIMUM (Options 1–3)
Option 4: Facilitating and advocating for a conducive regulatory environment: ○ Implementation of legal framework to ensure regulatory oversight	MAXIMUM (Options 1–4)

5.5 Small Scale Poultry Value Chain

Commercial Poultry is one of the largest agro-based segments of country's economy having an investment of more than 1,168 Billion rupees[5]. Poultry Industry of Pakistan is making a tremendous contribution in bridging the gap between supply and demand of meat protein. The industry generates

[5] As per the statistics published by Pakistan Poultry Association on their official website

employment and provides source of income to more than 1.5 million people of Pakistan directly and indirectly. While large scale poultry farming has grown exponentially across the country, small scale farming has remained highly relevant across all areas of Pakistan. The case studies from and experiences in developing countries and in the diverse contexts of Pakistan have shown that small scale farming provides a multitude of opportunities including promoting dietary diversity and income generation opportunity. In view of the context and intended beneficiaries of NPGP, the focus in subject market assessment was on small scale poultry farming. The secondary and primary research shows that the value chain is relevant across all target districts of Khyber Pakhtunkhwa and Balochistan and has high potential of engagement of poor households at various steps of the chain. In fact, a large proportion of poor population is already engaged in this sector for domestic consumption of meat and eggs.

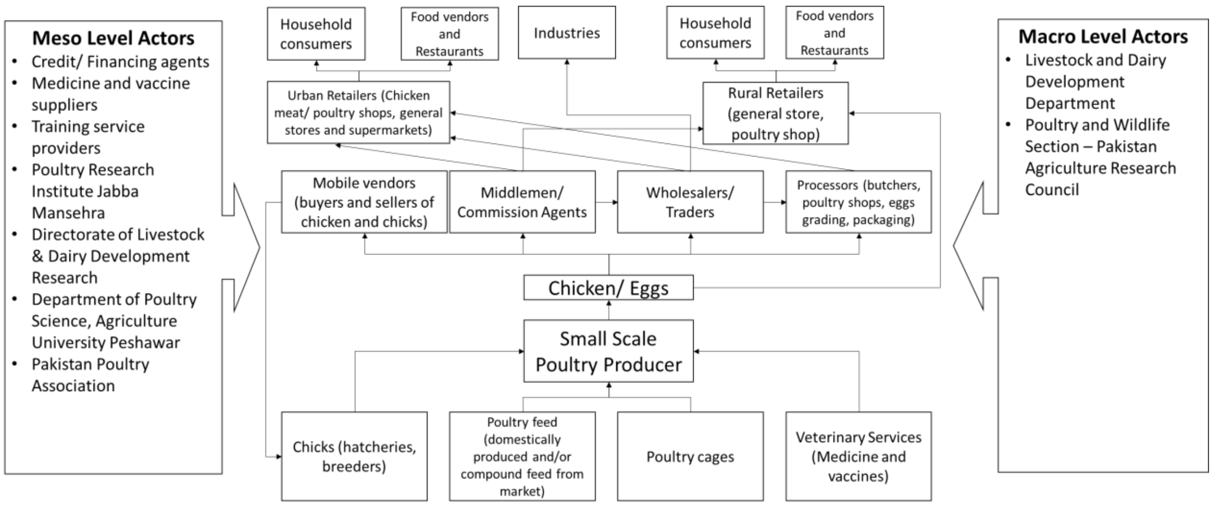
5.5.1 Key Actors of Small-Scale Poultry Farming Value Chain

The below table presents various micro, meso and macro level stakeholders who participate or impact the value chain:

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (chicks, poultry feed, poultry cages, veterinary medicines) ▪ Poultry producers (Chicken and eggs) ▪ Local mobile vendors (buyers and sellers)/ Transporters ▪ Middlemen/ Commission Agents ▪ Wholesalers/ Traders ▪ Processors (formal abattoirs, butchers, poultry shops, egg packaging) ▪ Urban Retailers (Chicken meat/ poultry shops, general stores and supermarkets) ▪ Urban Buyers/ Consumers (household, industries, food vendors, restaurants, hotels) ▪ Rural Retailers (general store, poultry shop) ▪ Rural consumers (food vendors/ restaurants, households)	▪ Extension service providers ▪ Credit/ Financing agents ▪ Medicine and vaccine suppliers ▪ Training service providers ▪ Poultry Research Institute Jabba Mansehra ▪ Directorate of Livestock & Dairy Development Research ▪ Department of Poultry Science, Agriculture University Peshawar ▪ Pakistan Poultry Association	▪ Livestock and Dairy Development Department ▪ Poultry and Wildlife Section – Pakistan Agriculture Research Council

5.5.2 Map of Small-Scale Poultry Farming Value Chain

In the context of all 13 target districts of KP and Balochistan, the team carried out interviews with a range of the above listed actors to understand the relationships and supply chain. Based on the insights obtained, the value chain map showing the relationships of micro-level operators is presented below:



5.5.3 Market Dynamics

The direct beneficiaries of NPGP can be engaged at multiple steps of the value chain including input supplies, production of chickens and eggs, middlemen, wholesalers, processors, mobile vendors and retailers. The demand of two main products i.e. meat and eggs, is high at domestic, community, local market and larger market levels.

Supply areas (sources)	Period of supply	Markets
Local/ Domestic Production of <u>Eggs</u>	Across the year	Domestic and external markets
Local/ Domestic Production of <u>Chickens</u>	Across the year	Domestic and external markets
Local mobile vendor enterprise (buying and selling)	Across the year	Domestic and external markets
Local processing and retail enterprise (poultry shop)	Across the year	Domestic Market

While the poor households of project districts already have good familiarity with the value chain, especially the input supplies and production steps, the work is done at a very limited scale to meet household needs and very small amounts of surplus are sold within the communities. A large majority of the small-scale producers have inherited the basic skills and knowledge. The value chain also has very high involvement of women who play an active role in feeding, taking care of the birds, egg collection, cleaning and processing at their homes. The production potential and output of small-scale farming of local species can be greatly enhanced to offer income generation opportunities to poor households.

Due to extreme weather conditions, natural disasters (flash floods), inappropriate handling methods, outbreak of diseases, and mortality, up to 20% produce is lost. Majority of interviewed producers stated lack of proper sheltering facility is a major contributor to loss of produce. Availability of vaccination at the village level combined with quality inputs and improved sheltering facilities can help the poor households produce more surplus for sale, after household consumption.

The price of input, produced domestically as well as that procured from the market, has increased over the last three years as a result of inflation. The input suppliers stated that the demand has also increased in the past few years, particularly the feed and medicines/ vaccination.

The traders, middlemen and commission agents collect the locally produced chickens and eggs and sell it locally as well as in city markets. The price obtained from external markets is slightly higher than the local sale price; which is why they prefer to sell it in nearby cities. The demand of local species (desi chicken) has increased over the past few years, especially in the larger cities with a growing demand of organic food items.

All stakeholders agreed that the highest potential of entry of poor population lied in production. There is also room for developing linkages with traders and middlemen working out of town markets through introduction of collectors/ aggregators. The enterprises of trade and middlemen can be started with an investment of up to 500,000 rupees; however, the market is already saturated in this respect.

There are no strict regulations which the micro level actors and small-scale producers are obliged to conform to. Therefore, entry into this value chain at the basic steps is easy.

5.5.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The barriers at different levels which hinder this are presented below. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Input Supply	Lack of access to supply of quality inputs including feed, medicines, latest information of disease outbreak and treatment and vaccination	Lack of outreach of poultry extension services in remote rural areas High prices of quality feed sold commercially Lack of latest knowledge on quality of inputs	Improving access to quality inputs to small scale poultry farmers including extension services, feed, vaccination, medicines and other inputs can help reduce the loss of production	In addition to advocating with the government to increase the outreach of its extension services for small scale poultry farmers, a cadre of local input suppliers should be developed in each district. They should be linked to project beneficiaries to start their enterprises and should also be capacitated in enterprise development and business expansion to reach other small-scale poultry farmers.	Interested NPGP beneficiaries provided extensive training in the provision of input supplies and extension services to small scale poultry farmers. Linkages development with NPGP beneficiaries who opt to start work in production of poultry with programme support. A follow up training for the input supply agents on business expansion, financial management and networking to reach non-beneficiary households to sell inputs. Offer technical and advisory support to trained input suppliers on extension services and purchase of inputs for onward sale. Exposure visit of trained input suppliers to larger markets and medium to large scale poultry farms Provision of a package of inputs to start their enterprises
Producer (Eggs and chicken)	Low number of birds/ chickens for production and resultant low output in terms of number of chickens produced hinders the income generation potential of	Lack of awareness of income generation potential of small-scale poultry farming Lack of surplus production leading to	If technical and financial support is provided to poor beneficiary households, they can start exploiting the income generation potential of small-scale poultry farming. In addition,	Interested project beneficiaries should be supported in starting/ expanding small scale poultry farming work. Support should be provided by providing them inputs to	Training of interested beneficiary households in modern small-scale farming methods. The training should include use of quality input supplies, the supply chain actors

	small-scale poultry farmers	little or no exposure of outside market Lack of investment to procure larger quantities of inputs to increase their production Lack of knowledge of modern small-scale poultry farming practices which leads to loss of birds/ eggs Lack of protection against outbreak of diseases	increased production will offer increased opportunity of household consumption for dietary diversity and nutritional value to poor households (especially women and children).	start farming and linking them to input suppliers to expand their work. Access to extension services should be ensured through privately trained cadre of extension workers under NPGP, private or public sector service providers.	in their areas and accessing extension services. Linkages development of producers with input suppliers, vendors and middlemen to increase the production and sale of their surplus produce. Exposure visit of beneficiaries to successful small-scale poultry farms in and around their areas. Provision of toolkit/ inputs to complement the technical support
Mobile Vendors	Low input and output leading to low income generation potential	Low surplus produce available for purchase which can be sold in nearby rural, town and city markets Difficulty in accessing remote villages to purchase poultry and transporting it to markets) Poor linkages with potential buyers (middlemen, wholesalers, traders and food vendors)	With a number of small-scale producers already working on production and more to be supported under NPGP, a cadre of mobile vendors can be developed. Mobile vendors visit villages in their respective areas and sell chicks and other required inputs and purchase chicken and eggs from farmers. If provided adequate inputs to start the work including tools, transport and facilitation in accessing production and sale markets, the value chain can be made efficient.	Interested project beneficiaries should be provided technical and financial support to start work as mobile vendors. The support will include improving knowledge of small-scale poultry production trends and market dynamics. The financial support can be provided in the form of provision of equipment (storage, vehicle/ transportation facilities). Moreover, backward and forward linkages can help them work as important members of the value chain.	Customized training of interested beneficiaries in poultry farming and collection, storage and transportation methods. The training should also include business and financial management modules. Development of linkages of mobile vendors with beneficiary producers and capacity building in expanding their enterprise. Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a small vehicle, protective materials for collection and storage bags. Development of linkages with potential buyers at the rural, town and city markets.
Processors (formal	Lack of technical knowledge and monetary	Slaughtering, storing and packaging of meat,	Providing services as skilled labor at large scale	Interested members of beneficiary households	Training of interested youth of beneficiary households on

abattoirs, butchers, poultry shops, egg packaging)	resources to provide processing services	grading and packaging of eggs requires technical knowledge. Lack of this knowledge does not allow the poor households to enter into the processing market. Establishing a processing unit (poultry shop) requires monetary resources which the poor households do not have. Lack of technical skills to work with large scale poultry producers as part of production taskforce and at processing units.	production units and small, medium and large-scale chicken and eggs processing units can serve as a useful employable skill for the youth of beneficiary households. Youth can opt to find employment with large scale producers and traditional and large-scale processors. In addition, they may also opt to set up their own processing and retail enterprises.	should be provided skills to help them offer their services to large scale poultry farms and processing units. Moreover, they can also be provided technical and financial assistance in setting up their own small-scale processing enterprises (poultry shop, meat shop etc.).	various technical and managerial aspects of industrial poultry farming (controlled sheds). Assisting the trained youth in job placement with industrial poultry farms (controlled sheds). Training interested youth in butchering, meat processing, packaging, eggs grading and eggs packaging methods. The program can then facilitate their placement at town and city markets as well as large scale industrial processors. Training of interested households in establishing small scale poultry processing enterprises which can be set up at rural, town and city markets. They can be provided equipment and tools to start their enterprise. The training will also include modules on business expansion and linkages development with food vendors and retailers.

Since the value chain is well established in the target districts, a cadre of middlemen, traders and wholesalers already exists in each district. They are already working efficiently to maximize their profits. The linkages of poor project beneficiaries with these actors can be facilitated by the project to ensure that the above-mentioned actors can seamlessly become part of the value chain.

