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Livelihood Strategies in North-West Pakistan

Results from the Sustainable Livelihoods Survey 2004, North-West Frontier Province (Pakistan)

Bernd Steimann

NCCR North-South Dialogue, no. 10

2007

dialogue

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Merchants in Islamabad, and workers in a field near Mardan. (Photos by the author)

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1.1 Research context and questions

1.1.1 Research context

People in rural areas of Pakistan's North-West Frontier Province (NWFP) often live under very difficult conditions. While many cultivate a piece of land, the yield is hardly ever sufficient to make a living even for their own household. In most of the province's districts, the per capita income is among the lowest in the whole country (World Food Programme, 55ff.). The terrain is often rugged and impassable, not always suitable for cultivation, and the infrastructure is in rather poor condition. Thus, access to food and public services is very much limited in the region – the more so for women, who are subject to strict social control in many areas. In addition, forests, which are often a key resource for construction and energy supply, are on the decline.

Under these circumstances, securing livelihoods becomes a true challenge, often demanding other sources of income in addition to farming. While many choose labour migration in order to escape the poverty trap, there are numerous other ways to make a living, depending on the local setting. Whether or not people live close to goods and labour markets; and whether they reside at high altitudes or in the plains might influence their choice of a particular "livelihood strategy" – although it is probably often necessity rather than choice which shapes these strategies.

The NCCR Pakistan Research Group is focusing on the NWFP. Research is concentrated on natural resource management, i.e. forestry in the province, its political background, and resource use at the local level. Thus, the political structures and local forest use have been continuous subjects of research.[1] Yet as general livelihood studies at the local level are still few,[2] the Group decided to carry out a livelihood survey in selected locations throughout the NWFP.[3] The survey should (i) help to better understand the forest resources' importance for rural people's livelihoods, and (ii) serve as an entry point into the Group's second theme, i.e. the role of gender disparities in and the impact of trade liberalisation upon rural livelihoods.

Taking into consideration NCCR's syndrome context approach, research for this survey was embedded into the highland-lowland context of the NWFP. This should lead to a

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[1] For details, see http://www.nccr-north-south.unibe.ch/Objectives.asp?contextID=107&refTitle=Specific%20regional%20indepth%20research:%20PAKISTAN%20RESEARCH%20GROUP&Context=Project &Topnav=

[2] For a recent study on livelihood strategies in the NWFP, see Government of NWFP 2003.

[3] Field research for this paper was supported by the University of Zurich, and the National Centre of Competence in Research North-South (NCCR-North-South), with financial assistance from the Swiss National Science Foundation (SNF) and the Swiss Agency for Development and Cooperation (SDC).

better understanding of potential similarities and differences between mountain and plain areas.

1.1.2 Objective of the paper and research questions

The survey, which was carried out in 2004, generated a broad data base on rural livelihoods in the NWFP. It not only allowed a detailed analysis of livelihood strategies, but at the same time offered many entry points for further research on particular topics, such as natural resource use, social and human capital, vulnerability and resilience, gender disparities, and many more.

In order to remain concise, it is the objective of this paper to give a first overview of the survey's results, and to uncover some of the entry points for further analysis. These preliminary findings will therefore not be fully embedded into the existing literature on rural livelihoods and the situation in the NWFP in particular. Other, forthcoming papers will make up for that.[4] Following the Sustainable Livelihoods Approach (SLA), which served as a conceptual guideline for the survey's design (see section 1.3.1), the paper gives a description of the availability and accessibility of the five livelihood assets for the selected study locations. Based on this, a typology of livelihood strategies at household level is developed, which should make it possible to identify the potential strengths and weaknesses of certain strategies, and which can serve as an analytical framework for further, more specific analysis. The research questions therefore are:

- How does the availability and accessibility of livelihood assets (as there are: human, natural, financial, social, and physical assets) differ between highland and lowland-contexts?
- Which are the most frequent livelihood strategies? How do they differ in terms of access to and use of certain assets? What are the factors which make a certain strategy more "successful" than others? Are the same strategies also based on the same assets in different locations?

This report accordingly focuses on the level of assets with some initial hints at the role of the institutional context.[5]

1.2 Methodology, field work and data analysis

1.2.1 Survey design and the sustainable livelihoods approach

The survey was based on the Sustainable Livelihoods Approach as formulated by DfID (2001). Box 1 introduces the approach in a few words. The SLA was chosen as the survey's analytical framework because it is a very practical tool for understanding

[4] See, for instance: Sadaf T, Siegmann K. (2005). Gendered livelihood assets and workloads in Pakistan's North-West Frontier Province (NWFP). Pakistan: SAMA Publications; and Siegmann, K. Steimann, B. (forthcoming). Vulnerability and resilience in rural communities of North-West Pakistan.

[5] For the importance of further analyzing the institutional context, see De Haan and Zoomers 2005.

complex livelihood patterns. Besides that, it focuses on people and their practices, and by concentrating on what people have (livelihood assets), it offers a salutogenic perspective.

The questionnaire used for this survey was therefore developed by following the Sustainable Livelihoods Framework. Annex VI gives an overview on the questionnaire's structure.

Box 1: The sustainable livelihoods approach (SLA)

"The livelihoods approach is a way of thinking about the objectives, scope, and priorities for development. (...) In essence it is a way of putting people at the centre of development (...). The framework views people as operating in a context of vulnerability. Within this context, they have access to certain assets or poverty reducing factors. These gain their meaning and value through the prevailing social, institutional and organisational environment. This environment also influences the livelihood strategies – ways of combining and using assets – that are open to people in pursuit of beneficial livelihood outcomes that meet their own livelihood objectives." (DfID, 2001, 1.1)

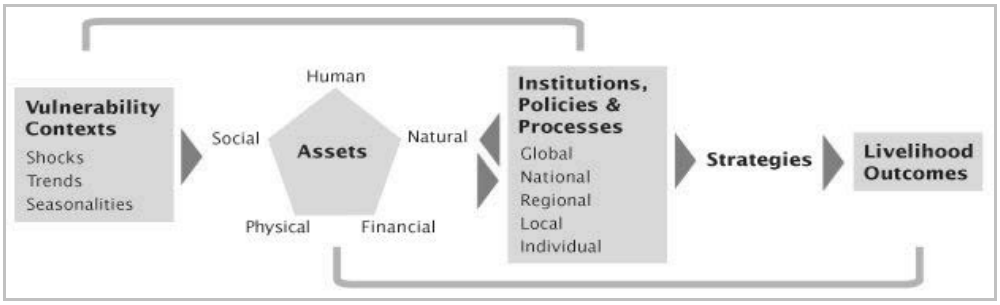

Figure 1: The Sustainable Livelihoods Approach
Source: Own graphic, based on DfID, 2001, 1.1

1.2.2 Sampling and field work

Three study villages were selected by considering the highland-lowland context (see Table 1), which reflects the interests formulated in section 1.1.2. The selection process was partly random, as first contacts with villages were established through local representatives of NGOs (Kanshian, Chamttar) or the local government (Gali Badral). Thus, the locations were chosen from a given preselection. Annex I shows where the villages are located within the NWFP.

Table 1: Selection criteria and research locations

	Kanshian	Gali Badral	Chamttar
Context	Highland	Foothills	Lowland

The survey's first phase consisted of a household listing, during which basic information on all households in each village was collected. For this, one or two people served as key informants per hamlet.[6] Information gathered included the number of household members by sex and age, first and secondary sources of cash income, and access to land. Based on these data, 80 individuals (age 15 years or older) were sampled randomly in each village. This sampling procedure allowed avoidance of a household head approach (in which only – mostly male – household heads are interviewed), and thus guaranteed representativeness on the individual level, and unbiased representation of both women and men. Representativeness was limited only to the household level, (as in some households several respondents were sampled and interviewed).

Finally, 236 interviews were conducted during the second phase of the survey. For this, about ten days were spent in each village. The structured interviews[7] were conducted orally by a team of two female and two male enumerators. Each interview took between one and two hours. In order to get a better understanding of the data collected, focus group discussions with male and female farmers were conducted in all three locations. Semi-structured expert interviews with local politicians and Forest Department officials, as well as participatory observation and transect walks, complemented the data.

1.2.3 Data analysis

During field work, all data was entered on the spot into Excel spreadsheets and later converted into SPSS 11.0, with which the data analysis was made. For this particular report, which analyzes livelihood strategies at the *household level*, the number of interviews had to be reduced by randomly selecting one interview in those households where several respondents were interviewed. This made it possible to avoid overrepresentation of large households (as it was more likely to sample multiple respondents in large households than in smaller ones), yet caused a certain loss of data on the *individual level*, while the number of *households* included in the analysis was not reduced. Table 2 gives an overview of the data reduction made for this report.

Other, forthcoming reports will concentrate on individual aspects of livelihoods and therefore take into consideration the total amount of data generated by the survey (compare section 5.2).

[6] Due to the size of the villages, a preselection of hamlets was necessary in Kanshian and Gali Badral. All data presented in this paper are based on this preselection, and might therefore not correspond to official figures.

[7] Compare annex VI for an overview on the questionnaire's structure.

Table 2: Comparison of total and reduced data by total number of interviews, average age and sex ratio of respondents

	Kanshian	Gali Badral	Chamttar	All
[N]				
Total	81	79	76	236
Reduced	71	61	57	189
Change in %	-12%	-23%	-25%	-20%
Average age of respondents				
Total	41	40	37	40
Reduced	41	40	36	39
Sex ratio (males/females) respondents				
Total	1.3	0.7	1.4	1.1
Reduced	1.4	0.8	2.0	1.3

This paper is divided into five sections: After this introduction, section 2 gives an overview of the three study locations. Section 3 discusses the availability and accessibility of the five livelihood assets, and outlines the vulnerability context in which local households operate. Section 4 first introduces a typology of livelihood strategies at household level. Subsequently, the most frequent strategy types are looked at in detail, i.e. whether and how they use certain assets. Section 5, finally, summarizes the paper and identifies key factors which can make livelihood strategies strong or weak. In addition, it gives recommendations for future research.

2 Village Profiles

For this section, survey data are used, which means that population figures are valid for the examined hamlets only, and not for the whole village. That is why the figures given here might be different from the ones that can be found in the District Census Reports.

2.1 Kanshian (highland)[8]

Table 3: Profile Kanshian

Profile Kanshian	
District	Mansehra
HDI Ranking 2003 [9]	Rank 58
Tehsil	Balakot
Union Council	Gar Lat
Elevation (m asl)	± 2000
Driving time to next town	± 1 hour
Total population	2'889
No. of adult men	866
No. of adult women	830
No. of children (≤15 yrs)	1'139
No. of households	414
Share of major *khels*[10]	Gujar (52%)
	Syed (18%)
	Rajpoot (7%)
	Swati (7%)
	Mohmand (<5%)
	Awan (<5%)
	Abbasi (<5%)
	Mughal (<5%)
	Pathan (<5%)

Located at an elevation of approximately 2000 metres above sea level, Kanshian lies in a side valley of the Kaghan valley. By road, it is accessible from Balakot only, from where it takes six kilometres and about one hour to reach the central hamlets of the village. Only 4x4 jeeps can navigate the stony and rather perilous track. A seat in a shared jeep costs about Rs. 40 per head per trip.

Infrastructure

There are two drinking water supply schemes which supply most of the hamlets with indoor tap water. The scheme was constructed in 2001 with the help of the *Sarhad Rural Support Programme (SRSP)*. For irrigation, three different schemes exist, which were constructed in the 1960s. Some of the irrigation channels are in poor condition, causing loss of water. Electricity is available to most hamlets and households, but power breaks are quite frequent. Piped gas is not available. There are a few small shops in various hamlets, selling some basic food and goods for daily use. The closest market, where all kinds of shops and service providers are available, is in Balakot. For boys, three primary schools and one high school are locally available. For girls, there is but one primary school, where co-

[8] The following hamlets of Kanshian were covered by the survey (compare annex II*): Nikka Kassana, Bari Dogian, Kari, Bari, Khatian, Tangri,* and *Lower Kanshian.*

[9] HDI = United Nations Human Development Index (district-wise);(http://www.un.org.pk/nhdr/htm_pages/cp_1.htm, date of retrieval 20/4/2005).

[10] A *khel* is a kinship group, which is divided into smaller groups, each of which consists of several extended families. Several *khels* form a tribe

education of boys and girls is practised. Higher education is available in Balakot. Several mosque schools can be found in the village (compare annex II).