5.5.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Small Scale Poultry Farmer
- Small Scale Layer Farming
- Mobile Vendors/ Middlemen
- Retail Poultry Shop

5.5.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	Small scale poultry production	Training on small scale poultry farming methods	This will include modules on inputs, farming methods, equipment needed. Equipment usage methods, diseases and treatment, feeding patterns and other relevant topics
		Tools and inventory	Cage, feeding pots, cleaning equipment, and a herd of chicken etc.
		Facilitate linkages with extension service providers	Private, government or non-governmental service providers in the area
2	Small Scale Layer Farming	Training on small scale layer farming methods	This will include modules on inputs, farming methods, equipment needed. Equipment usage methods, diseases and treatment, feeding patterns and other relevant topics
		Tools and inventory	Required tools for the production
		Facilitate linkages with extension service providers	Private, government or non-governmental service providers in the area
3	Mobile Vendors/ Middlemen	Training on selling input supplies and buying chicken and eggs produce	The training will include modules on selling and buying. Selling inputs: Locally used inputs, efficient procurement methods, market of input supplies, setting up a mobile enterprise, business management and expansion methods and networking techniques. Buying Produce: Purchasing and negotiation skills, account and credit management, collection, storage and transportation methods
		Toolkit/ equipment	Provision of a toolkit/ equipment to facilitate development of enterprise. This may include a vehicle (bike or bicycle) and storage equipment.

		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as middlemen, traders and poultry shops
4	Retail Poultry Shop	Equipment and enterprise starting inventory package	Provision of a package of inventory which can help beneficiaries start their enterprise. In kind financial assistance by filling starting inventory for sale to kick start the enterprise.
		Training on procurement of chicken and eggs from small scale producers or middlemen.	A customized training course which will include modules on local supply chain of chicken and eggs, efficient procurement and negotiations methods, enterprise management and expansion techniques.

5.5.7 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on small scale poultry farming is offered by a range of actors across Pakistan.

Small scale poultry production	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	University of Veterinary & Animal Sciences	Rawalpindi
	Poultry research institute	Karachi, Rawalpindi, Peshawar
	Pir Mehr Ali Shah Arid Agriculture University	Rawalpindi
Input Supply Enterprise Mobile Vendors for Input Sale and Purchase of Produce	A poultry research institute and business studies academic should be engaged to design and deliver a customized course on input supply and mobile trading enterprises.	Not applicable
Retail Poultry Shop (Eggs and chicken meat)	This is a basic training and is not offered by any institute currently. A customized course can be developed and delivered by technical sectoral experts and business studies academics.	Not applicable

5.5.8 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the poultry value chain in target districts of Shangla, Upper Kohistan and Lower Kohistan is presented below. NPGP team can make an informed decision based on this on the type and level of engagement for small scale poultry farming value chain development:

Set of Interventions for Small Scale Poultry Farming Value Chain	Resource Intensity
Option 1: Improving production of small scale poultry farming, and increasing employment and income generation prospects of poor segments of population by promoting: o Adoption of modern poultry farming methods o Improved access to quality inputs and extension services o Development of local enterprises (for instance) and service providers who link production to markets o Provision of technical, advisory and linkages facilitation support to processing service providers at local level o Adoption of an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in farming methods	MINIMUM (Option 1)
Option 2: Improving marketability of local produce <u>A</u>: Improve the bargaining powers of the poor and small-scale producers and local middlemen through: o Formation of Common Interest Groups/ association/ cooperatives <u>B</u>: Supporting improvement in marketability and market access of small scale poultry produce through: o Facilitation of linkages between local vendors/ collectors with middlemen, wholesalers, processors, traders and food vendors; o Capacitating the local value chain actors (collectors, processors and middlemen) in market mechanisms and basic business techniques	INTERMEDIATE (Options 1–2)
Option 3: Facilitating access to extension and business development services including: o Credit facilities (PMIFL and MFIs) o Advisory and technical support service providers o Extension service providers (government departments and non-governmental organizations)	OPTIMUM (Options 1–3)
Option 4: Facilitating and advocating for a conducive regulatory environment: o Implementation of legal framework to ensure regulatory oversight	MAXIMUM (Options 1–4)

5.6 Handicrafts and Dress Making

Handicrafts and Dress Making is a common and highly relevant trade/ service amongst low income population segments to generate income. The service is offered by both men and women, at household, community, market and service industry levels. There is a consistent demand of these services by individual customers, and in the form of skilled labor by tailoring enterprises and garment industries. The trade offers relatively easy entry as an individual handicraft and dress makers, and as skilled service provider with existing small and large enterprises. The work is highly relevant to both men and women.

In the socially conservative context of KP and Balochistan, where mobility of women for accessing economic opportunities is sometimes limited, this trade can offer flexible home-based income generation opportunity to women. For men, the prospects of working in the market with existing service providers or starting their own enterprise are also promising. In addition to working in the local context, the formal and informal garment industry also offers an avenue to both male and female handicraft/ dress makers.

In the subject market assessment, the focus was on studying handicrafts and tailoring services in the local contexts of DI Khan, Tank, Torghar, Zhob, and Sherani. Due to time and resource limitation, the scope in the garment industry could not be studied in the context of target districts. The recommendations with regards to opportunities in formal and informal garment industry as skilled handicraft/ dress making service provider are based on review of secondary data.

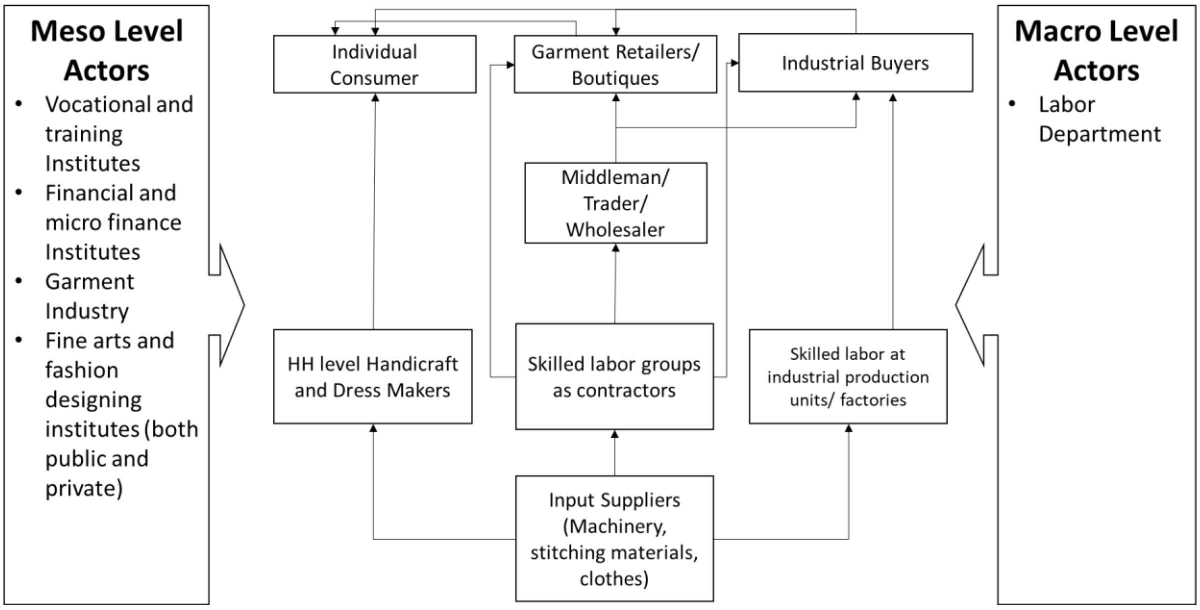
Key Actors of Value Chain

The handicrafts and tailoring value chain as an individual service provider or as a small enterprise is quite linear. The key actors are as follows:

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input Suppliers (Machinery, stitching materials, clothes) ▪ Producer/ handicraft/ dress makers ▪ Customer (individual and industrial)	▪ Vocational and training Institutes ▪ Financial and micro finance Institutes ▪ Garment Industry ▪ Fine arts and fashion designing institutes (both public and private)	▪ Labor Department

5.6.1 Map of Handicraft and Dress Making Value Chain

While the value chain was prioritized and studied in selected districts (DI Khan, Tank, Torghar, Zhob and Sherani), the technical team understands that this is relevant for all target districts and should therefore be offered as an opportunity to beneficiaries across all project areas. The research team carried out interviews with above listed actors to understand the relationships and supply chain. The below map shows the simple supply chain which exists at the local level:



Some men and women are associated with informal local garment industries and provide services as skilled dress makers. While the supply chain for informal garment industry can be quite complex, the nature of their role as a skilled service provider is quite simple. Handicrafts and dress makers work as individuals or as groups and receive orders along with specifications and inputs from garment industry. They either work out of homes, rented places of work or at the space provided by the company. While all other input is made available to them, they may use their own stitching machines as well.

5.6.2 Market Dynamics

In view of above-mentioned multiple employment paths that a skilled handicrafts and dress maker can take, the market dynamics are presented separately for each.

In case of individual, working in a community/ village and offering services to local community members, the inputs are procured from town markets. These may include machinery and accessories (buttons, laces, threads) etc. The cloth is provided by the customer along with specifications. In some cases, the artisan/ dress maker may be asked to purchase the specific accessories from the market themselves, the cost of which is added in the services fee. The price of services ranges from 300 to 1,000 rupees per dress and is dictated by local market. There may be variations depending on the complexity of the job. The service provider receives individual orders and gives a timeline of delivering stitched dress. This kind of work highly relies on the skillset as well as social capital. For women, it offers flexibility in terms of volume of work and working hours.

In case of small shop/ enterprise, the service is provided in open market to interested buyers. The key inputs include a shop, machinery, semi-skilled and skilled labor, clothes and accessories. Some small enterprises also add picco and other relevant machinery to offer related services as well. The price of services in case of enterprise is dictated by market and ranges from 500 to 1200 rupees per dress. However, there may be variations based on complexity of the dress.

The skilled labor (both men and women) also work as individuals or groups with local informal garment industry. Such work is usually facilitated by a middleman who is the point of contact between the industry and skilled labor. The garment industry provides orders along with inputs and design specifications. The individual/ groups can work from home, rented work spaces or at the facilities provided by middleman/ trader or industry itself. In such cases, the per unit fee is fixed and paid upon completion of job. In some cases, daily wages are also paid.

The large formal industries also offer employment opportunity to skilled labor at their factories. They may adopt a formal hiring process or may engage a middleman/ talent hunter to identify skilled labor and provide to the industries. In such cases, the labor works out of the factory where all inputs are made available and is paid daily or monthly wages based on the number of units prepared.

Supply areas (sources)	Period of supply	Markets
Individual Handicrafts Artisan and Dress Maker (working from home)	Across the year	Domestic and external markets
Small Handicrafts and Dress Making Enterprise	Across the year	Domestic and external markets
Skilled labor with informal and formal garment industry	Across the year	Domestic and national markets

5.6.3 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

The barriers at different levels which hinder this are presented below. On the basis of a close analysis of underlying reasons for these barriers, opportunities and recommended actions are proposed which can be taken under NPGP.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Semi-skilled or skilled handicrafts/ dress maker	Inability to start and/ or expand the work	Skill limitation i.e. lack of skill to make complex dresses Lack of modern machinery Time limitation in case this work is intended to complement the main source of income, or if this is being done part time	Many poor households (especially women and youth) can start handicraft and dress making at individual level in their communities if they are able to learn/ improve their skills and machinery. They can take up complex jobs as well if skillset is enhanced.	Interested individuals should be provided skill development opportunity on basic and advanced handicrafts and dress making depending on their level of skill/ experience. They should be provided modern machinery to reduce the time and effort needed in the work The skilled labor should be supported in establishing their own small handicraft and tailoring enterprises in the rural, town and city markets	Basic training on handicrafts and dress making for new entrants Advanced training on handicrafts and dress making for semi-skilled handicraft and dress maker Provision of machinery and other accessories to start/ expand their work Facilitating the placement of interested skilled labor in the market with small enterprises, formal and informal garments industry Facilitating access to credit to establish small enterprises Facilitating linkages with middlemen and agents of informal and formal garment industries for placement as skilled labor
Input supplies enterprise	Lack of capital to start enterprise	While the input supply enterprise is an easy work to get into, lack of capital with poor households is a challenge.	If necessary, support for starting the enterprise in terms of equipment, inventory and management skills is provided, poor households can be provided a sustainable income generation opportunity.	Interested beneficiaries should be provided in kind financial assistance through provision of equipment and inventory to set up and start the input supply enterprise for handicrafts and dress making. The financial assistance can be supplemented with training on enterprise management and expansion.	Equipment/ tools and starting inventory package to kick start the enterprise. Training on enterprise development, management and expansion methods. The training should also include modules on procurement methods and linkages development with wholesale suppliers.