Natural resources and climate

Steep slopes characterize Kanshian valley. Only where the central hamlets are located does the topography allow limited cultivation of crops. All fields are terraced and sometimes not bigger than a few square metres. Dense forests grow above the village, between 2,000 and 2,500 metres. Half of this is Reserved Forest, the other half Guzara Forest.[11] Slopes that are closer to the settlement are mostly barren, often showing signs of soil erosion. Two brooks, which merge in the village centre, are the main sources of drinking water and some irrigation. The climate is moderate. Cold winters from November/December to February can bring several inches of snow; summers are warm with peak rains in July/August. Spring and autumn are rather dry.[12]

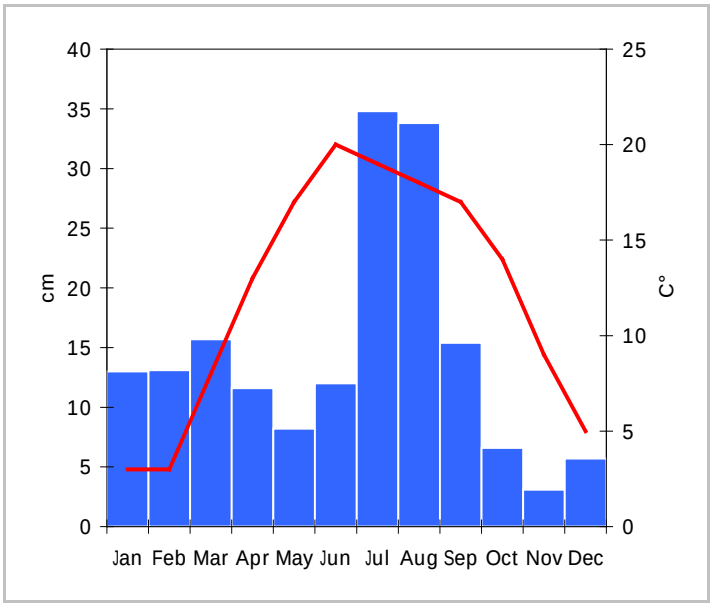

Figure 2: Average temperature and precipitation for Murree (2200 m asl)
Source: www.weatherbase.com

Land tenure and agriculture

Most households are farming households and own all the land they cultivate. There are some owner-cum-tenant households, while pure tenancy does not exist. Many households own large plots of land, but can cultivate a small part of it only, as the terrain is too steep. Most areas are rainfed (*barani*); only a few fields in the more central hamlets are irrigated. Farming households cultivate maize (June to September), and, in a few cases, winter wheat (December to April). There are many fruit trees, such as walnut,

[11] For a definition of forest types, see section 2.2.2

[12] For the climate diagrams, figures from the nearest available gauging station at comparable altitude were used.

apricot, pear, and apple. Walnut trees are currently affected by an unknown disease that destroys half of the usual harvest. Many households keep a few goats, bullocks or buffaloes. As markets are far away and productivity is relatively low, agriculture is mainly for subsistence.

Photo 1: Due to the steep terrain, arable land is very limited in Kanshian
Source: Photo by the author, 5/04

Project inputs and local needs

SRSP has been active in Kanshian for several years, organizing the residents in twelve so-called Community-Based Organizations (CBOs), each representing one or two hamlets (including one female CBO). The drinking water supply scheme was realized based on this structure. Cooperating with the same CBOs, the Swiss-funded *Community Based Resource Management Project* (CBRM) started to work on infrastructure in the village, too. The presence of state departments is very weak; only the Union Council[13] initiated electrification in some of the lower hamlets. Both men and women pointed out the need for better educational facilities, mainly for girls. Another need is the construction of a better road, which would allow people to reach Balakot more easily. Women additionally mentioned the need for a hospital, a qualified doctor, and vocational training. Men stressed the bad condition of the irrigation scheme (compare annex VII).

[13] Local parliament; see section 2.4.2 for details.

2.2 Gali Badral (foothills)[14]

Table 4: Profile Gali Badral

Profile Gali Badral	
District	Mansehra
HDI Ranking 2003	58
Tehsil	Oghi
Union Council	Shergarh
Elevation (m asl)	± 1060
Driving time to next town	± 35 min
Total population	1'569
No. of adult men	490
No. of adult women	487
No. of children (≤15 yrs)	592
No. of households	180
Share of major *khels*	Tanoli (54%)
	Badral (23%)
	Parwal (5%)
	Saryal (5%)
	Moghul (<5%)
	Awan (<5%)
	Swati (<5%)
	Gujar (<5%)

Gali Badral lies in the hilly area surrounding the Oghi valley, at an elevation of about 1000 metres. While the local bazaar with the main hamlets of Havalle, Tarli Cham, and Faqirabad are close to the road (compare annex III), other hamlets stretch along the moderate slopes in the direction of Oghi. The village is accessible from two sides by metalled road. From the bazaar, frequent minibus transport runs to Shergarh, Oghi, and Haki. One way to Oghi takes about 35 minutes and Rs. 10 per head.

Infrastructure

A drinking water supply scheme has been constructed with the help of *Plan Pakistan*. Yet drinking water is still often fetched from springs during summer. There is no major irrigation scheme, so that farmers often complain about a lack of sufficient water. Electricity is available to most households in all hamlets. Piped gas supplies are non-existent. The bazaar along the main road offers various groceries, a bakery, a car repair shop, a pharmacy, a public call office, and much more. There is one primary school for girls. For boys, there is a primary and a high school. In addition, a private English medium school for boys and girls exists. There are also some mosque schools.

Natural resources and climate

The area in which Gali Badral is located is hilly with moderate slopes. Nevertheless, suitable land for cultivation is very limited and can mainly be found at the valley bottom in direction of Oghi. The soil layer is very thin. Loose, mainly coniferous forest covers the slopes above the village. According to the Forest Range Officer in charge, all forest has been declared Protected Forest, so that there is no Guzara Forest in Gali Badral. So far, deforestation has resulted in thinning of forests rather than completely barren hillsides. That is why soil erosion is still limited. As Gali Badral is located on a pass (*gali* means 'pass'), water is scarce. Only a few minor rivers run across the outer hamlets. The climate is moderate with hot summers and cool winters. Most rainfall

[14] The following hamlets of Gali Badral have been covered by the survey (compare annex III): *Havalle, Qazi, Tarli Cham, Naeem Abad, Betak, Nala, Faqeer Abad, Khar Mera, Mandra, Nakka*.

occurs in June and July, when the monsoon season also affects the foothills of the Karakorum. In winter, snow is rare. Temperatures reach an average of more than 25°C in June, and seldom drop below the freezing point in winter.

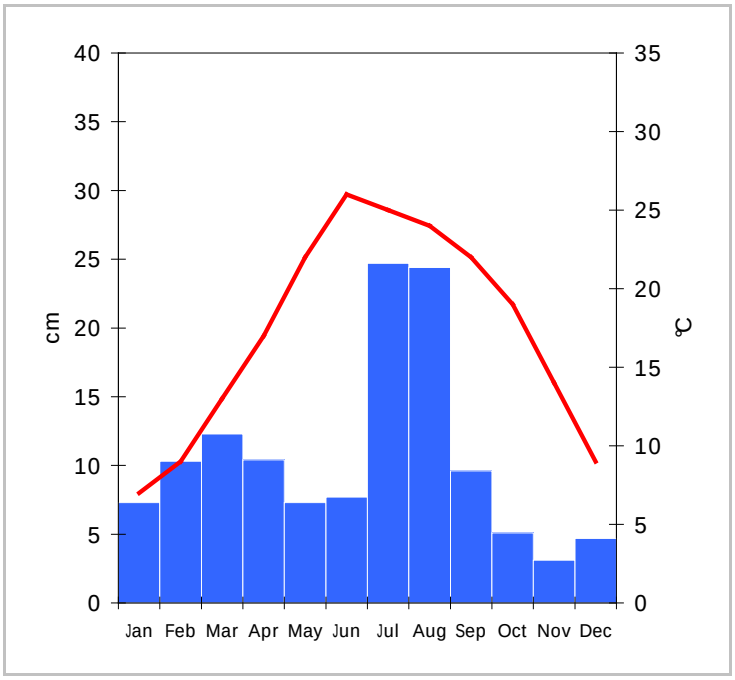

Figure 3: Average temperature and precipitation for Abbottabad
Source: www.weatherbase. com

Land tenure and agriculture

Throughout Oghi *Tehsil*,[15] land tenure has not been clarified in most cases. This is so because of a court case that has been pending between the family of the *Nawab* (former ruler of *Amb* state, to which Gali Badral belonged), the provincial government, and local residents for more than 50 years. When Pakistan became independent in 1947, the *Nawab*, who had been installed by the British, lost his power. Although he and his clan claimed to be the legal owners of all the land, no official document existed to prove this. Thus local residents stopped paying the rent for the land and declared themselves to be the landowners. This is why in the late 1950s a court case was brought in order to clarify land rights between the *Nawab*, the province, and local residents. The case was still pending at the time of research for the present paper. Thus the majority of local people, who call themselves landowners, own the land *de facto* only, without any land title yet. Gali Badral is a rainfed area, where maize is cultivated in summer and wheat during winter. Due to the thin soil layer and the rugged terrain, productivity is relatively low. The most common fruit trees are apple, peach, and walnut. Similar to Kanshian, many households keep some livestock, such as goats, bullocks, or buffaloes.

[15] *Tehsil* is an administrative category. The categories in Pakistan are as follows (bottom-up): village, union, tehsil, district, province.

Photo 2: Moderate slopes and loose forest characterize the area in Gali Badral
Source: Photo by the author, 5/04

Project inputs and local needs

SRSP has been active in the village for the last few years, organizing the community into four Community-Based Organizations (CBOs). *Plan Pakistan* has supported the village in constructing a drinking water supply scheme, improving the basic health unit and linking it to the main road, as well as levelling the high school playground. For the near future, a latrine system is planned for the central hamlets. Asked for the most urgent local needs, women stressed the need for a girls' high school, for more and better vocational training for women, and for a qualified doctor at the basic health unit. Men mentioned the need for good machines that could help to level land and to construct checkdams. They also expressed their need for support in the pending case over land ownership.

2.3 Chamttar (lowland)[16]

Table 5: Profile Chamttar

Profile Chamttar	
District	Mardan
HDI Ranking 2003	32
Tehsil	Mardan
Union Council	Chamttar
Elevation (m asl)	± 350
Driving time to next town	± 15 min
Total population	2'067
No. of adult men	557
No. of adult women	551
No. of children (≤15 yrs)	959
No. of households	184
Share of major *khels*	Mohmand (a *pukhtun* tribe; 99%)

The *pukhtun* village of Chamttar is located about four kilometres southwest of Mardan, at an elevation of 350 metres above sea level in a flat area. The three main hamlets, which form a spatial entity, lie just off the main road link between Mardan and Nisadda/Charsadda (compare annex IV). Public minibus transport runs regularly be-tween the village and Mardan bazaar; one way takes not more than fifteen minutes and about Rs. 10 per person.

Infrastructure

There is no drinking water supply scheme available, so indoor tap water does not exist. People fetch their drinking water from private and public wells and hand pumps. For agricultural purposes, there is an irrigation scheme in the form of broad irrigation channels, which are diluted by nearby rivers. From these, smaller irrigation channels lead to the fields. Electricity is available to most households. A piped gas supply does not exist. A few small shops sell goods for daily use in the village, and pedlars frequently visit the households. A true bazaar does not exist and can only be found in Mardan. There is one primary school, offering co-education for boys and girls. School buildings are small and in poor condition, so that space is insufficient for all students. Some classes must sit in the courtyard. When it starts to rain, pupils must be sent home. There is also a boys' high school. Girls have to travel to Mardan for higher education. There are also some mosque schools.

Natural resources and climate

Chamttar is situated in the middle of the Peshawar plain, with fertile lowlands suitable for agriculture. Kabul River crosses the plain from East to West and is joined by many tributaries from the mountains in the North. Fields are large, and settlements are concentrated. Dense forest does not exist in the area – the only trees are fast-growing species such as poplar, which are cultivated between the fields. Salinization is a serious problem and can be observed in many places around the village. The climate is very hot and humid in summer and moderate in winter. Temperatures can reach up to 45°C in July, and the monsoon season results less in rainfall than extreme humidity. Most rainfall occurs in March and August, while June and October are completely dry.

[16] The survey covered all three hamlets of Chamttar (compare annex IV*): Bar Cham, Karkai Cham, and Kuz Cham.*

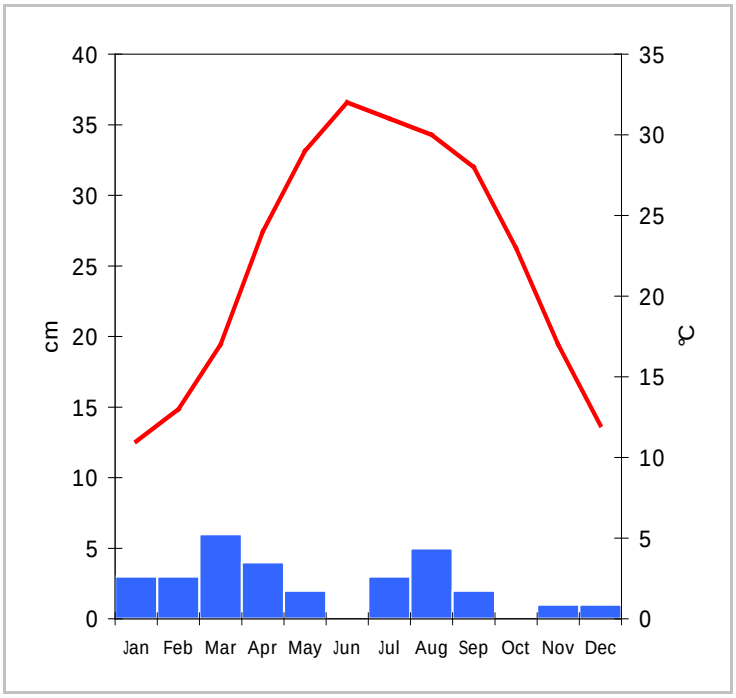

Figure 4: Average temperature and precipitation for Peshawar
Source: www.weather base.com

Land tenure and agriculture

Most land in Chamttar is distributed among a few landlords living outside the village. The richest one resides in Mardan and is 'represented' in the village by a (wealthy) local resident. Most farming families are thus tenants. The main crops are sugarcane (whole year), maize, and wheat (season depending on sugarcane harvest). As productivity is high, and a large sugar mill is located nearby, many farmers produce sugarcane as cash crop. Fruit orchards can be found around the village but belong to the landlords. Many households keep bullocks or buffaloes.

Photo 3: A large irrigation channel crossing Chamttar village
Source: Photo by the author, 5/04

Project inputs and local needs

The *Human Development Foundation (HDF)* has been working in Chamttar for several years, mainly on education, skill development, and micro enterprises. Training for women in embroidery has been given too. Another organization called *Apna Sihat* has been working on health improvement. Asked for their community's most urgent needs, both men and women mentioned the absence of their own school for girls. Apart from that, improved health facilities, e.g. the construction of a dispensary or a local hospital, as well as a vaccination campaign against Hepatitis, are primary needs. More and better employment opportunities in the village would be welcomed.

3 Selected Livelihood Assets

This section focuses on the five livelihood assets, i.e. human, natural, financial, social, and physical assets. For each village, each group of assets will be described in general. Based on this, section 4 identifies different livelihood strategies.

3.1 Human assets

3.1.1 Household size

As a measure of human assets, household[17] size, number of migrants, adult literacy rates, school enrolment of children, and health status are tabulated.

[17] For this study, the household is defined as an entity composed of those people who contribute to and/or live from a common budget. This definition also includes migrants who do not live with their families (e.g. a son living in Karachi for work but sending money back home), but not their families living along with them in migration (as those people are not directly connected to the local household's budget).

Table 6: Household size, no. of migrants & other human assets by household groups (OF = owner farm households; OCT = owner cum tenant farm households; PT = pure tenant farm households; NF = non-farm households)[18]

	OF	OCT	PT	NF	Total
Kanshian					
[N]	54	11	0	6	71
Total no. of HH members (median)	8	10		9	8
Female to male ratio (median)	100	100		103	100
No. of HH members living at home (median)	6	8		8	7
Total no. of migrants (median)	1	1		1	1
No. of adult male migrants (median)	1	1		1	1
Average share of adult male migrants in total adult men (%)	28	24		14	26
Gali Badral					
[N]	52	3	1	5	61
Total no. of HH members (median)	10	7	6	8	9
Female to male ratio (median)	100	75	100	60	100
No. of HH members living at home (median)	8	7	5	7	8
Total no. of migrants (median)	2	0	1	0	1
No. of adult male migrants (median)	1	0	1	0	1
Average share of adult male migrants in total adult men (%)	25	0	33	9	23
Chamttar					
[N]	1	1	31	24	57
Total no. of HH members (median)	15	7	11	10	10
Female to male ratio (median)	36	75	80	94	83
No. of HH members living at home (median)	13	6	11	10	10
Total no. of migrants (median)	2	1	0	1	0
No. of adult male migrants (median)	2	1	0	1	0
Average share of adult male migrants in total adult men (%)	18	25	9	16	12

Human assets such as household size and literacy give an idea of a household's quantitative and qualitative potential. A household investing in education (provided that facilities are available) can increase its alternatives for income generation and might be able to find better sources of income through regular salaried jobs or self-employment.

[18] Typology of household groups according to Kurosaki, 2001.

Household size varies between 8 (Kanshian) and 10 (Chamttar) people. These figures reflect the prevalence of the joint family system. Migration does not play a very important role in Chamttar, so that in a typical household, all ten members live at home. In Kanshian and Gali Badral, a typical household has one or two (male) migrants. In those two villages, one out of four adult men lives as a migrant. This underlines the high importance of labour migration as a livelihood strategy. Although they are already large in number, households seem to be subject to further growth: Asked for long-term changes in family size, a majority of respondents aged 35 and above[19] in all three villages said that present households were larger than in the past.[20]

3.1.2 Literacy and enrolment

Literacy has been defined as the ability to read and write. 55% (Kanshian, Gali Badral) and 70% (Chamttar) of all male respondents said they were literate (male average 61%). Only 17% (Kanshian, Gali Badral), and 6% (Chamttar) of all female respondents said the same (female average 14%). While we found equal figures in Kanshian and Gali Badral, the contrast with Chamttar is striking. Here, *Pukhtun* law[21] and the absence of girls' schools might be the reasons for a surprisingly low literacy rate among women. Yet women are far behind in literacy in all three villages. This reflects the official national average, which is 55% for men and 32% for women.[22]

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[19] The cut-off point of 35 years of age (=above 34 years) was applied when analyzing respondents' perceptions of the past. The figure of 35 was chosen in order to get a detailed perception of a 'past' at least 20 years ago. It must be mentioned that this causes a certain gender bias, as the male-female ratio of respondents above the cut-off is 1.9:1 (male-female ratio in all respondents is 1.1:1).

[20] Annual population growth rate for the NWFP is 2.4% (1999 to 2000) (http://www.nwfpbos.sdnpk.org/nwfpds/2000/contents.htm, date of retrieval 1/2/2005).

[21] *Pukhtun* society not only adheres to general Islamic law but also its own, the (unwritten) *Pukhtunwali*, which is the core of *Pukhtun* social behaviour. "In the ideal, the pursuit of an honourable life (…) is equated with a life approximating to the features of *Pukhtunwali*." (Ahmed, 1980, 87f). As women's acts are considered to reflect (and potentially endanger) their husbands' honour, female activities are mostly confined to the household. In addition to the Muslim system of sex segregation (*purdah*), women's mobility is thus highly restricted. Ahmed (1980, 203) sums up the *Pukhtun* women's lot with a proverb: "For a woman either the house or the grave."

[22] Pakistan Integrated Household Survey 2000/1; http://www.statpak.gov.pk/depts/fbs/statistics/pihs 2000-2001/pihs2000-2001.html, date of retrieval 1/2/2005.

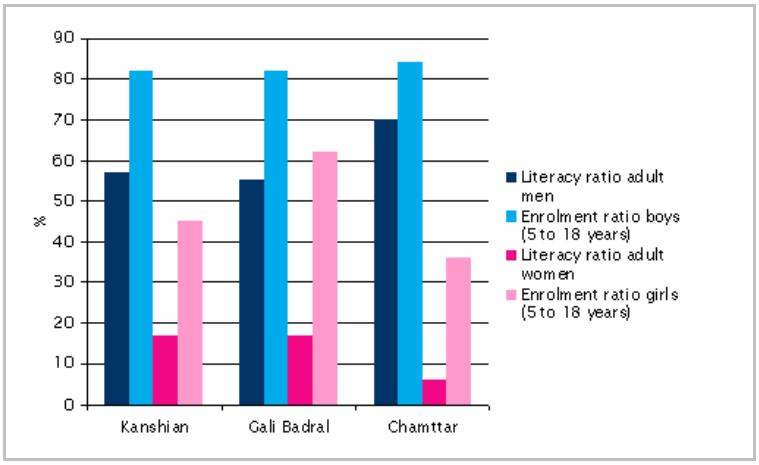

Figure 5: Adults' literacy rate and children's school enrolment rate, by sex and village

Regional differences in school enrolment of children between 5 and 18 years are less obvious, yet also reflect the huge gap between male and female education: whereas boys' enrolment rate is above 80% in all three villages, the girls' rate is above 50% in Gali Badral only. Provincial averages lie at 60% for boys and 36% for girls (school enrolment for children aged 6 to 10 years).[23] Lack of sufficient school facilities for girls, who often have to leave after primary school, is the main reason for the low rate in Kanshian. In Chamttar, most of the girls have to stay at home due to *Pukhtun* tradition, which heavily restricts female mobility and does not support female education. In all villages, a clear majority of respondents aged 35 and above said that local school facilities have improved. Together with the fact that enrolment rates are higher than the adult literacy rates, this indicates a positive trend in quantitative aspects of education. Visits to local schools, however, revealed striking deficits in terms of available rooms and the number of teachers per student.

3.1.3 Health status

In general, the frequency of diseases is slightly lower in Chamttar: While in Kanshian and Gali Badral, nearly 30% of all people suffered from a disease during the last six months, only 18% were sick in Chamttar. Distinguishing children from adults helps to explain some of the differences.

Both in Gali Badral and Chamttar, the incidence of diarrhoea among children is rather high. Contaminated drinking water could be a reason for this, as in both villages about one third of all respondents was not satisfied with the water quality (Kanshian: 10%). On the other hand, children in Kanshian often suffer from various infections, mostly of throat, skin or eyes. Common in all villages are respiratory diseases among children,

[23] Pakistan Integrated Household Survey 2000/1; http://www.statpak.gov.pk/depts/fbs/statistics/pihs 2000-2001/pihs2000-2001.html, date of retrieval 1/2/2005.

most probably caused by the smoke from indoor fires for cooking and heating, for which poor material such as leaf litter and grass is often used (compare 3.5).

As for adults, chronic diseases are especially widespread in Kanshian. Stomach problems, blood pressure, joint pain, tuberculosis, hepatitis and various kinds of cancer are the most frequent problems. 'Other diseases' include those that could not be classified. In the case of women, this often includes delivery complications – a problem which in the absence of easily accessible health care facilities often ends fatally. Actually many diseases that could be treated elsewhere can quickly become very serious: "Although tuberculosis is curable, many patients are unable to survive it due to lack of medication, and high costs of private care" (The Friday Times, July 9-15, 2004, Vol XVI, No.20, p.27). In this respect, the health status of adults in the three villages can be termed as rather critical. People's perception of long-term changes underlines this: In all three villages, a clear majority of about 95% was of the opinion that the frequency of diseases increased compared with the past (respondents above 34 years of age), although a majority nearly as clear was of the opinion that health facilities had improved.

Table 7: Frequency of various diseases by sex and age during the last six months

	% of men suffering	% of women suffering	% of boys suffering	% of girls suffering
Kanshian				
[N]	214	198	128	126
Diarrhoea	1.1	0.3	2.5	1.8
Respiratory disease	4.3	2.3	3.5	2.1
Chronical disease	13.1	28.1	0.7	5.3
Infection	3.4	4.5	6.2	7.9
Other diseases	4.4	8.1	1.7	5.7
Gali Badral				
[N]	248	249	175	141
Diarrhoea	2.4	2.8	7.2	4.8
Respiratory disease	1.2	0.5	4	3
Chronical disease	9.2	15	3.5	2.5
Infection	0	5	1.6	3.3
Other diseases	9.6	19.6	7.9	10
Chamttar				
[N]	293	254	253	204
Diarrhoea	1.2	0.4	6.8	5.4
Respiratory disease	1.8	1.6	3.4	1.7
Chronical disease	5.2	8.8	0	0
Infection	4.3	2	1.9	0.3
Other diseases	10.4	23.2	8.3	7.9

3.2 Natural assets

As most of the households in Kanshian and Gali Badral and more than half of all households in Chamttar are involved in agriculture, this section focuses first on land access. Subsequently, access to forest resources will be discussed.

3.2.1 Access to land

Figure 6 shows the proportions of various types of farming and non-farming households. Of all households recorded, 94% in Kanshian and 93% in Gali Badral have access to land. Out of these, more than 97% are involved in farming. In both villages, the vast majority of farming households own all the land they cultivate (owner farms). Tenancy is not very common; in Kanshian; there is not a single pure tenant farm (see Figure 6). Figures from Gali Badral have to be read with care, due to the court case mentioned about the ownership of land (compare 1.3.2). Many people do call themselves landowners but do not have official proof for it. In Chamttar, however, things are different. Only 61% of all households have access to land, of which 94% are involved in farming. As the land around the village is mainly divided among a few big absentee landlords, most farmers are pure tenants. 42% of all households do not farm at all, thus indicating the importance of other occupations and sources of income in the lowland. In terms of farming households, Kanshian and Gali Badral are quite close to the provincial average, which lies at 83% owners, 6% owner cum tenants, and 11% pure tenants.[24]

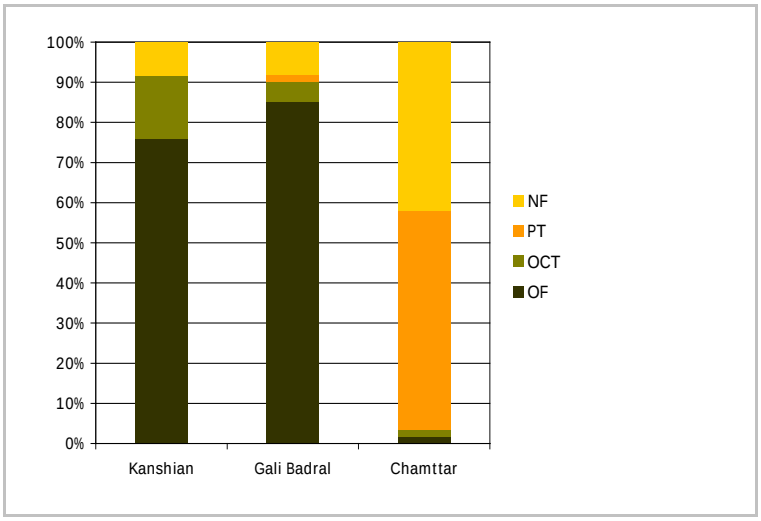

Figure 6: Proportion of farming and non-farming households by village (abbreviations see Table 6)

[24] Agricultural Census Organization: http://www.statpak.gov.pk/depts/aco/publications/agricultural_ census2000/ agricultural_census 2000.html; date of retrieval 1/2/2005.

Table 8 shows how much land the various farming households have access to on average. All in all, most land is available in Kanshian (13 *kanal*)[25]. Yet in Kanshian and Gali Badral, much land is steep rangeland and not arable. In addition, the soil is not very deep and, especially in Kanshian, is mixed with slate debris. In contrast to this, most of the land in Chamttar is flat and rather fertile (although salinization is a serious problem). This is why although an average household in Chamttar owns less land than a household in Kanshian, more arable land is available (10 *kanal*). Thus, most farmers in all three study villages belong to the group of small farmers who have access to a maximum of 20 *kanal* of land. This group represents 60% of all farmers in the province.[26]

Table 8: Access to land (abbreviations see Table 6)

	OF	OCT	PT	Total
Kanshian				
[N]	54	11	0	65
Accessible land in *kanal*	12	16		13
Accessible arable land in *kanal*	5	9		5
Gali Badral				
[N]	52	3	1	56
Accessible land in *kanal*	10	27	76	10
Accessible arable land in *kanal*	6	12	76	6
Chamttar				
[N]	1	1	31	33
Accessible land in *kanal*	4	8	10	10
Accessible arable land in *kanal*	4	8	10	10

3.2.2 Forest resources

Dense forests can be found around Kanshian and Gali Badral. The main coniferous species are Blue Pine, Chir Pine, Fir, Kail, and Spruce. Walnut is the most common broad-leaved tree. While the dense mountain forest in Kanshian is very steep and at least 30 minutes away from the central hamlets on foot, forests in Gali Badral are less steep and much closer to the main hamlets. In and around Chamttar, dense forest does not exist. Most trees grow in between fields, where some landowners and farmers raise fast-growing species such as poplar and eucalyptus. Other (wild) species are acacia, wild olive, and mesquite (Kureshy, 1998, 60).