Machine repair enterprise	Lack of technical knowledge of machine repair	With a large number of individuals associated with handicrafts and dress making, and using machinery at household level, the repair needs are quite high. Lack of technical knowledge of machine parts and their repair hinder poor household's ability to provide these services.	Locals of rural areas and small towns sometimes have to travel long distances to get their sewing machines repaired. Enterprises using the sewing and other related machinery also require repair workers. A cadre of repair workers can be trained in target districts to meet this demand.	Interested project beneficiaries should be provided training and necessary financial assistance in the form of equipment to start their enterprise of machine repair.	Training on sewing, picco and buttonhole machine repair Provision of equipment/ toolkit and furniture to start their enterprise.

5.6.4 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Tailor Shop
- Home-based Tailoring Service Provider
- Home-based Handicraft Making Service Provider
- Handicraft Shop
- Handicraft Tote Bag Making
- Sewing Machine Repair Enterprise
- Input Supply Shop for Handicraft and Dress Making

5.6.5 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	Handicraft and Dress Making Service Provider (community level, local market, formal and informal garment industry)	Training on handicraft/ dress making	Training will include modules on inputs needed and locally used, types of dresses, clothe cutting and stitching (traditional and party wear) and pressing
		Toolkit	Provision of toolkit to start work including sewing box and sewing machine.
2	Handicraft and Dress Making Enterprise (Rural, Town and City Markets)	Training on handicraft and dress making and enterprise development	Training will include modules on inputs needed and locally used, types of dresses, clothe cutting and stitching (traditional and party wear) and pressing. In addition, modules on enterprise management and expansion will also be included.
		Toolkit	Provision of toolkit to start work including sewing box and sewing machine, clothes and accessories (buttons, threads etc.).
3	Machine Repair Shop (Sewing,	Training on sewing and picco machine repairing	The training will include modules on components of machines, identification of problem, common issues and repair techniques.

	Buttonhole and Picco machines)	Toolkit	The toolkit may include repair equipment toolbox. For setting up shop, provision of furniture and other materials.
4	Inputs Supply Shop (Sewing, Buttonhole and Picco machines, threads, accessories)	Training on enterprise management and expansion	Training on enterprise development, management and expansion methods. The training should also include modules on procurement methods and linkages development with wholesale suppliers.
		Equipment and starting inventory	Equipment/ tools and starting inventory package to kick start the enterprise.

5.6.6 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries, the training on MAPs is offered by a range of actors across Pakistan.

Individual Service Provider as Handicrafts and Dress Maker (community level, local market, formal and informal garment industry)	TVET Institutes all over Pakistan	Across Pakistan
	Islamabad Vocational & Technical Institute (IVTI)	Islamabad
	Rawalpindi Institute of Art and Design	Rawalpindi
	NICON Group of Colleges	Rawalpindi
	Hunarmand Training Center	Islamabad
	Ehsaas Vocational School	Karachi
	National Tailoring College	Rawalpindi
	Human Resource Development Centre, SRSP	Peshawar and across KP
	Other accredited small local institutes	Across Pakistan
	Individual trainers	Across Pakistan
Handicraft and tailoring Enterprise (Rural, Town and City Markets)	TVET Institutes all over Pakistan	Across Pakistan
	Islamabad Vocational & Technical Institute (IVTI)	Islamabad
	Rawalpindi Institute of Art and Design	Rawalpindi
	NICON group of Colleges	Rawalpindi
	Hunarmand Training Center	Islamabad
	Ehsaas Vocational School	Karachi
	National Tailoring College	Rawalpindi
	Human Resource Development Centre, SRSP	Peshawar and across KP
	Other accredited small local institutes	Across Pakistan
	Individual trainers	Across Pakistan
Machine Repair Shop (Sewing, Buttonhole and Picco machines)	Pakistan Readymade garments technical training institute	Lahore
	Individual technical experts who run their own enterprise can be hired to design and deliver the course. A business studies academic should be hired to assist with developing modules on enterprise management and expansion.	Across Pakistan
	Punjab Skilled Development Fund	Lahore

Inputs Supply Shop (Sewing, Buttonhole and Picco machines, threads, accessories)	A business studies institute and enterprise owner of handicrafts and dress making input supplies enterprise can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Across Pakistan

5.6.7 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of the value chain, a set of interventions to develop and strengthen the handicraft and dress making value chain in target districts Khyber Pakhtunkhwa and Balochistan is presented below. NPGP team can make an informed decision based on this on the type and level of engagement for handicrafts and dress making value chain development:

Set of Interventions for Handicrafts and Dress Making Value Chain	Resource Intensity
Option 1: Improving production capacity of existing and new tailors and provide income generation prospects of poor segments of population by: ○ Adoption of modern and locally/ nationally relevant tailoring methods ○ Improved access to inputs ○ Facilitating development of local enterprises ○ Adoption of an inclusive approach to value chain promotion by engaging and capacitating women, differently abled and other disadvantaged segments of community in production	MINIMUM
Option 2: Improving marketability of local produce A: Improve the bargaining powers of the poor and small-scale producers and local middlemen through: ○ Formation of Common Interest Groups/ association/ cooperatives B: Supporting improvement in marketability and market access of individual tailors through: ○ Facilitation of linkages between local tailors and middlemen/ talent hunters working for informal and formal garment industries ○ Capacitating the individual tailors in market mechanisms and basic business techniques	INTERMEDIATE
Option 3: Facilitating access to business development services including: ○ Credit facilities (PMIFL and MFIs)	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: ○ Implementation of legal framework to ensure regulatory oversight	MAXIMUM

5.7 Walnut Value Chain

Walnuts are grown in Northern regions of Pakistan since very long especially in Malakand region where it contributes around 82% of the total walnut production in the country. Other major regions according to the interviews conducted includes Upper and Lower Kohistan where variety of walnuts are being grown for example hard shelled walnuts, *Kaghazi* (soft shelled) Walnuts and the kernels. Walnut has its primary use of being utilized as a dry fruit, however there are other secondary uses that walnuts are utilized for including walnut oil and wood. It is considered as one of the most valuable woods which is used for high quality furniture and has become one of the reasons for the trees to be aggressively harvested. However, the study only focuses on value chain of walnut being utilized as a dry fruit. Presently, there is a huge market for walnut but studies suggest there is still room for improvement. Majority of the walnuts being exported are mainly from the Malakand region where large businesses with high investment capital maintain the quality standards in compliance with the international standards. But the local growers lack the required knowledge and finances to grow their business and rely on their products to be sold either in local markets or to the local traders at low prices.

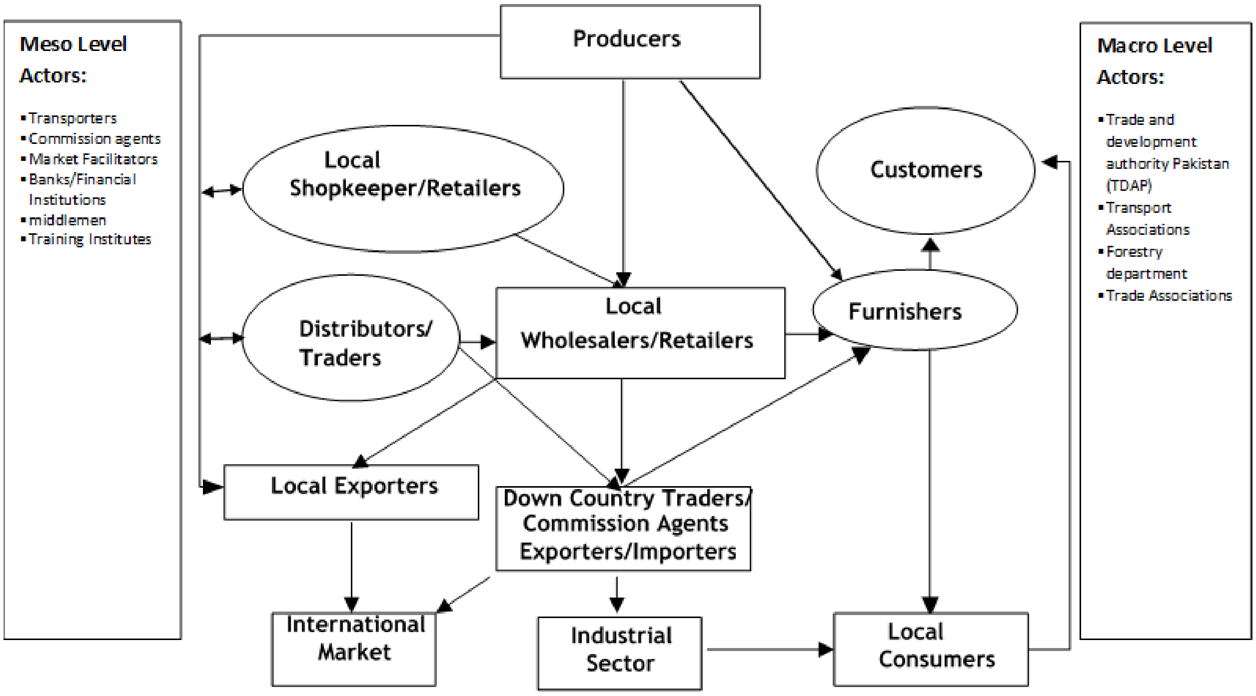
Below table illustrates the major actors involved in the Walnut value chain at Micro, Meso and Macro Level.

5.7.1 Key Actors of Walnut Value Chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Producers ▪ Input suppliers (nurseries) ▪ Processors ▪ Packaging actors ▪ Local Retailers ▪ Consumers (local and national) ▪ Local exporters ▪ Distributors ▪ Traders ▪ Wholesale Retailers	▪ Transporters ▪ Commission agents ▪ Market Facilitators ▪ Banks/Financial Institutions ▪ middlemen ▪ Training Institutes	▪ Trade and development authority Pakistan (TDAP) ▪ Transport Associations ▪ Forestry department (NTFP) ▪ Trade Associations

The above actors were derived based on the interviews conducted in the regions including Upper and Lower Kohistan and Kolai Palas. The detailed value chain of Walnut is illustrated below after compiling the results from field work in the above mentioned regions.

5.7.2 Map of Walnut Value Chain



5.7.3 Market Dynamics

The study observed that majority of the walnut produce is done by the local family businesses with little or no access to additional finance to grow their businesses. The small scale producer has a capacity of producing around 800-1,000 Kgs of walnut per season (October-December). The price range also varies depending on the quality of the nuts. The producer will sell the walnuts for around 150-200 Rupees per Kgs but the wholesalers and retailers set the price to almost 250-270 rupees per Kg, drawing a good profit margin.

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	Once a year (October-December)	Local market, wholesale retailers, distributors.
Retailers, wholesale retailers	Throughout the year but season for buying is mainly from September to December	Consumer markets across Pakistan, Traders, Export Traders

According to the study results shows that there is no proper market and facility in the district to preserve but the local traders play a very important role, they purchase the walnuts from the farmers in the local market. Furthermore, the big traders visit the area or the local traders have a good market linkage with other traders and supply the product to other district for a huge profit. Some of the local producers sell the walnuts at the road sides.

The walnut business is also a source of income for the poor workers, while women play a vital role in the production of walnut. They work inside their homes to separate kernels from the walnut shells and help male family members in packing and packaging for which they are paid while many other women run their business independently.

Presently the walnut is packed in bags of 10-20 kg and sold to aggregators and traders as such. There is no value addition in this trade. The traders in Kolai Palas reported that often the people bring their produce which is not properly dried and they have to suffer weight loss which is quite substantial, therefore, training is needed to communities for proper drying of walnuts.

In the city markets whole walnut is sold as well as just the kernels. The kernels fetch a high price from the consumers. It could be a very good business in the production area to sell kernels to the traders instead of whole walnuts.

There are reported losses during the walnut maturity period. The pre-mature walnuts fall off too early due to diseases accounts for the major loss for the farmers. Although there are various fertilizers and pesticides available in the market, but majority are not tested and prove harmful to the trees. Even the nurseries present locally are un authorized and have un-tested seeds providing low yielding hard shelled walnuts seeds.

5.7.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

Below are some major barriers that inhibits the growths of walnut production. The reasons for these barriers and constraints were closely analysed to derive the opportunities and respective recommended actions are proposed.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Input Suppliers	Lack of certified seed causing losses to farmers.	Unregistered nurseries	Walnut production can gradually increase with tested seed samples under reliable nurseries. `	Nurseries should be registered under the supervision of agriculture department. Provision of training to nursery men for the production of certified seed nurseries Incentivizing the registered nurseries by provision of high eliding seeds	Development of training manuals/handbooks on the production of certified seed nurseries Nurserymen association and marketing association in the valley should be formed to pool the resources and produce. Training in nursery raising techniques should be given and wood graft of improved varieties supplied for raising improved nursery plants. Training in control of diseases/insects and management of the existing trees should be imparted for improving the productivity.
Producers	Low production capacity of Walnuts in Kohistan region. Lack of skills regarding post-harvest management practices (i.e. drying, grading, packing)	Lesser awareness regarding the use of maximum capacity of the walnut tree. Use of traditional methods instead of modern techniques. Lack of transparency in the supply chain	Awareness about the different high yielding production can result in the betterment of economic conditions of the regions. There is still room for more producers if proper enabling environment is provided.	Despite of traditional walnut production businesses, the production capacity is low and can be improved by providing trainings regarding the use of modern technologies to have higher and efficient yielding capacities.	Awareness and training sessions to the producers about utilizing the maximum production capacity of the walnut trees to the producers (input suppliers). Provision of training manuals.

		results in the price gap between the farmer and the consumer market.	Private firms have the opportunity to develop a channel for bridging the gap between the consumers and the producers directly.	Training to the farmers where the walnut trees can grow regarding agroforestry can be given to benefit from the walnut business and to have high yields of crops.	Training on improved picking methods with safety belts should be introduced for safety to human lives. Training on post-harvest management practices i.e. drying, grading, packing etc. should be imparted. Training to the processors about new techniques using modern day technology to increase their production capacity for walnuts and its kernels Utilizing E-commerce for linking the consumer market including the retailers directly to the producers.
Processors	Low processing capacity and low-quality standards due to use of traditional technology.	Local markets lack processing expertise. There is lack of actors who provide modern refining and packaging services.	Attracting local actors for processing and packaging for higher efficiency will contribute towards job creation and income generation.	The processors, middlemen, traders and retailers should be capacitated for using modern technology to efficiently process the walnuts in order to reduce the loss. Private enterprises and Financial Institutions should be attracted to invest in the local processing units.	Provision of training to interested locals in secondary processing methods i.e. refining and packaging. Linking producers and traders with high-end markets. Linking Banks/Financial institutions with the processors.
Wholesalers/ Traders/retailers/MFIs	Small volumes result in selling the produce locally and not	The low quantity of walnut produced meets domestic demand. There is no room of reaching out	The gradual increase can result in uplifting the economic conditions of the regions. If high quality	Despite these being not the direct beneficiaries of the programme, they act as a major actor in the value chain since the local producers do	Training of wholesalers and traders in market expansion methods.

	earning via exports. Access to finance is low to none in the regions for the local producers. Resulting in lesser production capacity.	to external markets for sale of the walnuts. This is also lack of access to finance for expanding their business or using high quality fertilizers and pesticides for high yields.	standard product is produced, the producers can reach out to international markets.	not have the capacity to produce, process, package and distribute. Uplifting the traders, wholesalers and retailers will result in strengthening the value chain.	
Local Departments	Walnut business is decreasing due to deforestation especially the walnut trees being cut down for their high value wood.	Due to walnut wood being considered as high value wood used in quality furniture, aggressive harvesting of the walnut trees has resulted in lower population of the trees and substantially decreasing the walnut business in the region.	Planting more walnut trees and can have a dual result; more economic activity due to the walnut business, and better environmental conditions to cater for climate change.	Due to the changing climatic conditions, the walnut trees can be controlled by the forestry department for having a positive impact on the overall environment.	Awareness session to the local producers and the local departments for planting more walnut trees to increase walnut yield as well as mitigating environmental threats (drought, floods etc.) High yielding walnut seed can be provided to the local producers.

5.7.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Walnut Trader
- Small Scale Walnut Producer
- Walnut Nursery
- Walnut Retailer

5.7.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Small Scale Plant and Walnut nurseries**	Training on seed handling and Nursery management	The training will include modules on basic nursery management, seed handling, plant grafting and budding techniques and other relevant subjects.
		Provision of Seeds and Plants	For supporting the startup nursery, some high yielding seeds and plants to be provided
		Exposure/Exchange visit	Organizing exposure visits for trained beneficiaries to other small-scale walnut farmers in the district to observe and learn from successes.
2	**Small scale walnut production**	Training on basic farming techniques, use of pesticides and fertilizers.	The training will include the importance of fertilizers and pesticides. Basic production techniques including picking, drying for higher yields.
		Toolkit	Equipment for collection and processing walnuts Ladders, picking nets, long saws for trimming, peeling equipment, safety gear etc.
		Facilitate linkages with extension service providers	Private, government or non-governmental service providers in the area

3	**Small Scale Walnut Processing Units (Grading, Packaging)**	Training on processing of walnut	The training will include modules on grading and packaging the walnuts accordingly.
		Toolkit	Provision of a toolkit comprising of tools needed to grade and package the walnuts. Women at household level can be trained to start a small enterprise.
		Job placement	Skilled labor can be linked to larger processing units for employment generation.
4	**Seasonal Walnut Retailer (Roadside)**	Training on marketing and sales	The training may include basic branding, marketing and selling skills as well as the importance of value for money since they sell the products mainly to tourists on premium prices.
		Equipment	Providing equipment which may include an attractive street vending kiosk

5.7.7 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on Nursery management and Seed handling (walnuts)	Pakistan Agricultural Research Council (PARC)/ National Agricultural Research Centre (NARC)	Islamabad
	All provincial agriculture research institutes provide training on fruit tree nursery management. For Walnuts nursery raising, specialized trainings are provided by: - ARI Tarnab - ARI Mingora Private nursery farms, Swat	KP
Training on basic Farming Techniques	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar
Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad

5.7.8 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of walnut, a set of interventions to develop and strengthen the walnut value chain in target districts of Battagram, Kohistan, and Kolai Palas is presented below for NPGP team to make an informed decision based on the type and level of engagement for walnut development:

Set of Interventions for Walnut Value Chain

Resource Intensity

Option 1: Improving walnut productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting:

- Adoption of modern production and processing practices including pre and post-harvest management practices.
- Promote off farm enterprises for supply of inputs such as dryers, kernel extraction machinery, labour etc.
- Awareness on modern technologies and high yielding seeds varieties.
- Provision of technical, advisory and linkages facilitation support to processing service providers at local level
- Promoting women and disabled workforce for processing production processes.
- Linkages Development with input suppliers such as fertilizers and pesticides to avoid diseases.

Option 2: Improving marketability of local produce

A: Improve the bargaining powers of the poor and small producers through:

- Formation of Common Interest Groups/ association/ cooperatives

B: Supporting improvement in marketability and market access of locally produced walnut through:

- Linking Producer to buyers
- Empowering producers by training about the market mechanisms and techniques
- Facilitating linkages of local wholesalers and traders with provincial, national and export markets
- Market information/intelligence, should be provided to all value chain actors for fetching maximum prices in the markets

Option 3: Facilitating access to finance and business development services including:

- Microfinance institutions
- Linkages development with leasing companies
- Advisory and technical support service providers

Option 4: Facilitating and advocating for a conducive regulatory environment:

- Development of quality standards
- Implementation of legal framework to ensure regulatory oversight
- Incentive mechanism for export quality standard compliance

MINIMUM

INTERMEDIATE

OPTIMUM

MAXIMUM

5.8 Pine Nuts Value Chain

Pine Nuts in Pakistan have set their quality standards and are high in demand even in international markets due to its peculiar taste and fragrance. Pakistani pine nuts' demand in local and international market is increasing day by day which is obvious from increase in its exports in recent years. Pine Nut (Chilghoza) is one of the main sources of income in Waziristan and the Pine forest covers the area from

Shakai to Angoor Adda along the border of Afghanistan, where around 20% of the forest comprises of Pine trees. Main markets of Waziristan pine nuts are Bannu, D.I. Khan, Peshawar, Rawalpindi and Lahore from where these are further supplied to other national and international markets. Average size of the forest possessed by each tribe/clan depends upon the piece of plain land possessed by that tribe/clan. Larger the plain land possessed, the larger the Pine forest. Forestation is only done on government land which is quite less. However, local population, (about 25%) attempts to regenerate Pine Nut trees through planting of seed. The locals of Waziristan try to sow its seed normally during snowfall season; mostly in March-April.

Below are the main actors of the Pine nut value chain as observed by the field work and secondary sources.

5.8.1 Key Actors of Pine Nut Value Chain

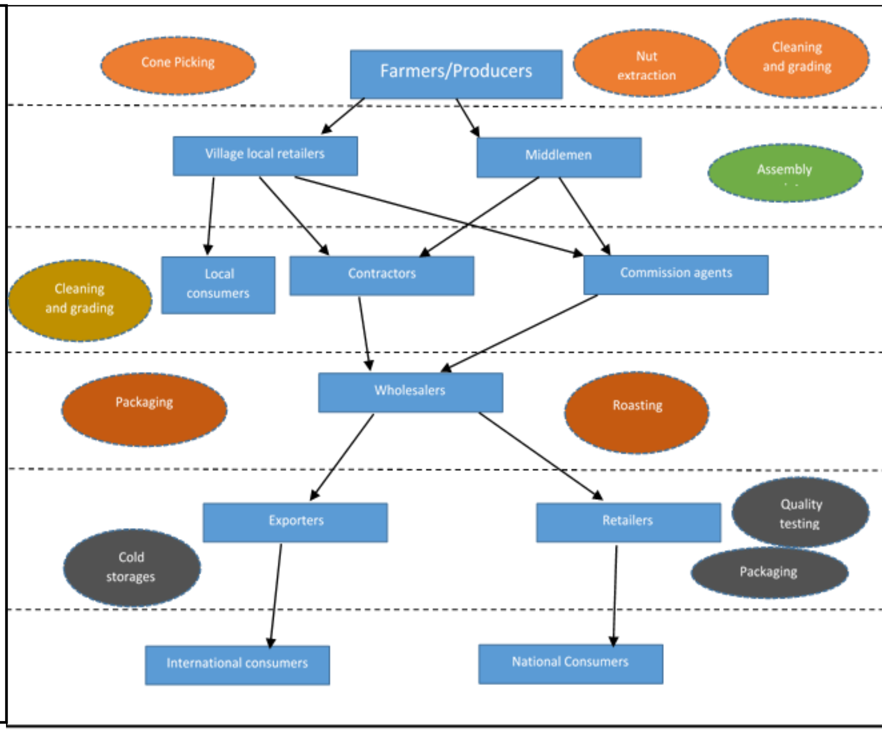
Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Producers (cone picking, nut extractors, graders) ▪ Processors (roasting, packaging) ▪ Local Retailers ▪ Wholesale Retailers ▪ Consumers (local and national) ▪ Local Labour for Packaging ▪ Distributors ▪ Traders/middlemen ▪ Commission agents	▪ Transporters ▪ Market Facilitators ▪ Banks/Financial Institutions	▪ Trade and development authority Pakistan (TDAP) ▪ Transport Associations ▪ Forestry department ▪ Trade Associations ▪ Local Departments

The value chain for Pine nuts is immense including many small actors due to the reason that Pakistan is one of the largest Pine nut producers in the world after China and Russia. After observing and conducting key interviews with the relevant stakeholders, below is the process flow for the Pine Nuts value chain.

5.8.2 Map of Pine Nut Value Chain

Meso Level Actors:

- Transporters
- Market Facilitators
- Banks/Financial Institutions
- Middlemen
- Training institutes



Macro Level Actors:

- Trade and development authority Pakistan (TDAP)
- Transport Associations
- Forestry department
- Trade Associations
- Local Departments

5.8.3 Market Dynamics

According to various primary and secondary sources, the Pine nuts especially in Waziristan region are grown on smaller level. Larger businesses exist but a few in number. Despite the high demand for the pine nuts nationally and internationally, there are lesser businesses resulting in the skewness of the demand and supply. Majority of the family businesses can produce up to 150-200 Kgs annually (per season) and have only access to local village retailers and the middlemen/traders. The price gap is immense as these middlemen purchase the nuts at lower prices from the producers and sell them at larger markets including consumers and export traders. On the other hand, the larger businesses have the capacity to produce around 1000-1500 Kgs annually and sell these off at premium prices due to their international quality standard compliant nuts.

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	Once a year (August-September harvesting season)	Local village market, middlemen/traders
Large export quality businesses	Once a year (August-September harvesting season)	Commission agents, wholesalers, retailers, exporters

Cone collectors sell their nuts in the local markets to the agents of the wholesale market. The traders in the local markets of South Waziristan pay 50% of the amount at the time of transaction and the remaining 50% is paid after one to two months and sometime for even longer time. The local traders in South Waziristan do not charge any commission as they purchase themselves and delay 50% payment for one to two months and sometimes for even longer. No branding practice is followed by farmers and local traders too. Farmers are unaware of the branding concept and its importance in marketing of the produce.

The main hurdle for the farmers is the natural calamities that effects the production capacity of the nuts. No early warning system or proper protective measures are in place to mitigate the losses.