[25] 1 *kanal* = 0.125 acre = 0.05 hectare

[26] Agricultural Census Organization: http://www.statpak.gov.pk/depts/aco/publications/agricultural_ census2000/ agricultural_census2000.html; date of retrieval 1/2/2005.

According to local people's perceptions, 70% of the forests around Kanshian are *Guzara* Forest, and the remaining 30% Reserved Forest.[27] In Gali Badral, all the forest has been officially declared Protected Forest after being resumed from the *Nawab* of Amb (compare 1.3.2). Generally speaking, this means that formal/legal access to forest resources such as fuelwood and construction timber is easier for residents of Kanshian than for those of Gali Badral. However, reality often looks different, as many people use informal ways to access forest resources.[28]

Table 9: Access to and use of forest resources

	Kanshian	Gali Badral	Chamttar
[N]	71	61	57
% of households owning forestland	11	2	0
% of households using forest as source of…			
… construction timber	66	36	0
… fuelwood	73	75	0
Primary source of…			
… construction timber	forest	forest market	market
… fuelwood	forest	forest market	market own land

This is underlined by the figures in Table 9. Every sixth household in Kanshian owns some *Guzara* Forest, thus having exclusive access to timber (with the consent of the Forest Department) and fuelwood, and having the right to deny access to others. In Gali Badral, one household declared that it owned some forest – yet according to the law, people can own shares in the forest but cannot own the forest itself. This, though, is a common (mis-)conception among people living close to Protected Forests.[29] In Chamttar, where no dense forests exist, people have access to single trees and bushes only. Yet this does not mean that people's dependence on timber and non-timber resources is necessarily lower than in the other two villages. Section 4.5 provides more information on this.

3.2.3 Water resources

Kanshian and Gali Badral are *barani* areas, which means that their agriculture is completely rainfall-dependent. In Kanshian, several mountain brooks run across the main

[27] *Guzara* Forests are privately owned, but managed by the Forest Department; Reserved Forests are public forests free of all rights except those specifically admitted; Protected Forests are public forests open to all uses except those specifically prohibited. For detailed definitions see Ahmed/Mahmood, 1998, 17f.

[28] See Steimann, 2003.

[29] Ibid., 57f.

hamlets – during spring, they bring a lot of water that is diluted into small irrigation channels leading to terraced fields. Gali Badral, however, is located on a small pass with just a few minor brooks. In contrast to this, the fields around Chamttar are supplied with water by a major irrigation scheme.

Table 10: Access to various types of drinking water sources and average walking distance

	Kanshian	Gali Badral	Chamttar
[N]	71	61	57
% of households using…			
… spring	63	56	0
… well	0	21	37
… own hand pump	0	0	47
… tap water outdoor	52	16	0
… tap water indoor	34	74	9
Average walking distance to next source (both ways, in minutes)	18	21	2
% of respondents terming water quality as 'bad	0	3	9

Table 10 gives an impression of the availability of drinking water. People in Chamttar do not have to walk far to get water, while distances in Gali Badral (average 21 minutes both ways) and in Kanshian (18 minutes) are very great. On the other hand, according to the respondents' perceptions, water quality seems to be best in Kanshian and worst in Chamttar.

3.2.4 Long-term environmental changes

Respondents were asked how the local environment changed since their childhood. In Kanshian and Gali Badral, about 70% of respondents aged 35 and above said that the environmental situation became worse, very often mentioning increased shortage of water for agriculture and people due to less rainfall. As a matter of fact, the whole of Pakistan was affected by a drought that started in 1998 and continued until 2002. During that time, a decline in vegetation up to 20% was recorded for the districts in which the study villages are located (WFP, 2004, 121). In the lowland (Chamttar), 45% of the respondents above 34 years of age said that the environmental situation improved, while 40% said the opposite, often mentioning more (!) rainfall as the main reason for the worsening conditions. It must be added that the environment is generally more dynamic in the highlands than in the lowlands. Ongoing deforestation in uphill areas is another factor that can lead to increased erosion and loss of land.

3.3 Financial assets

3.3.1 Available stocks

Stocks exist both in the form of money (cash savings or bank deposits) and in kind (e.g. livestock, jewellery). Respondents were asked whether or not their household saved any money during the six months prior to the survey, and how much livestock they possessed. Figure 7 shows that in all villages, a majority of households keep some livestock, while only 22% to 44% say to save money.[30] Most households with savings can be found in Chamttar, while the number of those with livestock is highest in Kanshian. Both in Gali Badral and Chamttar, households without any kind of stocks exist. In all cases but one, these are owner farm or non-farming households. As for livestock, goats are more common among non-farming households in Kanshian and Gali Badral, while farming households more often keep bullocks or buffaloes, which can be used for field work, such as ploughing.

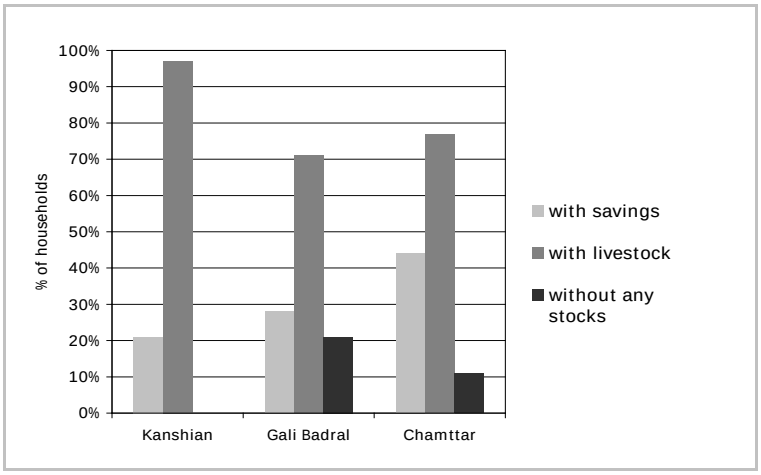

Figure 7: Share of households with savings and stocks

3.3.2 Cash income sources

39% of all households in Chamttar have more than two sources of cash income, and 16% have even more than three. In Kanshian and Gali Badral, the majority of households are dependent on one cash income source only (55% and 54%, respectively), so that the average number of cash income sources is far below two. By contrast, farming households in Chamttar usually have a more diversified income structure. Non-farming households have a more or less equally diversified income structure in all three study villages.

[30] As financial issues can be very sensitive, some respondents might have been reluctant to tell the truth, so real figures might be higher. This may also be the reason why no stocks in the form of jewellery were recorded.

Income types will only be discussed here in terms of their origin. Table 11 shows that approximately 60% of the households in Kanshian and Gali Badral are (partly) dependent on externally earned cash incomes (remittances by labour migrants). The share of households which can (partly) rely on locally or regionally earned cash income – e.g. sale of crops and other farm products, regular salaried jobs of present household members, or agricultural wage labour – is much smaller in those two villages than in Chamttar, where nine out of ten households can generate cash income in the local or regional context. It can be assumed that these figures reflect the availability of and access to local and regional labour markets; where the share of locally earned cash income is low, and opportunities to find jobs or to sell products are scarce. In general, non-farm households are less dependent on remittances than farming households. Granted incomes, which include *Bait-ul-Mal, Zakat,*[31] and financial support by non-household members, are important for 10% of all households in Kanshian.

[31] *Bait-ul-Mal* is a social welfare institution and provides assistance to the poor and the needy as defined under the Bait-ul Mal Act of 1991. *Zakat* is one of the Pillars of Islam. A Muslim is supposed to give alms to the poor and needy on an annual basis. (http://muslim-investor.com/mi/glossary.phtml, date of retrieval 29/10/04)

Table 11: Types of cash income sources (abbreviations see Table 6)

	OF	OCT	PT	NF	Total
Kanshian					
[N]	54	11	0	6	71
Average no. of income sources	1.5	1.9		1.8	1.6
% of households with					
… locally earned income(s)	54	55		67	55
… externally earned income(s)	61	64		33	59
… granted income(s)	7	9		33	10
Gali Badral					
[N]	52	3	1	5	61
Average no. of income sources	1.7	1.3	2	1.4	1.6
% of households with					
… locally earned income(s)	62	67	100	80	64
… externally earned income(s)	69	33	100	20	64
… granted income(s)	6	0	0	0	5
Chamttar					
[N]	1	1	31	24	57
Average no. of income sources	1	3	2.8	1.8	2.4
% of households with					
… locally earned income(s)	0	100	94	88	90
… externally earned income(s)	100	100	32	42	39
… granted income(s)	0	0	3	8	5

3.3.3 Loans

On average, a household presently has 1.6 loans in Kanshian and 1.4 in Chamttar. Only 11% of all households in Kanshian are loan-free, while in Chamttar, every fourth household is. But more interesting is the availability of loans, whether they are available locally or not, and whether people have to borrow money from professionals (with interest rates) or can borrow it from other households. Figure 8 shows that commercial sources (money lenders and commercial banks) are most popular in Chamttar (6% of all loans). In Kanshian and Gali Badral, it is very common to purchase goods on credit ('shopkeepers', each above 40%). Although people often consider this kind of 'loan' as interest-free, local shopkeepers mostly raise prices by several percent when collecting the money after some time. Reciprocal loans from relatives, friends and neighbours are commonly found in all villages and in all household groups. It is very interesting that in Chamttar, where moneylenders and commercial banks would be at hand (in Mardan), reciprocal loans are even more important than in the other two villages. This confirms the findings of Kurosaki and Khan that even in easily accessible villages, reciprocal

loans are very common (Kurosaki/Khan 2001, 21). Local credit cooperatives exist in none of the three villages.

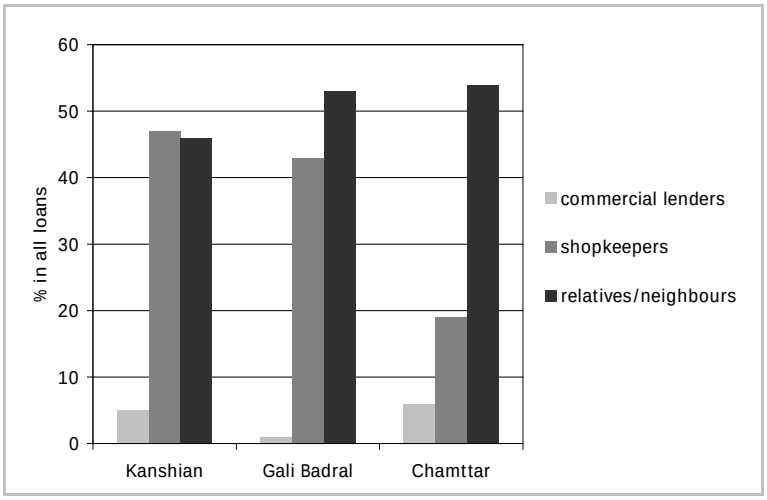

Figure 8: Share of different loan sources by village

3.3.4 Household tools

A watch, a radio and a sewing machine can be found in many households in all villages. TVs are popular in Gali Badral and Chamttar, with 38% and. 47% respectively of all households having one; the low rate in Kanshian (7%) may be an indicator of wealth, but might also be the result of frequent power breaks. The high density of fans in Gali Badral and Chamttar (more than 90% have at least one) can be explained by the hot climate in summer. Farming households in Gali Badral have significantly less household tools than non-farming households, while in Chamttar, it is the other way round. This confirms the findings reported in 3.3.2 (regular cash income), that farming households are wealthier in the plains, but less wealthy in the mountains.

3.4 Social assets

Social assets, or social capital, is a much debated term. DfID defines it as “the social resources upon which people draw in pursuit of their livelihood objectives” (DfID, 2001, 2.3.2). According to this definition, social resources basically consist of membership in more formalized groups, networks and connectedness, and relationships of trust, reciprocity and exchange. All these elements are closely interlinked and basically increase people’s ability to cooperate with others, to expand their access to certain institutions and resources, and to improve their informal safety nets.

3.4.1 Membership of more formalized groups

Differences between study villages and household groups are not significant. About 27% and 44% of all households have at least one mostly male participant in a formal institution. Table 12 shows that Community-Based Organizations (CBOs) are more

popular in Kanshian and Chamttar than in Gali Badral. Observation confirmed that representatives of *Sarhad Rural Support Programme (SRSP)* (active in Kanshian) and *Human Development Foundation (HDF)* (active in Chamttar) were well known among local people, while in Gali Badral, social organizers of *SRSP* or *Plan Pakistan* (both active in Gali Badral) were not well known. In none of the three villages are marketing co-operatives, farmers' organizations, or tribal associations of any importance.