5.8.4 Barriers, Opportunities and Recommended Technical and Financial Assistance Measures

Below are the major barriers and constraints at different levels within the Pine nut value chain along with the underlying reasons and opportunities for uplifting the value chain.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Natural Calamities immensely harm the pine nut trees. Low production rate Farmers lack of access to markets	Harvesting of premature branches Use of traditional methods instead of modern techniques. Life threats to the cone pickers while climbing the trees result in fewer people to do the job.	Various tech related companies can invest in modern ways to pick, process, roast and pack the pine nuts efficiently resulting in higher yields and more exports.	The production capacity is low and can be improved by providing trainings regarding the use of modern technologies to have higher and efficient yielding capacities. Training to the producers to maintain high quality for national and international markets.	Provision of tool kit for harvesting of cones including safety belts. Provision of training regarding pre- and post-harvest techniques. Provision of training manuals. Linking Producers and traders.
Processors	Value addition e.g. Roasting is not done locally and unroasted nuts are sold to commission agents Delays in the processing reduces the weight of nuts leading to decrease in farmers' earnings. Losses due to improper packages. Improper grading by the processors and traders. Low processing capacity and low-quality standards due to use of traditional technology.	Local markets lack processing expertise. There is lack of actors who provide modern refining and packaging services. No modern technologies used locally, therefore the processing is done outside the local markets. Low awareness among the local producers and processors.	Attracting private sector actors for processing and packaging for higher efficiency. High opportunity in introduction of modern machinery for processing the nuts.	The processors, middlemen, traders and retailers should be capacitated for using modern technology to efficiently process the Pine nuts in order to reduce the loss. Private enterprises and Financial Institutions should be attracted to invest in the local processing units.	Training to the processors about new techniques using modern day technology to increase their production capacity for pine nut and its kernels Provision of training to interested locals in secondary processing methods i.e. refining and packaging. Linking Banks/Financial institutions with the processors.
Wholesalers/ Traders/retailers/MFIs	Low volumes result in selling the produce locally and not earning via exports. No branding concepts	The low quantity of pine nuts produced meets domestic demand. There is no room of	The gradual increase can result in uplifting the economic conditions of the regions. The smaller	Awareness sessions to the wholesaler and the producers will result in maintaining the high-quality pine nuts to be sold internationally.	Training of wholesalers and traders in market expansion methods.

	Delay in payments to the farmers by the wholesalers Exploitation of the farmers (price gap) Access to finance is low to none in the regions for the local producers. Resulting in lesser production capacity.	reaching out to external markets for sale of the pine nuts. It takes time to process the nuts and majority of the wholesalers and retailers work on credit basis. Until they get the profits by selling after processing, the payment to farmers get delayed. No proper financial channel is in place.	business can also reach out to international markets if the quality standards are maintained.	Create awareness on branding concepts. Proper Price and Payment Control Systems	Linking Banks/Financial institutions with the processors. Creating transparent financial channel for the farmers and other actors in the value chain.

Regulators (NTFP/Forest Department)	No proper policy by about the harvesting of pine cones Absence of free & fair-trading environment	Unawareness about the proper time of harvesting of cones among the value chain players Unskilled farmers'/cone pickers/pine collectors/labours Lack of access to technology Recent war on terror destroyed many link roads and main highways without being reconstructed in the region.	Proper regulations and transport system can not only uplift the local communities/farmers, but also benefit the regions coming under the transportation system.	Establishing local markets with set standards. Establishing vocational training centres to tackle unskilled labour issue Incentives for the farmers and growers for producing export quality pine nuts.	Implementation of community ban on premature pine cones Trainings on branding concepts to the entrepreneurs Giving vocational trainings to the unskilled labour regarding pre- and post-harvest management practices Providing support in leasing out value addition machinery (Roasting) and post-harvest picking tools Setting quality standards by involving all value chain actors

5.8.5 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Pine Nut Collector
- Pine Nut Middleman/ Trader

5.8.6 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Small Scale Pine Nut Collector**	Training on processing of pine nut	The training will include modules on collection/ harvesting of pine nuts and the primary processing.
		Toolkit	Provision of a toolkit comprising of tools needed to roast, grade and package the pine nuts. Women at household level can be trained to start a small enterprise.
		Job placement	Skilled labor can be linked to larger processing units for employment generation.
2	**Seasonal Pine Nut Retailer (Roadside)**	Training on marketing and sales	The training may include basic branding, marketing and selling skills as well as the importance of value for money since they sell the products mainly to tourists on premium prices.
		Equipment	Providing equipment which may include an attractive street vending kiosk
3	**Middleman/ Trader**	Training on collecting bulk Pine Nuts from small scale Pine Nut producers	The training will include modules on purchasing and negotiation skills, account and credit management, collection, storage and efficient transportation methods
		Toolkit/ equipment	Provision of equipment to facilitate development of enterprise. This may include a vehicle (trolley bikes) and storage equipment.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as middlemen, traders and Pine nut retailers

5.8.7 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad
Trader/ Middleman	A business studies institute and technical expert of honey bee keeping can be engaged to design and deliver a customized course, since this course is not being offered by any institute currently.	Not Applicable

5.8.8 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of pine nut, a set of interventions to develop and strengthen the Pine nut value chain in target district of Waziristan (north and south), is presented below for NPGP team to make an informed decision based on the type and level of engagement for Pine Nut development.

Set of Interventions for Pine nut Value Chain

Resource Intensity

Option 1: Improving Pine nut productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting:

- Community ban on pre harvesting of cones
- Awareness campaign should be launched to conserve the existing Chilgoza pine/other forest trees by avoiding ruthless cutting of branches & unskilled harvesting of cones.
- Modern production and post-harvest practices with the use of safety belts for safety to pine collectors.
- Promote off farm enterprises for supply of inputs such as roasting machinery, kernel extraction machinery, safety gear for cone pickers, labour etc.
- Provision of technical, advisory services and linkages facilitation support to processing service providers at local level
  Promoting women and disabled workforce for processing production process

Option 2: Improving marketability of local produce

A: Improve the bargaining powers of the poor and small producers through:

- Formation of Common Interest Groups/ association/ cooperatives and their capacities built in harvesting (cones collection) and post-harvest management practices (nut/kernel separation) and marketing techniques

B: Supporting improvement in marketability and market access of locally produced pine nut through:

- Linking producer to consumer;
- Empowering producers by training about the market mechanisms and techniques
- Facilitating linkages of local wholesalers and traders with provincial, national and export markets
- Market information/intelligence, should be provided to all value chain actors for fetching maximum prices in the markets

Option 3: Facilitating access to finance and business development services including:

- Microfinance institutions
- Linkages development with leasing companies
- Advisory and technical support service providers

Option 4: Facilitating and advocating for a conducive regulatory environment:

- A sustainable policy for cone collection and marketing needs to be formulated for promotion of the pine nut trade.
- Development of quality standards
- Implementation of legal framework to ensure regulatory oversight
- Incentive mechanism for export quality standard compliance
- The infrastructure development (field to market roads etc.) and provision of credit on soft terms & conditions would help in improving the nut trade.

MINIMUM

INTERMEDIATE

OPTIMUM

MAXIMUM

5.9 Maize Value Chain

Maize is considered as the most significant commodity steering world agriculture sector due to its diverse uses in the industry, food and feed sector. It has a great importance in Pakistan due to rapid increase of population and is considered as third important cereal after wheat and rice and contributes around 2.2% of value in agriculture according to Social Sciences Research Institute (PARC). Looking at the primary and secondary data, Maize itself has different uses and demand varies accordingly. Maize products varies from raw corn heads, maize grains, maize flour and Maize stems for fodder. The regions under the study Tor Ghar, Upper Kohistan, Lower Kohistan and Kolai Palas had majority of family small scale businesses with potential of pro-poor businesses to expand for fostering job creation and income generation in the regions.

Below are the main actors of the Maize value chain as observed by the field work and secondary sources.

5.9.1 Key Actors in Maize Value Chain

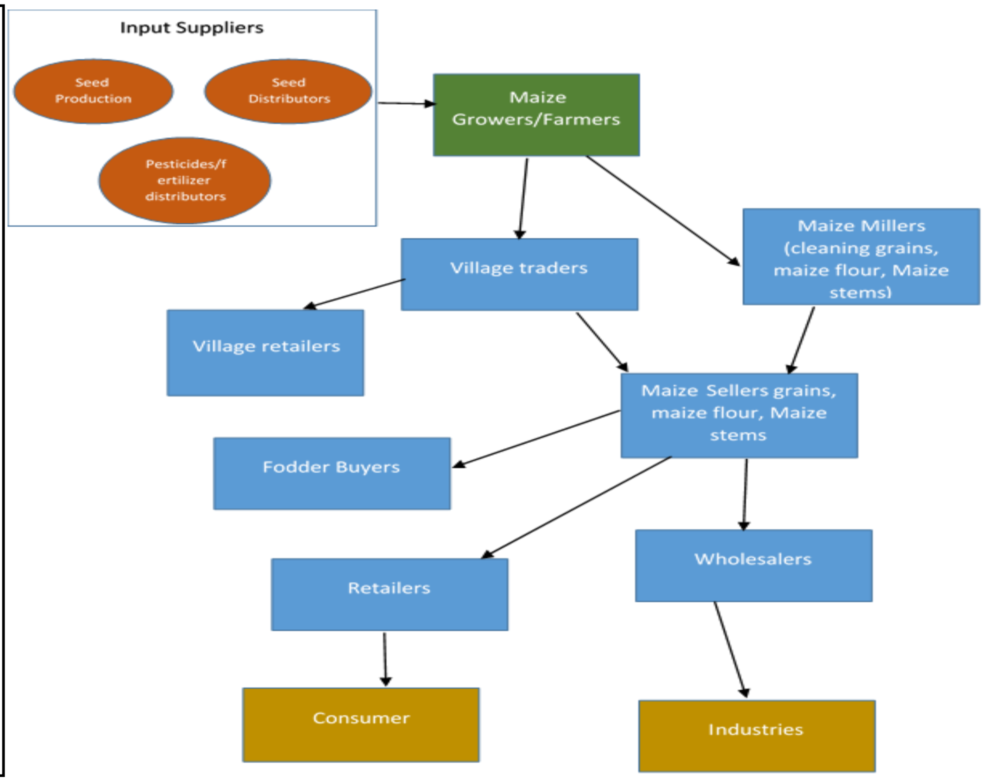
Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (Seed production, seed distributors, pesticides/fertilizer providers) ▪ Producers (growers/farmers) ▪ Processors (Millers, Maize storages, maize sellers, middlemen) ▪ Local Retailers ▪ Wholesale Retailers ▪ Local Labour for Packaging ▪ Distributors ▪ Traders/middlemen ▪ Commission agents ▪ Consumers (local and national)	▪ Transporters ▪ Market Facilitators ▪ Banks/Financial Institutions ▪ Fodder buyers ▪ Middlemen ▪ Training Institutes ▪ Seed information centres	▪ Transport Associations ▪ Agricultural department ▪ Trade Associations ▪ Local council associations

After primary and secondary research by the field team through Focus groups and Key interviews with various actors of Maize production, the following value chain was derived in light of the result observed.

5.9.2 Value Chain Map

Meso Level Actors:

- Transporters
- Market Facilitators
- Banks/Financial Institutions
- Middlemen
- Training institutes
- Fodder buyers
- Seed information centres



Macro Level Actors:

- Transport Associations
- Agricultural department
- Trade Associations
- Local Council associations

5.9.3 Market Dynamics

The study suggests that majority of the farmers have their family traditions of growing Maize. Although the produce for a local farmer is around 1500-2000 Kgs per season, the selling price for the maize is around 40-50 rupees depending on the required demand in a season. The income is not sufficient for majority of the farmers. The low production is due to no proper farming techniques. Prevention from various diseases and other calamities results in the low production of Maize crop. Barriers and their underlying reasons have been illustrated in the table below with their respective recommendations.

Looking at the results, women are also involved in the value chain mainly in harvesting and collection of maize and majority work as laborers on daily wages.

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	October-November Sowing Season. Supply throughout the year till the stock ends and is stored in storages	Local village market, Millers, middlemen/traders

Mostly Storms and flash floods are the main reasons for loss of crops contributing to major losses to the small scale farmers. Since the marketing needs are not known, the farmers produce as per their requirement hence resulting in low production.

Since there are various maize products, the price fluctuations are uncertain and no prior information is given by the respective authorities. These price fluctuations demotivate the farmers to grow the crop and prefer to grow wheat instead.