Table 12: Membership / representation in formal institutions (abbreviations see Table 6)

	OF	OCT	PT	NF	Total
Kanshian					
[N]	54	11	0	6	71
% of households with ≥1 member in…					
… any formal institution	22	36		50	27
… Jirga	7	18		17	10
… CBO	18	18		17	18
… Women's organization	0	0		0	0
Gali Badral					
[N]	52	3	1	5	61
% of households with ≥1 member in…					
… any formal institution	40	33	100	60	43
… Jirga	29	0	100	40	29
… CBO	8	33	0	40	11
… Women's organization	4	0	0	0	3
Chamttar					
[N]	1	1	31	24	57
% of households with ≥1 member in…					
… any formal institution	100	100	39	50	44
… Jirga	0	100	13	13	14
… CBO	0	0	23	42	30
… Women's organization	0	0	3	4	3

Benefits of participation

All formal institutions listed in Table 12 are of local importance only. *Jirgas*[32] are assembled according to need, in order to resolve current conflicts among local residents

[32] *Jirga* is the traditional council of elders in a village, acting as the authority for solving conflicts and taking important decisions. While in some villages, *jirgas* still have much influence, official courts or the police forces are increasingly replacing them in other places.

or to find mutual understanding on local issues. As time passes, they are increasingly replaced by local state institutions (police, courts) or community-based organizations. Nevertheless, they still are a key institution at local level and are regarded by people as an important instrument for conflict resolution and maintaining the unity of their community. Many respondents said that joining a *jirga* would bring fame and respect. By contrast, households represented in a CBO often praised the practical benefits of what an organization had implemented, e.g. a drinking water supply system, improvement of roads, or the availability of loans. Thus, a possible hypothesis would be that CBOs are gradually replacing the 'practical' use of *jirgas*, while the integrating social function of the latter remains an important factor in local life. Qualitative research could reveal more about this. Active women's organizations are hard to find. Obviously, *HDF* in Chamttar is most successful in mobilizing women, although female mobility and activism is more restricted in this *pukhtun* village.

Political participation

According to figure 9, political participation of both women and men is greatest in Kanshian. Here, more than 60% of all adult women and more than 80% of all adult men are registered voters (having an identity card). Of these, about 90% each at least once made use of their right to vote. Least effective female participation is found in Gali Badral: Of 46% of all women who are registered voters, only 57% ever voted in any election. The worst male participation is found in Chamttar.

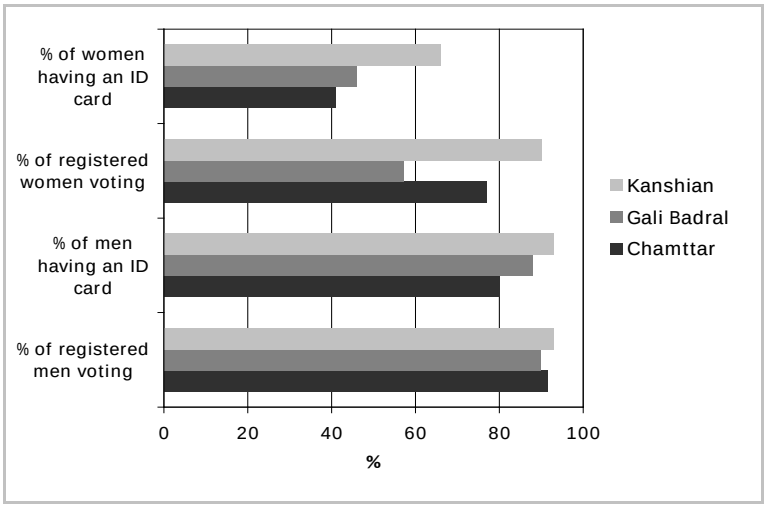

Figure 9: Share of respondents having an ID card and having voted at least once in their life, by sex and village

3.4.2 Networks and connectedness

Formal institutions of regional scope are more difficult to access for local residents. Only a few individuals belong to a political party or represent their village in a Union

Council (UC).[33] The number of local (male and female) councillors varies from village to village, as does their commitment to local issues. Whether inhabitants of a village can access their UC or not (e.g. to propose a local intervention or to ask for financial support for a specific idea) depends very much upon their councillors' commitment. In Gali Badral for instance, only one male councillor represents the village in the Shergarh UC. Nevertheless, he managed to access local development funds on District level, which are now used for small-scale infrastructure projects. In contrast to this, local residents in Chamttar are desperately looking for a way to access such funds without involving their (apparently disinterested) local Union councillors.

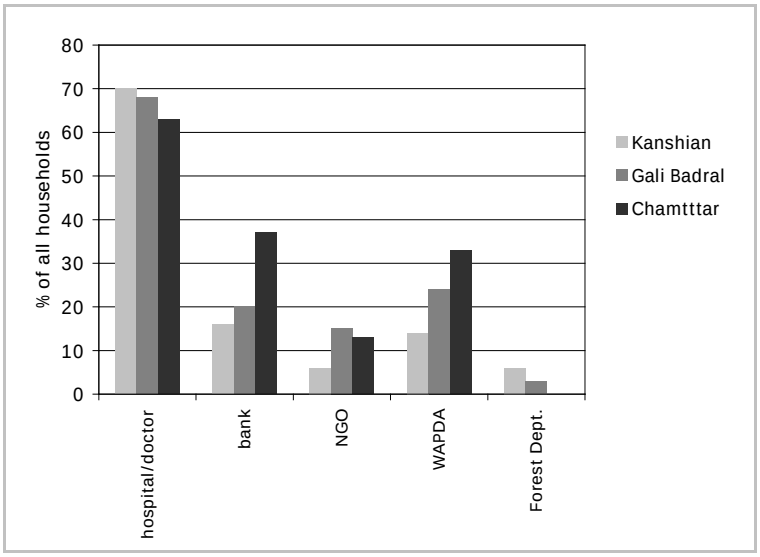

Figure 10: Contact to various service providers during the six months prior to the survey

Public and private service providers are other institutions of regional scope that can be accessed by local people. Particularly in Kanshian and Gali Badral, the incidence of diseases is very high, hospitals and doctors are the most often frequented places – more than 60% of all households had had contact with such health facilities in the six months prior to the study. On average 46% of these visits were made by women (57% in Gali Badral, 38% in Chamttar). Figure 10 further shows that most contacts with banks were in Chamttar, which is very close to the regional centre of Mardan with a big bazaar offering all kinds of financial services. Going to the bank is an exclusively male business in all villages. Contacts with NGOs are very limited in all three villages. The Water and Power Development Authority (WAPDA) controls power consumption by installing and checking electricity meters in all households with power supply. That is why households are visited on a regular basis.

Contact with the Forest Department is surprisingly low in Kanshian and Gali Badral; although there is still a lot of forest around the two villages, and demand for forest re-

[33] Local parliament on *Union* level, consisting of several councillors from each village represented in a *Union*. For details, see Steimann, 2003, 36f.

sources such as fuelwood and construction timber is very high, people are not in contact with the responsible officials. Considering the fact that forests around Kanshain and Gali Badral are mainly state forests, in which local use is allowed with the consent of the department only, this indicates widespread informal use of forest resources.[34] Contacts with other state institutions, such as the land revenue department, agricultural department, police, or courts are more or less non-existent.

Female mobility

Mobility can also serve as an indicator of social connectedness. While men are free to go wherever they want to, women are often subjected to strict control by their husbands or other male household members. 97% of all female respondents in Chamttar said that they were not allowed to leave the house without the consent of a male household member. In Gali Badral, the rate is also high, at 94%, while in Kanshian 'only' 62% of all adult women need permission to leave the house. The high rate in Chamttar can be explained by the strict rules applied to women in a *pukhtun* society; the comparatively low rate in Kanshian might result from a lack of male control due to higher incidence of male labour migration. The surprisingly high rate in Gali Badral, however, calls for further qualitative research. Places which can be important in building and maintaining social networks are (among others) local shops, bazaars, or relatives living in another village. Figure 11 displays to what extent women are allowed to visit these places. According to these figures (only female respondents), female mobility is highest in Kanshian and lowest in Chamttar. Local shops are the most restricted places for women in all three villages – where everybody knows everyone else, 'indecent' behaviour could be most threatening for a household's honour.

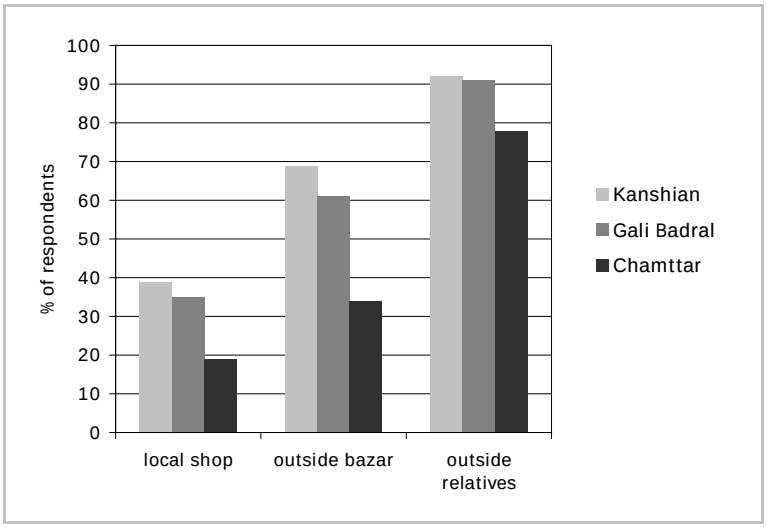

Figure 11: Share of female respondents being allowed to visit certain places, by village

[34] For more details on this topic see: Ahmed/Mahmood, 1998; Geiser, 2000; Steimann, 2003; Suleri, 2001.

Information through media

Information on political and economic issues can also serve as an indicator of connectedness. Respondents were asked whether and how often they consumed mass media. According to the number of TVs available, people in Chamttar more often watch TV than listen to the radio, while in Kanshian it is the opposite. In Gali Badral, both media are equally popular, each being consumed by about 45% of all people. Differences between men and women are small. In Kanshian, however, twice as many men than women watch TV and listen to the radio.

Table 13: Share of newspaper readers

	Kanshian	Gali Badral	Chamttar	Total
Women				
Share of newspaper readers among all women (%)	14	13	9	12
Literacy ratio of women (%)	38	27	15	27
Share of readers among literate women (%)	37	48	69	51
Men				
Share of newspaper readers among all men (%)	56	48	57	54
Literacy ratio of men (%)	75	78	60	71
Share of readers among literate men (%)	70	56	86	71

Table 13 shows to what extent women and men read newspapers. As literacy is particularly low among adult women, it is interesting to see how many literate women do (or can) use their skills to read the news. In this regard, the difference among men and women is greatest in Kanshian. It would be wrong, however, to conclude that women in Kanshian are not interested in reading the news. More likely, it is because they do not find the time to do so or cannot get hold of a newspaper (as the next bazaar is far from the village). This is likely as section 3.4.1 showed that women in Kanshian are quite interested in politics. Thus, a possible hypothesis would be that a high workload negatively affects social capital.

3.4.3 Relationships of trust, reciprocity, and exchange

Besides using own savings or adjusting meals, taking cash or kind loans from relatives and friends or getting unconditional support from them are the most important coping strategies in all three villages. What they have in common is that they all partly or fully draw upon social capital. In each village, more than 30% of all households have taken one or several cash loans in order to meet a crisis. Considering that the majority of all cash loans are taken from relatives on a reciprocal basis, it can be said that the availability of such loans is highly dependent on social capital. The same is true for loans in kind as a strategy to cope with crises ('coping strategy') – as it can be assumed that these loans are mostly given and taken within the same village, their availability is an

indicator of the existence of social capital. Between 9% and 13% of all households in Kanshian and Gali Badral got unilateral, unconditional help from relatives, neighbours or friends when they were in need. In Chamttar, this form of support is of no importance.

Whether or not products for daily use are exchanged among neighbours depends on the degree of trust and reciprocity among people. Exchange of forest products such as fuelwood, leaves, and grass can serve as an indicator that the availability of these products differs greatly between Kanshian and Gali Badral and Chamttar. Thus, Figure 12 does not indicate that there is more social capital in Chamttar. It only tells us that where natural resources such as forest products are scarce, social capital in the form of good relations with neighbours becomes a key asset for getting hold of such resources. In contrast to this, forests are accessible by nearly everyone in Kanshian and Gali Badral, so that there is hardly any need for exchange.

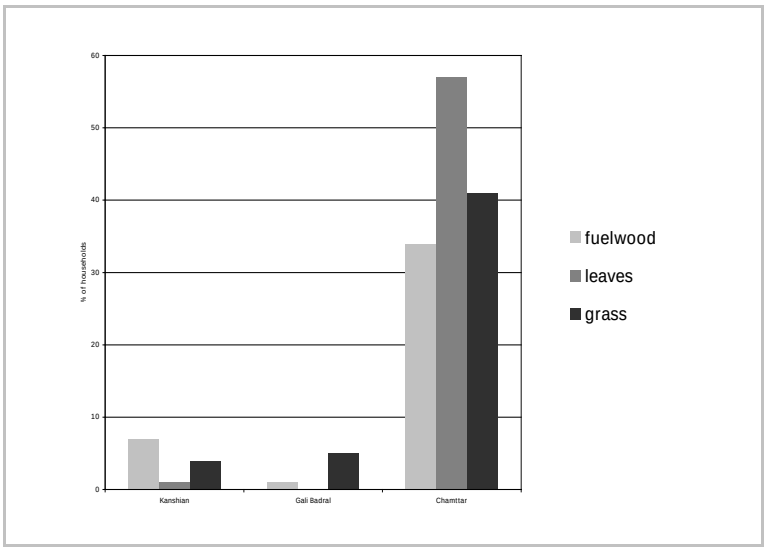

Figure 12: Proportion households which from time to time receive/buy forest products from neighbours

Unity, law and order

In all villages, a majority of respondents aged 35 and above are of the opinion that since their own childhood, the sense of unity in their village decreased. The strong majorities in Gali Badral (83%) and Chamttar (76%) cannot only be explained by the respondents' nostalgic radiance. In many cases, people explained that their neighbours became more selfish, and that helping each other was not a matter of course anymore. This is also reflected in people's opinion of the change in law and order in their communities: in between 42% (Chamttar) and 65% (Gali Badral) of all respondents above 34 say that law and order have deteriorated. This is surprising – the more so as many

people say that honour killings have decreased.[35] One reason for older people's pessimistic perceptions might be that the council of elders (jirga) has lost importance and influence. On average, residents of Kanshian are most optimistic while people in Gali Badral are least optimistic.

3.5 Physical assets

Many physical assets can be described on village level, as the availability or non-availabilty of roads, means of public transport, electricity, pipe gas, and public services is more or less the same for all households in a village. The respective descriptions for each village were given in section 1.3. Therefore, this section focuses on the availability of physical assets at the household level.

3.5.1 Energy supply

Respondents were asked which energy sources they used for which purpose (cooking, heating, lighting, other). Figure 13 shows the number of available energy sources.

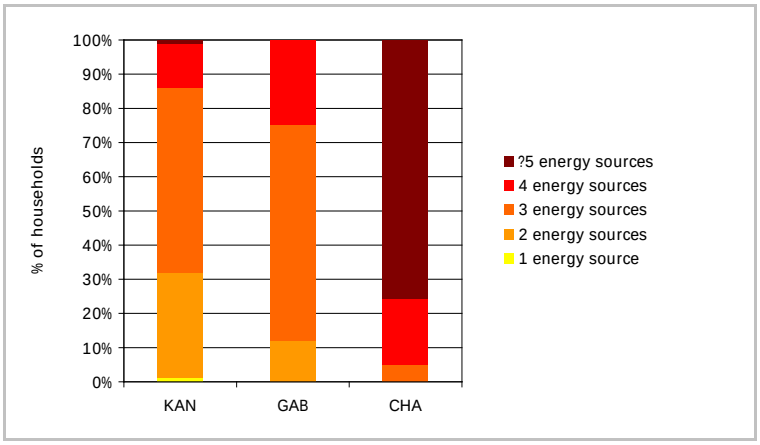

Figure 13: Number of energy sources by village

In Kanshian, 32% of all households have one or two energy sources only (mostly fuelwood and electricity). Half of all the households have three sources of energy available. In Gali Badral, 64% have three sources. In Chamttar, there is not a single household with less than three different energy sources; a great majority (75%) even has five or more. Analysis of different sources of energy is summarized in Table 14, which shows how different energy sources are being used. Dependency on fuelwood is very high both in Kanshian and Gali Badral. As winters in the mountains are harsh and long, it can be assumed that the consumption of fuelwood is especially high for heating. Besides that, alternative sources of energy for cooking are scarce and not very common –

[35] "Honour killings of women can be defined as acts of murder in which a woman is killed for her actual or perceived immoral behaviour" (Hassan, Yasmeen, "The Fate of Pakistani Women," International Herald Tribune, May 25, 1999, cit. http://gendercide.org/case_honour.html, date of retrieval 28/1/2005).

only 23% (Gali Badral) and 17% (Kanshian) of all households sometimes use gas for cooking.

Table 14: Use of different energy sources (in brackets: % of households using a source; <5% not listed)

	Kanshian	Gali Badral	Chamttar
Cooking	1) Fuelwood (100%)	1) Fuelwood (98%)	1) Leaf litter (100%)
	2) Cylinder gas (17%)	2) Cylinder gas (21%)	2) Fuelwood (98%)
	3) Kerosene oil (6%)		3) Dungcakes (91%)
			4) Cylinder gas (16%)
Heating	1) Fuelwood (96%)	1) Fuelwood (97%)	1) Fuelwood (16%)
Lighting	1) Electricity (81%)	1) Electricity (98%)	1) Electricity (95%)
	2) Kerosene oil (63%)	2) Kerosene oil (61%)	2) Kerosene oil (77%)
	3) Fuelwood (23%)	3) Cylinder gas (51%)	
	4) Cylinder gas (21%)	4) Fuelwood (26%)	

3.5.2 House structure and tenure

Pakka houses (brick or concrete walls) are generally seen as a sign of wealth, as the construction material is quite expensive. In this respect, it is interesting that in Gali Badral, 41% of all houses are *pakka*, while in Kanshian and Chamttar it is only 7% and 18% respectively. Most houses in these two villages are *kacha* (walls made from a mixture of mud or clay and straw). Nearly all households in Kanshian and Gali Badral own the houses in which they live. There are just a few cases of rent-free houses; no houses are rented for money in any of the three villages. Two-thirds of the people in Chamttar are house owners, and most are farming households. The majority of non-farm households in Chamttar rent a house free of charge.

3.5.3 Private means of transport

Availability of public transport varies greatly in each of the three villages (see Section 2). Whereas Chamttar and Gali Badral are accessible by metalled road with frequent minibus transport, Kanshian is far from the next centre, and jeeps going on an irregular basis are the only public transport available. These facts are reflected in the availability of private means of transport: In Chamttar, 39% of all households own at least one bicycle, 16% at least one rickshaw (which is always used for private small-scale business). Donkey and/or horse carts were not found. In Gali Badral, 21% of all households own at least one donkey (-cart); in Kanshian only 9% do. Other private means of transport are rarely found, either in the mountains or the plains. The percentage of households owning a car is more or less the same in all three villages (4 to 5%); these are mostly private enterpreneurs running a small transport business with minibuses or jeeps. The main differences between the villages are a result of the terrain – if it is too steep,

neither bicycle nor rickshaw makes any sense. Moreover, private means of trans-port are a luxury not affordable by many people.

3.5.4 Agricultural machinery

In Chamttar and Gali Badral, the farmers often rent tractors, especially during the harvest of crops. Only a few households own a tractor themselves. If they do, they often run a small private business by letting it to other farmers. Due to the steep terrain and the small size of the fields, tractors can be used only in a few hamlets of Kanshian. As tractors are mainly rented during harvesting season, a threshing machine is usually rented at the same time. The figures indicate that to a certain extent (i.e. parts of the harvesting process), agriculture in the foothills and the plains has been mechanized. In the mountains, however, it is still manual work. This is underlined by the fact that 37% of all households in Kanshian own a plough (usually used with a bullock), while the majority of the farming households in Gali Badral and Chamttar rent a plough together with a tractor.

3.6 Vulnerability context

In the context of the livelihood approach, 'vulnerability' consists of shocks, trends, and seasonalities, or, in other words, "the external environment in which people exist" (DfID, 2001, 2.2). The following sub-sections analyze vulnerability in a local context, i.e. in regard to people's own perceptions of seasonalities, trends and shocks.

3.6.1 Seasonalities

Respondents were asked which months of the year were the most difficult in terms of providing adequate food for their household. Figure 14 gives the number of entries per month and village. According to these figures, making a living throughout the year is most difficult for residents of Kanshian; more than 50% of all respondents encountered serious problems providing an adequate food supply in December.

Even the summer months are perceived as more difficult by people from Kanshian than by residents of the other two villages. Climatic conditions are reflected very well in these figures. Where winter is long and harsh – as in Kanshian and, to a lesser extent, in Gali Badral – making a living becomes more difficult. Due to a short vegetation period and less natural assets, production of staple food is lower than in the lowlands; the maize harvest is comparably poor, and wheat can often be used as fodder for livestock only. Thus, food stocks are often insufficient for the cold period. In addition, the remoteness of highland villages makes it more difficult to purchase food items in winter. Although the differences in Figure 14 are striking, the share of respondents that suffered from a shortage of food during the six months prior to the survey was the same in Kanshian and Gali Badral (each 11%, Chamttar 5%). Yet more households in Kanshian met such shortages by adjusting their meals; this can be understood as a sign of increased vulnerability.

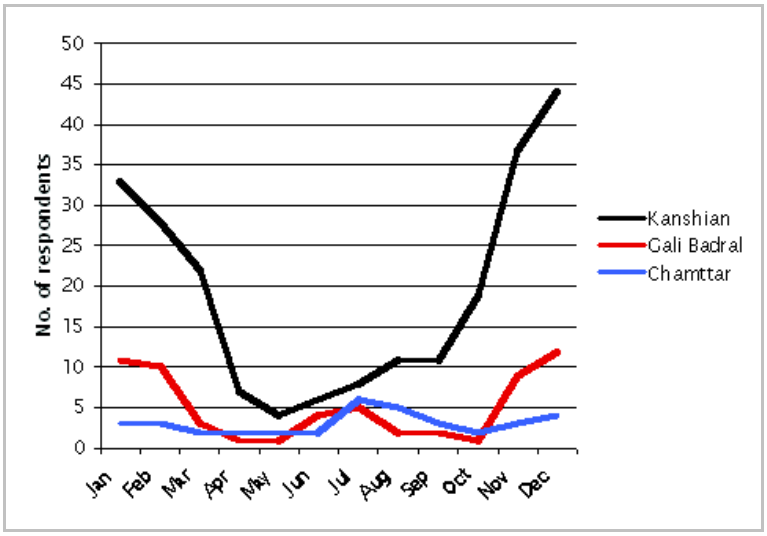

Figure 14: Number of respondents citing a specific month as 'difficult'

Workload can serve as indicator of vulnerability, too. The general workload changes with the seasons, burdening men and women differently. During peak seasons, especially women are often overwhelmed with work, which in turn makes it more difficult for them to look after the household, their children, or their livestock. Continuously burdensome workloads can also increase people's vulnerability to disease. Figure 15 illustrates both female and male respondents' perceptions of their annual workload.[36] Generally, peaks can be observed in late spring and autumn, while work-load is usually low during winter in all villages. In Kanshian and Gali Badral, these peaks reflect wheat harvest and maize sowing (late spring / early summer) and maize harvest and grass cutting (autumn).

[36] Data gathered through focus group discussions with representatives from farming households.

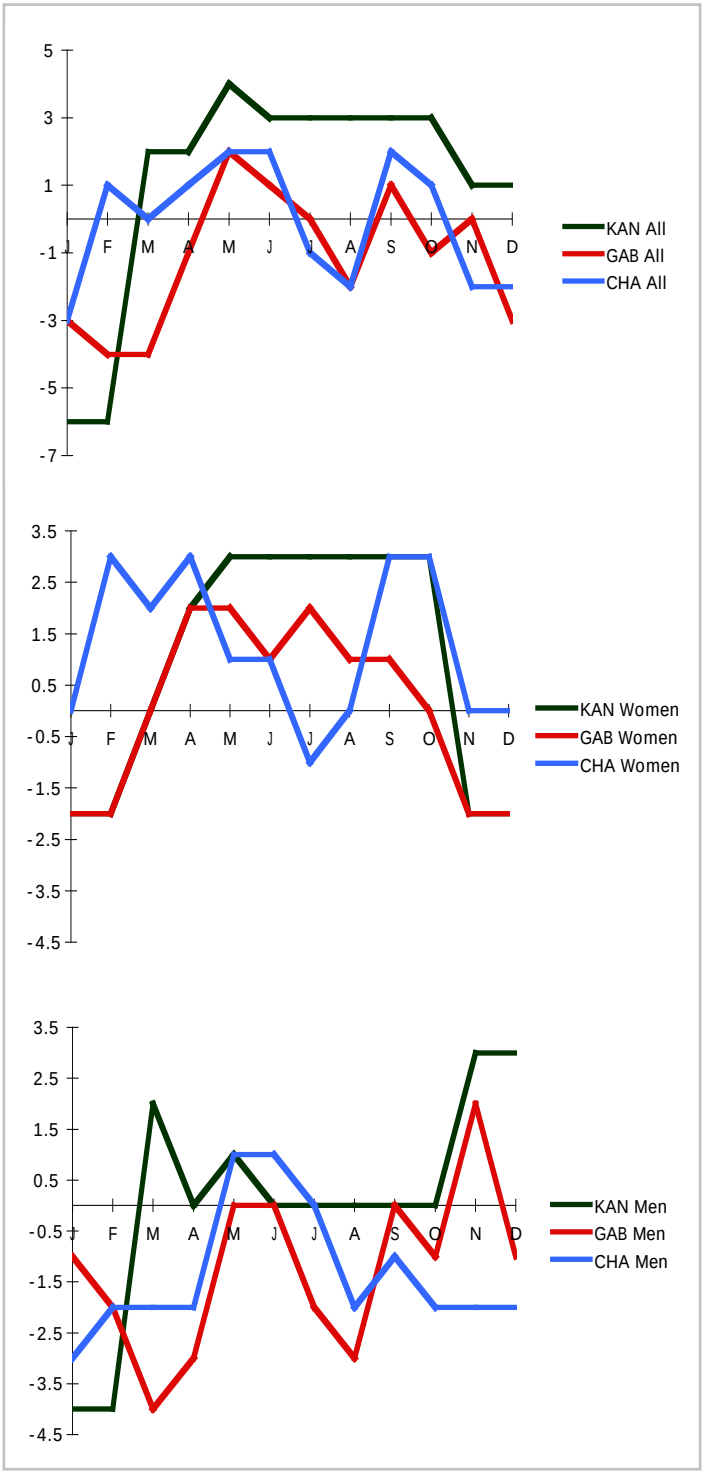

Figure 15: Respondents' perception of their annual workload. (Farming households only; zero on the y-axis stands for average workload)

For women both in Kanshian and Gali Badral, most work is done from April/May to September. An additional burden for women is weddings and other social events, which are preferably held in summer. Many women in Kanshian said that September was especially hard for them, as agricultural (daily grass cutting, maize harvest, drying walnuts) and domestic workloads (collecting fuelwood and other regular tasks) were

very great during that time.[37] In contrast to this, men in Kanshian and Gali Badral have more to do in late autumn and winter, when they are processing maize and sowing wheat. During winter, they are often very busy collecting fuelwood.

In Chamttar, the long vegetation period (especially for sugarcane), which lasts more or less throughout the year, is responsible for peaks in late spring (sugarcane harvest) and in September (maize harvest and processing, sowing sugarbeet). Workload is below average in July and August, when temperatures are too high for most outdoor activities. As winters are less cold, fuelwood collection does not occupy as much time as in the other villages. For women, workloads are greatest in early spring and autumn, when, due to moderate temperatures and in addition to agricultural and domestic work, most social events (weddings) take place. Men are most occupied with agricultural work from May to July. During that time, opportunities for agricultural wage labour can increase their workload additionally. As winters are less cold in the lowlands, fuelwood collection does not take much time during the cold season.