Below are the major barriers and constraints at different levels within the Maize value chain along with the underlying reasons and opportunities for uplifting the value chain.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Low production quantity Limited Maize is grown by the farmers Diseases to the crop	Changing weather conditions with varying patterns of rainfall results in low production quantity Lesser awareness regarding the use of fertilizers and pesticides. Use of traditional methods instead of modern techniques. High transportation cost also has significant impact on the production. Farmers grow as per their capacity to store and further disseminate Maize.	Awareness about the different high yielding production can result in the betterment of economic conditions of the regions. Majority of the farmers do not use fertilizers resulting in low production. Awareness about them can be beneficial for the fertilizer companies and the farmers.	Promoting high yielding varieties Training to the producers to maintain high quality for national and international markets. Awareness to the farmers regarding use of fertilizers. Linking the farmers to fertilizer markets/companies can substantially impact the growth of production capacity.	Awareness and training sessions to the producers about the high yielding varieties. Provision of training manuals. Linking Producers and traders.
Wholesalers/ Traders/retailers/MFIs	Delay in payments to the farmers by the wholesalers Low profit margins Loss of Maize grains down the value chain	Price fluctuations results in loss for wholesalers and in result the farmers. Prices ranges differently for every Maize product due to various processing techniques. Lack of proper transportation and storages the maize grains are lost during transportation.	The wholesaler are not direct beneficiaries but creating an enabling environment for the middlemen can substantially increase the production and generate income at different levels.	Proper Price and Payment Control Systems should be enforced. Awareness on modern techniques should be provided to the producers, processors and trader/middlemen	Training of wholesalers and traders in market expansion methods. Linking Banks/Financial institutions with the processors. Creating transparent financial channel for the farmers and other actors in the value chain.

5.9.4 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Small scale maize farming/ production
- Maize Processing (Drying, Peeling, milling, grinding)
- Maize Street Vendor (popcorn and maize)
- Middleman/ trader

5.9.5 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Small scale maize farming/ production**	Training on basic farming techniques, use pesticides and fertilizers.	The training will include the importance of fertilizers and pesticides. Basic production techniques including picking, drying for higher yields.
		Equipment	Provision of machinery for sowing, cutters, etc.
		Exposure/Exchange visit	Organizing exposure visits for trained beneficiaries to other small-scale Pine nut farmers in the district to observe and learn from successes.
2	**Maize Processing**	Training on processing of Maize	The training will include modules on peeling, grading maize for different uses (grains, raw maize, maize cobs for feed etc.)
		Toolkit	Provision of a toolkit comprising of tools needed to peel and grade maize and preparing it for different uses/products
		Job placement	Skilled labor can be linked to larger processing units for employment generation.
3	**Maize Street Vendor (popcorn and maize products)**	Training on marketing and sales	The training may include basic marketing and selling skills.
		Equipment	Providing equipment which may include an attractive street vending kiosk

	Small scale maize millers	Training on Milling, branding and packaging techniques	Training will include basic techniques on milling different grains and packing them accordingly.
		Equipment	Providing small scale mills especially solar powered mills
		Job placement	Skilled labor can be linked to larger milling units for employment generation.
4	**Middleman/ Commission Agent**	Training on collecting bulk Maize from small scale Maize producers	The training will include modules on purchasing and negotiation skills, account and credit management, collection, storage and efficient transportation methods
		Toolkit/ equipment	Provision of equipment to facilitate development of enterprise. This may include a vehicle (trolley bikes) and storage equipment.
		Facilitation of forward and backward linkages development	Assisting the vendors in developing linkages and strengthening networks with producers as well as middlemen, traders and Pine nut retailers

5.9.6 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on basic Farming Techniques	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar
Training on crop processing (Maize)	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	SGS Limited Pakistan	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar
Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad
Training on Milling Techniques	Customized training course will have to be developed for implementation.	

5.9.7 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of Maize, a set of interventions to develop and strengthen the Maize value chain in target district is presented below for NPGP team to make an informed decision based on the type and level of engagement for Maize development:

Set of Interventions for Maize Chain	Resource Intensity
Option 1: Improving Maize productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting: o Modern production and processing practices; o Promote off farm enterprises for supply of inputs such as milling machinery, transportation, storages, etc. o Awareness on modern technologies and high yielding seeds. o Provision of technical, advisory and linkages facilitation support to processing service providers at local level o Promoting women and disabled workforce for processing production processes. o Linking with Private companies regarding fertilizers and pesticides to avoid diseases.	MINIMUM
Option 2: Improving marketability of local produce <u>A</u>: Improve the bargaining powers of the poor and small producers through: o Formation of Common Interest Groups/ association/ cooperatives <u>B</u>: Supporting improvement in marketability and market access of locally produced pine nut through: o Linking Producer to consumer; o Empowering Producers by training about the market mechanisms and techniques o Facilitating linkages of local wholesalers and traders with provincial, national and export markets	INTERMEDIATE
Option 3: Facilitating access to finance and business development services including: o Microfinance institutions o Linkages development with leasing companies o Advisory and technical support service providers	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: o Development of quality standards o Implementation of legal framework to ensure regulatory oversight o Incentive mechanism for export quality standard compliance	MAXIMUM

5.10 Grapes Value Chain

Grapes can also be classified as seedless or with seeds. Another classification is with respect to use: table grapes for eating, grapes for making into raisins, grapes for use in commercial foods, grapes for making wine or juice. The choice of variety depends on a number of factors including its adaptation to a particular area and the market demand. The target district for the study, Zhob is one of the larger grape producing districts of Balochistan. Farm holdings are reported medium and small ranging between from 2 to 10 hectares. Grapes are part of the production system where climatic conditions are suitable and irrigation water is available. Since the grapes has variety of uses, there are diverse stakeholder involved in the value chain as illustrated as below.

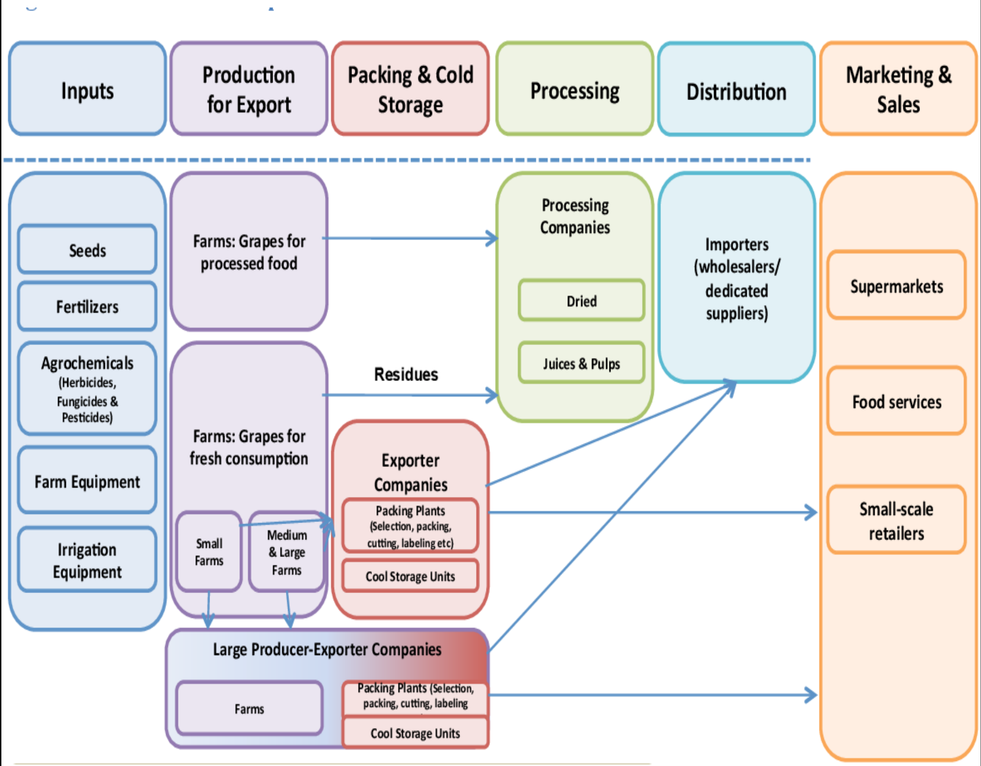
5.10.1 Key Actors of Grapes Value Chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (Seed production, pesticides/fertilizer providers, Irrigation equipment, farm equipment) ▪ Producers (growers/farmers) ▪ Processors (Cold storages, processing companies, packing plants, middlemen) ▪ Local Retailers ▪ Wholesale Retailers ▪ Distributors ▪ Consumers (local and national)	▪ Transporters ▪ Market Facilitators ▪ Banks/Financial Institutions ▪ Training Institutes ▪ Information Desks of Government and NGOs	▪ Trade and development authority Pakistan (TDAP) ▪ Transport Associations ▪ Agricultural department ▪ Trade Associations ▪ Local council associations

Below is the value chain map which illustrates the process from the input suppliers to the consumers of varying nature. The grape value chain has various actors as described above and has various roles. The main use is for fresh fruit at household and commercial level as well. But demand for dry grapes (*kishmish*) and juices is also high, resulting in high demand for the grapes and its residual products.

Meso Level Actors:

- Transporters
- Market Facilitators
- Banks/Financial Institutions
- Training institutes
- Seed information centres



Macro Level Actors:

- Trade and development authority Pakistan (TDAP)
- Transport Associations
- Agricultural department
- Trade Associations
- Local Council associations

5.10.2 Market Dynamics

Field work for the study shows that there is majority large scale businesses in the region. On average, the grape farmer produces around 5000 – 8000 Kgs of Grapes per season and the farmers sell the grapes to middlemen, wholesalers and processing companies at a price of around 150-200 rupees per kgs earning them around??

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	July to October	Local village market, Millers, middlemen/traders

Growing grapes has a lot of risks due to it shelf life as it is preferred fresh besides the processing companies who uses the grapes for making juices and other processed products.

Zhob region has one of the largest grape farming area where many orchards have been maintained for quality grapes. The local growers use traditional method i.e. Trench Farming, which is cheap but has low production capacity. The local farmers have little to no knowledge of the markets and have been selling their products to pre-contractors. Small quantities of grapes are also sold directly to the local vendors by the farmers.

Grape picking, grading and processing is significant part of the process as the lower shelf life of grapes and sensitivity makes it difficult to procure them fresh in a proper manner. Skilled labors are hired to do the job and thus it generates seasonal job opportunities for them as income generation.

The main barriers and constraints at different levels within the Grapes value chain along with the underlying reasons and opportunities for uplifting the value chain can be seen in below table.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Water scarcity – Grapes require irrigation Poor cultivation system Limited varieties Plant nutrition Poor pest and disease management Lack of knowledge/skills	The depleting irrigation water sources is a threat to future of grapes and hence corrective measures are required. Trench cultivation system is not efficient Lesser research and development regarding new varieties of seeds. Farmers generally do not get soil analysis to determine nutrients availability. This adversely affects plant health and in turn crop productivity Farmers generally address issues of pest and disease when they have already attacked the plants. Some farmers' overspray in a panic which causes residual toxicity.	Awareness about the different high yielding varieties can result in the betterment of economic conditions of the regions. Majority of the farmers do not use modern fertilizers resulting in low production. Awareness about them can be beneficial for the fertilizer companies and the farmers. Has potential of major exports if quality production capacity is increased	Provision of high yielding varieties can solve the problem of low production capacity. Providing trainings regarding the use of modern technologies to have higher and efficient yielding capacities. Introduction best practices of water saving technologies should be seriously considered along with other water use efficiency measures. Plant nutrients management should be promoted through soil analysis and use of micro nutrients along with use of compost. Awareness to the farmers regarding use of fertilizers. Linking the farmers to fertilizer companies can substantially impact the growers' production capacity.	Awareness and training sessions to the producers about utilizing the maximum production capacity. Provision of training manuals. Linking Producers and traders. Farmers as well Extension Officers capacity should be built through training in good orchard management practices (pruning, disease and pest management, plant nutrition, etc)
Processors	Processing is done only for making resins. According to study, around 20-25%	Basic traditional techniques are used for drying, packaging and	Adoption of better post-harvest management practices will enable to avoid	Impart training on modern processing techniques	Linking processors with the national and international markets.

	accounts for the losses in the process.	during transportation etc., which results in grape loss.	any loses. This will increase the exports and decrease the import of dry fruits from neighbouring countries.	Transport system should be made better. Training on packing the fresh grapes in order to avoid losses.	Development of manuals for ways of harvesting, processing, packing and handling during transport should be given.
Wholesalers/ Traders/retailers/MFIs	High Transportation cost Grapes are sold to pre-harvest contractors Lowe shelf life	Lack of proper transportation and storages No branding concepts and marketing skills Distant locations of the markets.	creating an enabling environment for the middlemen can substantially increase the production and generate income at different levels.	Training on basic marketing skills for branding Awareness on modern techniques should be provided to the producers, processors and trader/middlemen	Development of market linkages of wholesalers and traders with high end market. Linking Banks/Financial institutions with the processors and other value chain players. .