In all villages, the workload was often higher for many households as migrants did not return home for some time. During the agricultural peak season, many labour migrants return to their villages in order to help their families harvest maize or cut grass.

The fact that labour migrants often work with insecure contracts leads to irregular money transfers. This means that many households have to cope with a highly irregular (and often uncontrollable) income. 15% of all respondents in Kanshian said that during the six months prior to the survey, such irregularities precipitated a financial crisis for their household. Taking into consideration that every fifth household in Kanshian is dependent on one migrant as its only breadwinner, such irregularities can have a serious impact on a household's livelihood. The same is true for households with a single source of locally or regionally earned cash income (e.g. sale of farm products, shopkeeper, wage labour). In each village, such households make up around one-sixth to one fifth of all households. In 40% of these cases, the income is only seasonal or irregular (mostly from non-farm labour or self-employed business). Such households appear to be highly vulnerable. Further details on this are presented in Section 4.

3.6.2 Trends in purchasing power, food security, health, and household size

Respondents' opinions on the development of their household's purchasing power varied. While one-half thought that it improved, the other half was of the opposite opinion. In our context, it is more interesting to know how many households suffered from market fluctuations as producers. In this regard it was interesting to see that in each village, a similar share of 20 to 23% of respondents said that during the six months prior to the survey, their respective households suffered a serious crisis in the form of shortages of

[37] In this context it seems interesting that in Kanshian, most female respondents knew the Urdu word for September, but not for any other month.

cash due to such fluctuations. In many cases, families had to reduce their food consumption, or take loans in cash or kind. In the case of Chamttar, where many households depend on cash income generated by selling crops, the price for sugarbeet decreased by 27% within the last year.[38] Although not one household in this village was dependent on this income alone, such huge price variations can have a serious impact on people's livelihoods.

Despite the contradictory perceptions of their purchasing power, a majority of people in all villages (63 to 71%) were of the opinion that their household food security increased over time. One would expect that this was due to increased local production. Yet only a few farmers recorded any production increase, and even farmers who suffered a (partial) decrease in the recent past recorded better food security. Therefore, more and better job opportunities might have a greater influence on a household's food security than subsistence production: between 58% (Gali Badral, Chamttar) and 71% (Kanshian) of all respondents above the age of 34 said that they had more possibilities to generate cash income today than in the past.

In all three villages, more than 90% of respondents aged 35 and above were of the opinion that the frequency of diseases had increased compared with the past, but that health facilities had improved as well. This seems contradictory as many people still mentioned more and better health facilities as one of the most urgent issues in their village. Together with the fact that the frequency of diseases per household was continuosly high (see 3.1.3), one can assume that local health facilities might have *in-creased*, but not *improved*; or that the improved facilities were not accessible for a majority of people due to high fees. A more reliable indicator of the burden health problems can produce for households is the money people have to spend on their health. An average household in Kanshian spends 13% of its total expenditures on health; in Gali Badral, it is 17%. While a majority of households are able to pay this from savings or regular cash income, 26% (Chamttar) to 38% (Kanshian) have to take a loan. This means that for about one third of all households health costs are a serious drain on financial assets.

Rural Pakistan, and the NWFP in particular, have seen an extraordinary population increase. The provincial annual growth rate is 2.82% (1981 to 1998), which is the highest rate in Pakistan.[39] Rural people are well aware of this development. As section 3.1.1 shows, a clear majority of respondents said that their own household increased in terms of household members. Considering the official figures, one can assume that not only the households themselves became bigger, but that also the number of households increased. In the long run, this implies an ever-growing pressure not only on natural resources, but also on other assets such as education and health facilities, or local and regional job markets.

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[38] Information given by local sugarbeet-farmers.

[39] With the exception of Islamabad, where the population increase (5.19%) is mainly migration-driven (Government of Pakistan, Ministry of Economic Affairs and Statistics; www.statpak.gov.pk/depts/pco/statistics, date of retrieval 19/4/2005).

3.6.3 Shocks

"Shocks are a key element in the vulnerability context. They are usually sudden events that have a significant impact – usually negative – on livelihoods. They are irregular (…)" (DfID, 2001, Glossary). Shocks that did not origin in the household or in a local context have been relatively seldom in the recent past. Only the drought which started to affect the whole country from 1998 onwards, and which caused a decline of vegetation in the study areas, too, can be termed as a shock to people's livelihoods – at least if considering people's own perceptions of that event (compare 2.2.3). The military coup d'etat back in 1999 did not influence local livelihoods directly, although the local government system has been changed since.[40] Competences and financial possibilities of these political bodies remained too much limited, and so their measurable – negative or positive – impact at the grassroots level is still close to zero. Earthquakes occur rather frequent in the surveyed area (Hazara), and victims have been reported from other villages further north just months before the survey. In Gali Badral and Kanshian, vibrations repeatedly damaged houses, while nobody was physically hurt. The surveyed villages have not been hit be the heavy rainfalls and the subsequent landslides, which claimed several hundred victims in Hazara and elsewhere in 1992. The nation-wide ban on timber harvesting, which had been put in place as a reaction to that disaster, did not affect people's livelihoods very much, too. Local (formal and informal) use of forest resources continued more or less undisturbed, while the sudden failure of royalties from Protected Forests (only in Gali Badral) could often be compensated through illegal timber business.[41]

3.6.4 Insecure land access as additional aspect of vulnerability

As was discussed in sections 2.2 and 2.3, land access is not secured both in Gali Badral and Chamttar. In Gali Badral, a court case over land rights is continously pending between local residents, the former rulers of *Amb* state, and the Provincial Government. As long as this case is not settled, local people's natural (arable land, agricultural production) and financial (land titles) assets remain highly insecure. Any decision against the local resident's claim for secured land titles would result in a shock for many households in the area.

In Chamttar, most farmers are tenants, thus being dependent on their landlord's decisions. Local people complained about a difficult relationship with the most influential landlord, who is living in Mardan and is deputised for by a wealthy local resident. It was reported that plans for the construction of a new school building failed due to the landlord's resistance, obviously preferring secured rents to his tenant's education. In consideration of the already very limited capacities of Chamttar's local school, such

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[40] In 2000, the Musharraf Government initiated a new framework for government structures on district and sub-district level. As a part of a nation-wide devolution process, a local government system was introduced, setting up a framework of local and regional political bodies. For more details, see Steimann, 2003, 35f.

[41] Compare Steimann, 2003, 28

dependencies thus not only affect people's financial (in the form of rents), but also their human assets (in the form of education).

4 Selected Assets and their Role in Livelihood Strategies

Now, that a general picture of available livelihood assets and the vulnerability context is available, section 4 turns towards the question which use individuals and households make of these assets. It asks which particular assets people use in order to achieve a certain goal, such as a secured income for their household. This leads towards the identification of certain livelihood strategies.

Section 4.1 develops a typology of livelihood strategies, which allows to group the households according to the spatial range of their income generation. Sections 4.2 to 4.5 examine the most frequent strategy groups with regard to their use of certain livelihood assets. This allows to develop a better understanding of the different ways in which rural households in the high- and lowland try to make a living.

4.1 Towards a typology of strategies: The spatial range of income generation and the importance of access to job and produce markets[42]

This section evaluates the importance of goods and labour markets for livelihood strategies in the three study villages. Above all, it asks to which extent households are embedded into a local, regional, and/or national/international context (through labour migration). In which spatial range do households operate to generate their income? Can the local context be sufficient to make a living, or can only those with economical ties to the regional level survive? This criteria of spatial range subsequently serves for developing a typology of livelihood strategies.

A general description of the availability of goods and produce markets for each study location is given in section 2. As availability alone does not mean the same accessibility for everyone, it is important to keep in mind that the access to such markets can vary significantly for different social groups, especially for women and men (for female mobility compare 3.4.2). Generally speaking, men are responsible for cash income generation both in the local, regional, and/or (inter-) national context, while women are concerned with activities in the household context, thus generating non-cash income.[43]

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[42] Regarding income, survey data only comprises the number and types of cash income sources plus the existence of noncash income in the form of subsistence production. Data on the cash incomes' amounts were not collected. Thus, analysis in this report does exclusively concentrate on the number and type of income sources, but not on monetary values.

[43] For a detailed gender analysis of the three study villages, see Sadaf, T. (forthcoming). Gendered livelihood assets and workloads in Pakistan's North-West Frontier Province (NWFP).

4.1.1 Local and regional produce-markets as sales area for farm products

The share of households selling any kind of agricultural product varies very much between the three study locations. Most probably due to the poor ecological conditions, which do not allow intensive farming, the share in Gali Badral is lowest with only 10% of all households selling farm products. In Kanshian, where the environmental conditions are slightly better, 21% of households generate income by selling such products. Although the overall share of farmers is lowest in Chamttar (compare 3.2.1), 46% of all households here are involved in selling agricultural products.

What is sold where

Figure 16 illustrates which products are sold where. 'Local' stands for sale within the respective village; 'external' for sale on the next regional market, to a middleman or directly to a plant (e.g. sugarmills around Chamttar). For both Kanshian and Gali Badral, it becomes clear that although limited, local markets are more important than external ones. In Kanshian, fruits (walnuts) and vegetables are sold locally, while livestock is preferably sold on the market in Balakot. For Chamttar, the situation is different, since most agricultural products are sold outside the village. The high share of crops includes sugarcane that is often directly sold to a nearby sugarmill.[44] In the local context, it is mostly the sale of milk that serves as a cash income. Generally, it can be observed that small goods such as fruits, vegetables and milk are preferably sold in a local context, while larger goods such as crops, livestock and timber are sold on regional markets. Local produce markets are relatively more important in the highland, while external produce markets are more important in the lowland.

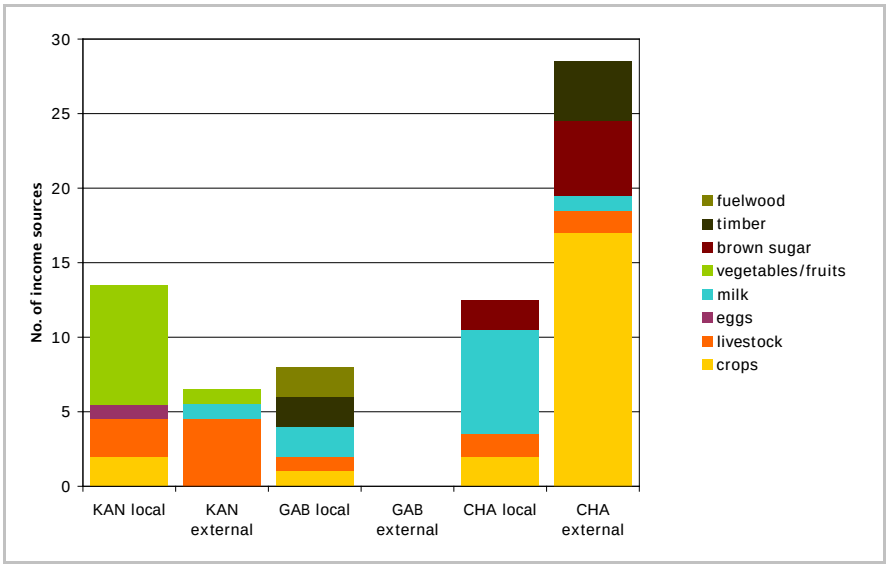

Figure 16: Absolute number of different cash income sources through selling of forest and farm products, and location of their generation. (Reading example: In Kanshian, 3 cash incomes are generated through selling livestock in a local context.)

[44] The Mardan sugarmill is one of the largest mills in the whole of South Asia.

Regularity of incomes

As the availability of most of the farm products varies by season, the above-mentioned incomes are mostly irregular or seasonal. In Kanshian, not a single household can generate regular cash income by selling agricultural products; in Gali Badral, milk is sold on a regular basis by one household only, while in Chamttar, five households do the same, and one household has a regular income from selling livestock. Thus, only local markets offer limited possibilities to generate regular cash incomes by selling agricultural goods. Since the rest is irregular or seasonal, such incomes are often combined with each other or with other types of income. Combining agricultural incomes is more frequent in Chamttar than in the other villages: out of all households listed in figure 16, an average household in Chamttar sells 1.6 different agricultural products/goods (Kanshian 1.3; Gali Badral 1.5).[45] However, as most farmers in Chamttar are tenants, they have to pay a rent to their landlord, which severely limits their net farm income.

Asked for a change in such incomes during the five years prior to the survey, a majority of respondents stated that no major change occurred. In Chamttar, seven households recorded decreasing incomes due to worsening prices on the sugarcane and sugarbeet market. According to various farmers, prices for sugarcane fell from 50 Rs/*pakka-mound* (pkm)[46] in 2003 to 45 Rs/pkm in 2004. For sugarbeet, prices fell from 50 to 52 Rs/pkm to 38 Rs/pkm within the last two years. Only one farmer in Chamttar could improve his market access and therefore increase his household income.

4.1.2 Importance of local and regional goods and labour markets for cash income generation

41% of households in Kanshian have at least one source of cash income from any kind of labour, a regular salaried job (including old-age pensions), and/or a self-employed business. In Gali Badral, this share is at 59% of all households; in Chamttar at 77%.

Types of jobs and their location

Figure 17 illustrates that non-farm labour is an important source of cash income in all three villages. In Kanshian, it is even the most important one of all the sources tabulated, with 59% of all households stating to have such an income. In the highland, the construction of new houses or roads often offers opportunities for local non-farm lAbour. Income generation through agricultural labour, self-employed business or regular salaried jobs mostly takes place in the local context, too. In Gali Badral, more than 40% of all households generate cash income with a self-employed business. The majority of these businesses are local – shops in the local bazaar along the main road, such as grocery shops, bakeries, flour mills etc., or transport services to the neighbouring villages and regional centres. Regular salaried jobs are an income source for another 40% of households in Gali Badral, both in the local and regional context. Generally, the local

[45] See also section 4.2 on diversification.