5.10.3 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Grapes Pruning
- Raisin Processsors
- Grapes Trading

5.10.4 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Skilled labor for pruning**	Skill training on grape collection	Basic techniques and ways to collect and store grapes efficiently
		Linkage between skilled labor with grape orchards	Institutions like NAVTTAC TEVTA can link the skilled labor with the larger grape orchards for employment opportunities
2	**Processing for raisins**	Training on processing of grape	The training will include modules on drying the grapes and grading the raisins for packaging
		Toolkit	Provision of a toolkit comprising of tools needed to grade and package the grapes.
		Job placement	Skilled labor can be linked to larger processing units for employment generation.
3	**Retail fruit sellers**	Training on marketing and sales	The training may include basic marketing and selling skills.
		Equipment	Providing equipment which may include an attractive street vending kiosk

5.10.5 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad
Training on Fruit and vegetable handling (Grapes)	ARI Saryab	Quetta
	ARI Mingora	Swat

	ARI Tarnab	Peshawar
Training on Processing for Raising	Customized training will have to be developed.	

5.10.6 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of Grapes, a set of interventions to develop and strengthen the Grapes value chain in target district is presented below for NPGP team to make an informed decision based on the type and level of engagement for Grapes development:

Set of Interventions for Grapes

Resource Intensity

Option 1: Improving productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting:

- Modern production and processing practices;
- Promote off farm enterprises for supply of inputs such as, transportation, storages, etc.
- Awareness on modern technologies and high yielding seeds.
- Provision of technical, advisory and linkages facilitation support to processing service providers at local level
- Promoting women and disabled workforce for processing production processes.
- Provision of fertilizers and pesticides to avoid diseases.

Option 2: Improving marketability of local produce

A: Improve the bargaining powers of the poor and small producers through:

- Formation of Common Interest Groups/ association/ cooperatives

B: Supporting improvement in marketability and market access of locally produced pine nut through:

- Linking Producer to consumer;
- Empowering Producers by training about the market mechanisms and techniques
- Facilitating linkages of local wholesalers and traders with provincial, national and export markets

Option 3: Facilitating access to finance and business development services including:

- Microfinance institutions
- Linkages development with leasing companies
- Advisory and technical support service providers

Option 4: Facilitating and advocating for a conducive regulatory environment:

- Development of quality standards
- Implementation of legal framework to ensure regulatory oversight
- Incentive mechanism for export quality standard compliance

MINIMUM

INTERMEDIATE

OPTIMUM

MAXIMUM

5.11 Guar Value Chain

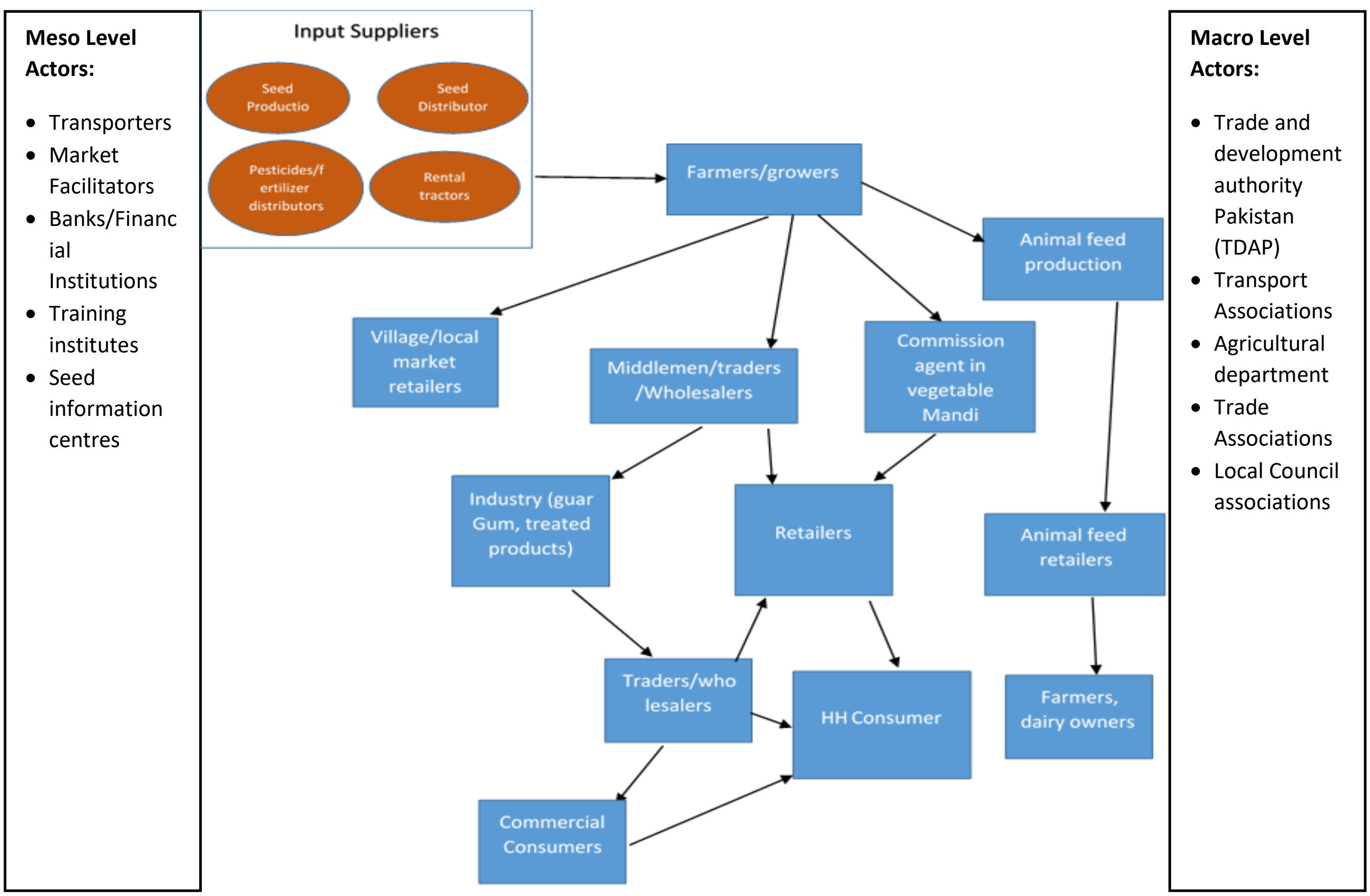
Guar (cluster bean) is grown Pakistan indigenously as fodder, feed, food and cover crops mainly in complex, diverse, risky and under-invested rain fed (arid and semi-arid) regions. Guar seed is grown as a kharif crop. The crop is generally sown after the monsoon rainfall in the second half of July to early August and is harvested in late October to early November.

5.11.1 Key Actors of Guar Value Chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (Seed production, pesticides/fertilizer providers, Irrigation equipment, farm equipment, Rental Tractors) ▪ Producers (growers/farmers) ▪ Processors (processing companies, packing,, middlemen) ▪ Local Retailers ▪ Wholesale Retailers ▪ Consumers (local and national) ▪ Distributors	▪ Transporters ▪ Market Facilitators ▪ Banks/Financial Institutions ▪ Training Institutes ▪ Seed information centres	▪ Transport Associations ▪ Agricultural department ▪ Trade Associations ▪ Local council associations

According to the above table for actors, the following Value chain map for Guar particularly in Jhal Magsi has been illustrated.

5.11.2 Value Chain Map for Guar



Field work for the study shows that there are multiple large scale businesses the region however, majority are family farmers. On average, the Guar farmer produces around 4000 – 5000 Kgs of Guar per season and the farmers sell it directly to middlemen, wholesalers and processing companies at a price of around 350-400 rupees per Kgs.

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	April-July	Local village market, middlemen/traders, animal feed producers.

The main barriers and constraints at different levels within the Guar value chain along with the underlying reasons and opportunities for uplifting the value chain can be seen in below table.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Limited varieties Plant nutrition Poor pest and disease management Lack of knowledge/skills Climatic conditions	Lesser research and development regarding new varieties of seeds. Farmers generally do not get soil analysis to determine nutrients availability. This adversely affects plant health and in turn crop productivity Lack of awareness among the local farmers regarding proper use of fertilizers and pesticides. Uses traditional methods.	Awareness about the different high yielding production can result in the betterment of economic conditions of the regions. Has potential of major exports if production capacity is increased	The production capacity is low and can be improved by providing trainings regarding the use of modern technologies to have higher and efficient yielding capacities. Plant nutrients management should be promoted through soil analysis and use of micro nutrients along with use of compost. Training to the producers to maintain high quality for national and international markets. Awareness to the farmers regarding use of fertilizers. Linking the farmers to fertilizer markets can substantially impact the growth of production capacity. Early Warning System should be in place.	Awareness and training sessions to the producers about utilizing the maximum production capacity. Provision of training manuals. Linking Producers and traders. Farmers capacity should be built through training in farm management practices

5.11.3 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Skilled Guar Gum Labor
- Guar Fodder Seller

5.11.4 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Skilled labor in Guar gum production industries**	Skill training for gum production in industries	Basic techniques and ways used in gum production industries
		Job placement	Skilled labor can be linked to larger processing units for employment generation.

5.11.5 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on crop processing (Guar)	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	SGS Limited Pakistan	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar
Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad

5.11.6 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of Guar, a set of interventions to develop and strengthen the Guar value chain in target district is presented below for NPGP team to make an informed decision based on the type and level of engagement for Guar development:

Set of Interventions for Guar	Resource Intensity
Option 1: Improving Pine nut productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting: o Promote off farm enterprises for supply of inputs such as, transportation, storages, etc. o Awareness on modern technologies and high yielding seeds. o Provision of technical, advisory and linkages facilitation support to processing service providers at local level o Provision of fertilizers and pesticides to avoid diseases.	MINIMUM
Option 2: Improving marketability of local produce A: Improve the bargaining powers of the poor and small producers through: o Formation of Common Interest Groups/ association/ cooperatives B: Supporting improvement in marketability and market access of locally produced pine nut through: o Linking Producer to consumer; o Empowering Producers by training about the market mechanisms and techniques o Facilitating linkages of local wholesalers and traders with provincial, national and export markets	INTERMEDIATE
Option 3: Facilitating access to finance and business development services including: o Microfinance institutions o Linkages development with leasing companies o Advisory and technical support service providers	OPTIMUM
Option 4: Facilitating and advocating for a conducive regulatory environment: o Development of quality standards o Implementation of legal framework to ensure regulatory oversight o Incentive mechanism for export quality standard compliance	MAXIMUM

5.12 Mung Bean Value Chain

Mungbean is a pulse crop that is particularly attractive for farmers in South Asia because of its short duration and decent performance under adverse climatic conditions such as heat, drought and salinity (HanumanthaRao, Nair, & Nayyar, 2016). There is only a limited involvement of private seed companies in mungbean seed production, which is due to a combination of restrictive seed policies and difficulties in intellectual property rights protection related to open-pollinated crops. Public organizations such as the National Agricultural Research Centre in Pakistan is dealing with breeding of improved varieties using breeding lines and gene bank accessions from the World Vegetable Centre's international mungbean improvement program (Schafleitner et al., 2015), but there is a lack of a clear strategy on how to improve mungbean varieties for farmers in an effective and timely manner.

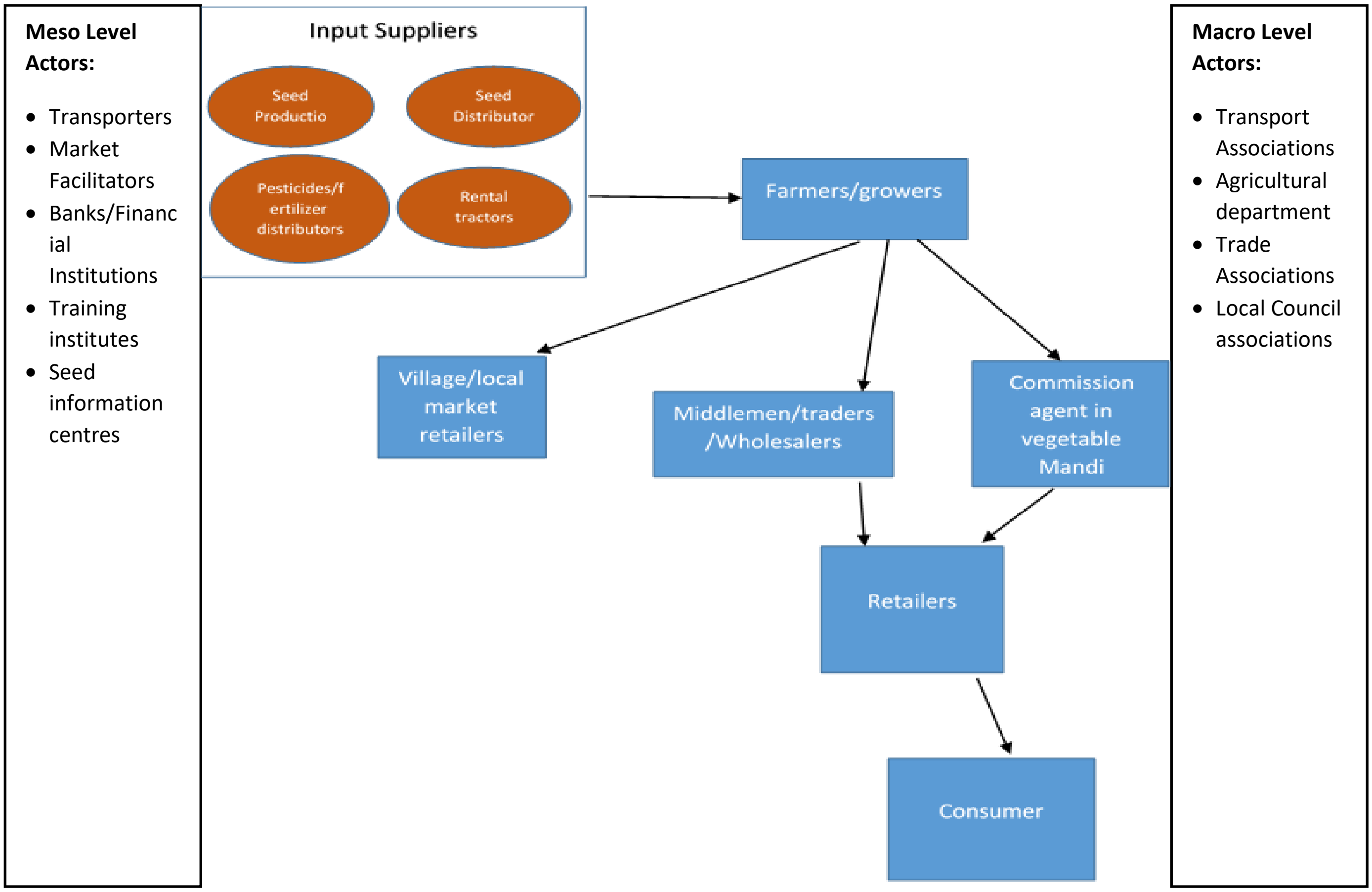
Below are the main actors of the Mungbean value chain as observed by the field work and secondary sources.

5.12.1 Key Actors of the Value Chain

Micro – Operators	Meso – Support Functions	Macro – Enabling Environment
▪ Input suppliers (Seed production, pesticides/fertilizer providers, Irrigation equipment, farm equipment, Rental Tractors) ▪ Producers (growers/farmers) ▪ Processors (processing companies, packing,, middlemen) ▪ Local Retailers ▪ Wholesale Retailers ▪ Consumers (local and national) ▪ Distributors	▪ Transporters ▪ Market Facilitators ▪ Banks/Financial Institutions ▪ Training Institutes ▪ Seed information centres	▪ Transport Associations ▪ Agricultural department ▪ Trade Associations ▪ Local council associations

According to the above table for actors, the following Value chain map for Mung Bean particularly in Jhal Magsi has been illustrated.

5.12.2 Value Chain Map for Mungbean



On average, the Mungbean farmer produces around 3000 – 4000 Kgs of Mung bean per season. There are two seasons for growing mung bean that is Feb-March and June to July and the farmers sell it directly to middlemen, wholesalers and commission agents in local Mandis at a price of around 100-120 rupees per Kgs.

Supply areas (Sources)	Period of supply	Markets
Family Businesses (local producers)	February to March June to July	Local village market, middlemen/traders/commission agents for mandis

The main barriers and constraints at different levels within the Mung Bean value chain along with the underlying reasons and opportunities for uplifting the value chain can be seen in below table.

Actor	Barriers/ Constraints	Underlying reasons	Opportunities	Recommendations	Support (technical and financial)
Producers	Limited varieties Plant nutrition Poor pest and disease management Lack of knowledge/skills Climatic conditions	Lesser research and development regarding new varieties of seeds. Farmers generally do not get soil analysis to determine nutrients availability. This adversely affects plant health and in turn crop productivity Lack of awareness among the local farmers regarding proper use of fertilizers and pesticides. Uses traditional methods.	Awareness about the different high yielding production can result in the betterment of economic conditions of the regions. Has potential of major exports if production capacity is increased	The production capacity is low and can be improved by providing trainings regarding the use of modern technologies to have higher and efficient yielding capacities. Plant nutrients management should be promoted through soil analysis and use of micro nutrients along with use of compost. Training to the producers to maintain high quality for national and international markets. Awareness to the farmers regarding use of fertilizers. Linking the farmers to fertilizer markets can substantially impact the growth of production capacity. Early Warning System should be in place.	Awareness and training sessions to the producers about utilizing the maximum production capacity. Provision of training manuals. Linking Producers and traders. Farmers capacity should be built through training in farm management practices

5.12.3 Proposed Income Generation Opportunities (Services/ Enterprises)

Based on the areas of technical and financial support identified in the above table, the potential income generation opportunities for poor population (service provision and enterprise development) that NPGP beneficiaries can take up are presented here:

- Small Scale Mungbean Farming
- Mungbean Trader

5.12.4 Package of Assets

For each of these enterprises/ services, the package of assets which can be provided to interested project beneficiaries are provided in the table below.

Sr. #	Service/ Enterprise	Proposed Assets and Support	Details
1	**Small scale mungbean farming**	Training on basic farming techniques, use pesticides and fertilizers.	The training will include basic production techniques including preparing the field for sowing, using fertilizers and pesticides, harvesting, preparing the mungbean for different products and selling the produce to middlemen
		Equipment	Provision of machinery for sowing, cutters, etc.
		Exposure visit	Organizing exposure visits for trained beneficiaries to other small scale mungbean farmers in the district to observe and learn from successes.
2	**Labor in collection/ harvesting**	Skill training for Mungbean collection/ production in industries	Basic techniques and ways used in mungbean production on larger level
		Job placement	Skilled labor can be linked to larger processing units for employment generation.

5.12.5 Training Institutes

With regards to the trainings identified as part of asset packages for beneficiaries.

Training on basic Farming Techniques	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar
Training on crop processing (Mung bean)	National Agricultural Research Center (NARC) of Pakistan Agricultural Research Council (PARC)	Islamabad
	SGS Limited Pakistan	Islamabad
	Pakistan Academy for Rural Development (PARD)	Peshawar

Training on marketing and sales for retailers and vendors	Small and Medium Enterprise Development Authority (SMEDA)	Quetta, Peshawar, Loralai, DI Khan
	SGS Limited Pakistan	Islamabad

5.12.6 Proposed Interventions

Based on a detailed analysis of market dynamics, barriers and opportunities of Mung Bean, a set of interventions to develop and strengthen the Mung Bean value chain in target district is presented below for NPGP team to make an informed decision based on the type and level of engagement for Mung Bean development:

Set of Interventions for Mung Bean

Resource Intensity

Option 1: Improving Pine nut productivity, thus uplifting economic conditions of the regions including increasing employment and income generation prospects of poor segments of population by promoting:

- Promote off farm enterprises for supply of inputs such as, transportation, storages, etc.
- Awareness on modern technologies and high yielding seeds.
- Provision of technical, advisory and linkages facilitation support to processing service providers at local level
- Provision of fertilizers and pesticides to avoid diseases.

Option 2: Improving marketability of local produce
A: Improve the bargaining powers of the poor and small producers through:

- Formation of Common Interest Groups/ association/ cooperatives

B: Supporting improvement in marketability and market access of locally produced pine nut through:

- Linking Producer to consumer;
- Empowering Producers by training about the market mechanisms and techniques
- Facilitating linkages of local wholesalers and traders with provincial, national and export markets

Option 3: Facilitating access to finance and business development services including:

- Microfinance institutions
- Linkages development with leasing companies
- Advisory and technical support service providers

Option 4: Facilitating and advocating for a conducive regulatory environment:

- Development of quality standards
- Implementation of legal framework to ensure regulatory oversight
- Incentive mechanism for export quality standard compliance

MINIMUM

INTERMEDIATE

OPTIMUM

MAXIMUM

6 COST BENEFIT ANALYSIS OF TRADES

After the identification of the pro-poor trades, a cost benefit analysis of the trades was carried out under overall guidance of Enterprise Development Expert. The summary of the CBA is provided below. For detailed calculations, please refer to the annexed CBA files (Annex 08).

VC	Trade	Initial Investment	Expected Net Profit	Payback Period (Cycles)[6]
Grapes	Grapes Pruning	57,500	52,000	1.1
Grapes	Raisin Processing	57,000	58,300	1.0
Grapes	Grapes Trading	62,000	27,000	2.3
Guar	Skilled Guar Gum Labour	75,000	240,000	0.3
Guar	Guar Fodder Seller	55,000	16,000	3.4
Handicraft and Dress Making	Tailor Shop	63,500	37,000	1.7
Handicraft and Dress Making	Home-based Tailoring Service Provider	58,500	41,800	1.4
Handicraft and Dress Making	Home-based Handicraft Making Service Provider	59,500	16,500	3.6
Handicraft and Dress Making	Handicraft Shop	66,500	44,000	1.5
Handicraft and Dress Making	Handicraft Tote Bag Making	56,500	115,000	0.5
Handicraft and Dress Making	Sewing Machine Repair Enterprise	58,000	46,000	1.3
Handicraft and Dress Making	Input Supply Shop for Handicraft and Dress Making	65,000	19,000	3.4
Honey	Honey Production	68,000	28,500	2.4
Honey	Honey Selling	69,500	172,000	0.4
Honey	Carpenter for Honey Boxes Making	69,500	96,000	0.7
Honey	Honey Processor	61,500	102,000	0.6
Honey	Honey Protection Gear	79,300	75,360	1.1
Maize	Small Scale Maize Production	62,500	74,600	0.8

[6] One ‘cycle’ refers to one round starting from purchasing input to working to selling produce. For majority of trades, this is one year. However, there may be trades where more than one cycles are possible in one year, or a cycle may require more than one year.

Maize	Maize Processing	92,500	147,180	0.6
Maize	Maize Grains and Popcorn Vendor	69,500	49,300	1.4
Maize	Maize Trading	84,500	32,000	2.6
Medicinal and Aromatic Plants	MAPs Trader	62,500	67,950	0.9
Medicinal and Aromatic Plants	MAPs Collector	61,500	74,250	0.8
Medicinal and Aromatic Plants	MAPs Processor	34,000	41,800	0.8
Mungbean	Mungbean Trader	54,000	26,500	2.0
Mungbean	Small Scale Mungbean Farming	52,500	41,000	1.3
Persimmon	Small Scale Black Persimmon Producer	21,500	12,800	1.7
Persimmon	Persimmon Retailer	74,500	36,000	2.1
Persimmon	Persimmon Dryer	58,500	75,000	0.8
Persimmon	Persimmon Middleman/ Trader	66,500	36,000	1.8
Pine Nut	Pine Nut Collector	67,500	64,800	1.0
Pine Nut	Pine Nut Middleman/ Trader	117,500	132,000	0.9
Small Scale Goat Farming	Goat Farming at Household Level	56,500	24,600	2.3
Small Scale Goat Farming	Goat Trading	68,000	84,000	0.8
Small Scale Goat Farming	Butcher	71,000	276,000	0.3
Small Scale Goat Farming	Skin Collector and Seller	85,500	21,000	4.1
Small Scale Poultry Farming	Poultry Retailer	66,500	41,200	1.6
Small Scale Poultry Farming	Poultry Middleman/ Mobile Vendor	75,500	40,120	1.9
Small Scale Poultry Farming	Small Scale Poultry Farmer	55,500	98,000	0.6
Small Scale Poultry Farming	Small Scale Layer Farming	66,000	35,875	1.8
Walnut	Walnut Trader	80,500	68,400	1.2
Walnut	Small Scale Walnut Producer	23,500	44,800	0.5
Walnut	Walnut Nursery	75,500	32,500	2.3
Walnut	Walnut Retailer	56,500	30,000	1.9

The CBA is based on the data collected from the market actors in the target districts. For each trade, 2-3 participants/ informants were interviewed, and an average of the costs was used as base unit costs.

7 LIST OF ANNEXES

Annex 01	List of Stakeholders Consulted in Phase 1
Annex 02	Data Collection Tools
Annex 03	Cluster Wise Prioritized Value Chains
Annex 04	Phase 1 KII Transcriptions
Annex 05	District-wise VC Scoring and Analysis Files
Annex 06	Key Informant Interviews Data base
Annex 07	FGD Reports
Annex 08	Cost Benefit Analysis Details