[46] 1 *pakka-mound* = 50kg; 1 *kacha-mound* = 40kg.

job market is much more important for Gali Badral, too. In Chamttar, non-farm labour and self-employed businesses are the most important ones among the cash incomes tabulated. More than 50% of all households generate an in-come through non-farm labour, and about 45% by running a self-employed business. Most interestingly, the regional market (which includes the cities of Mardan and Peshawar) is more important for both of these income sources, as it is for regular salaried jobs, too. Self-employed businesses include driving (own) rickshaws, running spare-part shops for cars, dealing with second-hand cars, or producing and selling washing powder. Regular salaried jobs include salesman, regular salaried driver, police officer, brick factory manager, clerk, and many others. Only agricultural labour, serving as a cash income source for 12% of all households, is more important in the local context. Thus, people in Chamttar seem to be much more dependent on external markets in terms of jobs and businesses.

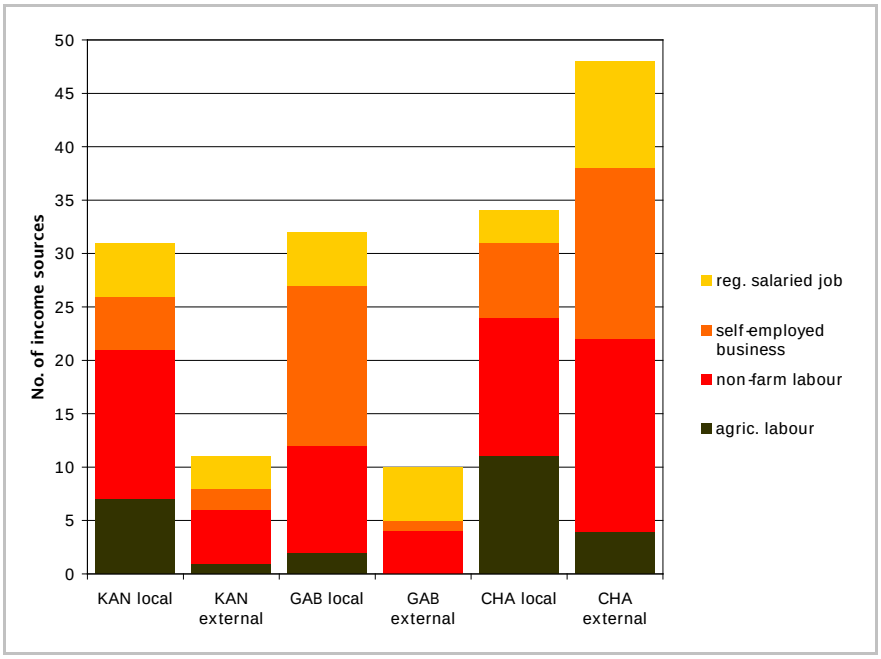

Figure 17: Number of different cash income sources other than selling farm products, and loca-tion of their generation. (Reading example: In Gali Badral, 15 incomes are generated through a self-employed business in the local context.)

Regularity of incomes

As for the differences in the importance of local versus external job and business markets one could assume that the criterion of local/external might be interlinked with the one of regular/irregular. Since local markets are usually small, job security could be limited as well. In Kanshian and Gali Badral, however, this is not the case. Regular and irregular incomes can be found equally in the local and external context. As for Chamttar, external (regional) job and business markets seem to be more secure than the local market. Both in the case of non-farm labour and self-employed business, cash incomes earned outside the village are more often regular than cash incomes from within the village. This means that the local market offers temporary jobs (such as harvest or construction labour), while the nearby regional centres are the places to look for

long-term incomes. This is underlined by the fact that in Chamttar (with only one exception), all households having but one income source earn their cash income outside the village.

4.1.3 Labour migration and remittances

The extent to which labour migration exists in a particular village is closely interlinked with the quantity, quality, and accessibility of local and regional markets as described above. If in the local and regional context, possibilities to generate cash income are limited, more households will go for labour migration. Besides household (subsistence), local and regional markets, domestic and international labour migration thus adds a fourth level of spatial range to households' livelihood strategies. Section 3.3.2 discussed the importance of various cash income sources, illustrating the relative importance of remittances. Figure 18 now splits the share of households with remittances into those who receive money on a regular basis and those who do not. The result reflects the abovesaid about local and regional markets. Where opportunities to generate cash income are limited, remittances are of much more importance. In Gali Badral, where 93% of all households are farming, but markets offer least opportunities to sell farm products, the majority of remittances are regular. In Chamttar, where both local and regional markets offer various opportunities to earn money, the share of households with regular remittances is very small with only 12%. The remittances' regularity could thus be seen as part of an intended strategy, although many other factors can influence the flow of such money. However, figure 18 at least shows how important remittances are compared to other sources of income.

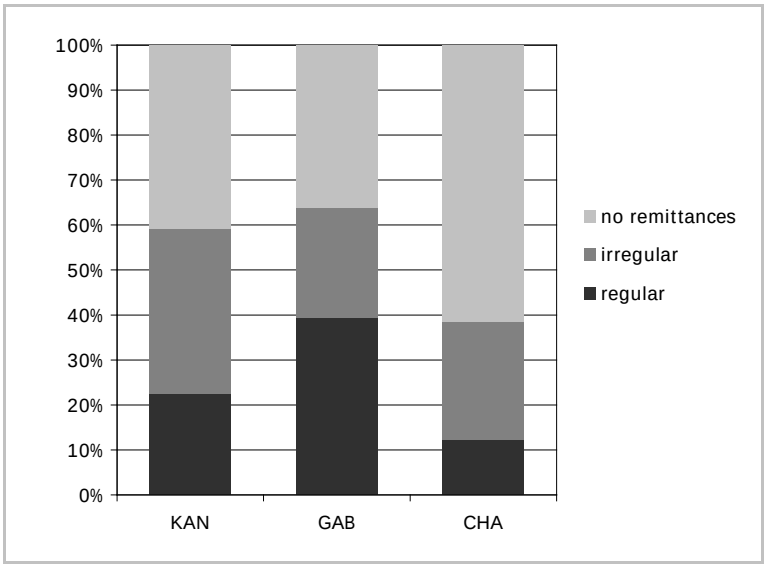

Figure 18: Share of households with regular or irregular remittances

4.1.4 Synthesis: strategies of spatial range

Based on the aforesaid we can now typologize households according to the spatial range in which they earn their cash and non-cash (subsistence) income. For this, house-

holds have been grouped according to four criteria: **1)** farming / non-farming **2)** generating cash income in a local context (selling agricultural goods within the village and/or having a job and/or a self-employed business within the village) **3)** generating cash income in a regional context (same sources as 2) **4)** receiving remittances. Thus, 16 strategy types can be identified, as shown in Table 15.

Table 15: The 16 strategy types of spatial range and their share in the respective villages (all figures in %)

			Kanshian	Gali Badral	Chamttar	All
[N]			71	61	57	189
1)	Only subsistence farming	%	6	5	–	4
2)	No self-generated income (dependent on *zakat*, *bait-ul-mal*)	%	1	2	4	2
3)	Subsistence farming and local income	%	15	18	4	13
4)	Only local income	%	1	2	2	2
5)	Susbistence farming and regional income	%	7	–	12	6
6)	Only regional income	%	1	2	11	4
7)	Subsistence farming and remittances (national/international)	%	41	38	5	29
8)	Only remittances	%	1	2	4	2
9)	Subsistence farming, local and regional income	%	7	7	21	11
10)	Local and regional income	%	1	–	9	3
11)	Subsistence farming, local income and remittances	%	13	16	–	10
12)	Local income and remittances	%	1	–	4	2
13)	Subsistence farming, regional income and remittances	%	1	3	9	4
14)	Regional income and remittances	%	–	–	7	2
15)	Subsistence farming, local & regional income and remittances	%	1	5	7	4
16)	Local and regional income and remittances	%	–	–	4	1

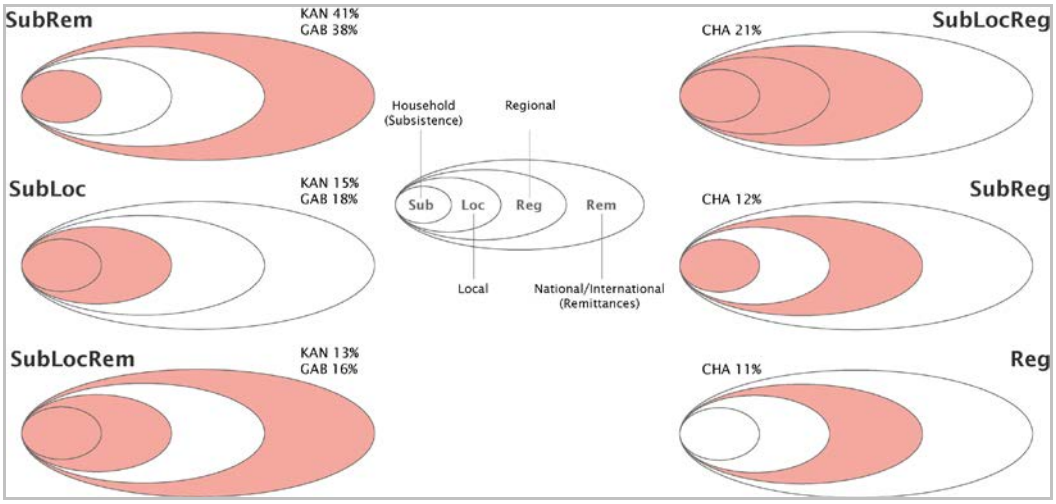

Figure 19: Most often observed patterns of the spatial context, in which households generate cash and non-cash income. On the left, the three most frequent patterns for Kanshia and Gali Badral; on the right, Chamttar. [Reading example: In Kanshian 15% of all households (type SubLoc) generate income within the household (subsistence farming) and in the local context (selling products and/or having a job or business in the village). In Chamttar, 11% of all households (type Reg) do not practice any subsistence farming; their only income is from a job and/or business in the regional context.].

Figure 19 shows the three most often occurring patterns in the three study villages.[47] Type **SubRem** stands for about 40% of all households both in Kanshian and Gali Badral: farming for subsistence only, remittances are those households' only cash income source; they are unable or reluctant to generate any cash income in the local or regional context. It might surprise that **SubRem**, **SubLoc** and **SubLocRem** are the most frequent ones both in Kanshian and Gali Badral, and that even their share in all these types is more or less the same. What these three types have in common is that in none of them, regional markets play any role. In other words: in terms of generating cash income 69 resp. 72% of all households in Kanshian resp. Gali Badral do not have any direct economic ties (as producers) with regional markets. On the other hand, subsistence farming is an integral part in all these strategy types, thus reflecting the high share of farming households (above 90%) in the two villages. The local context appears both in type SubLoc and SubLocRem, although the reasons for its importance are different in Kanshian (agricultural goods and labour) and in Gali Badral (self-employed businesses and labour). Remittances are another important element in these strategies, again illustrating the high dependency of a majority of households (about 60%) on labour migration.

The two strategies **SubLocReg** and **SubReg** in Chamttar are basically just an adaption of the two types **SubLocRem** and **SubRem**: the national/international context is replaced with the regional one. Thus, the three most often recorded strategy types in

[47] Annex V shows a flow diagram illustrating the typology's system.

Chamttar more or less show the exact opposite of what has been observed in Kanshian and Gali Badral. The regional context appears in all three types, while the local context appears but once. Labour migration does not play any role for the 44% of households represented here; and the third most frequent strategy **Reg** allows to make a living without any subsistence farming, by earning livelihoods in the regional context alone.

The total percentage of the three types shown on the right is much smaller than those on the left. This indicates that in Chamttar, there is a higher variety of (nearly) equally represented strategy types, while in Kanshian and Gali Badral, the three types shown above are dominating. Another apparent thing is, that the two most often recorded types in Chamttar (**SubLocReg**, **SubReg**) together represent 57% of all farming households, while type **Reg** represents only 26% of all non-farm households in that village. With a share of 58% farmers versus 42% non-farmers in Chamttar, non-farm households are highly underrepresented in those three most frequent types. This indicates that among non-farm households, a higher variety of strategies can be found. Section 4.3 will discuss that in detail.

4.1.5 Some remarks on the typology of spatial range

Before starting to analyze the survey data with regard to the typology developed, it seems useful to mention a few points about the strategies of spatial range. The groups formed by the typology must not be understood as social, real existing groups. The typology applied is but one possibility to group households, in this case by using the criteria of the different spatial ranges in which households generate their cash and non-cash income. Since the typology allows to represent patterns of different spatial ranges with one strategy group, it implies the households' income diversification, too. The typology thus can help to better understand certain processes and to simplify the analysis to a useful extent. Yet it is only *one* possibility to typologize households; if other criteria were applied, another typology would be the outcome, which would (most probably) allow different conclusions. However, there are a few good reasons why exactly this typology was chosen:

First, it would have made limited sense to group households according to their farming status. More than 90% of all households in Kanshian and Gali Badral are involved in farming. Out of these, most are owner farmers (they own all the land they cultivate). Thus, the groups (e.g. farming, non-farming) would have become very much unequal in size, and the large groups too heterogeneous to analyze.

Second, grouping the households by *khel* would have been possible and useful to a certain extent, as *khels* represent social (and sometimes ethnic) groups. Assessing potential differences between those groups could be highly interesting. For this report, however, the criterion of *khel* does not sufficiently lead towards livelihood strategies, as being part of a certain *khel* is not a matter of strategic choice but of history. Moreover, Table 16 shows that *khels* are more or less equally represented in the various strategy types.

Table 16: Representation (in %) of selected khels in most frequent strategy groups (reading example: in Kanshian, 59% of all SubRem households are Gujar)[48]

	All Groups	SubRem	SubLoc	SubLocRem
Kanshian				
Gujar	52	59	64	33
Syed	18	14	–	44
Rajpoot	7	10	18	–
Swati	7	3	–	11
other *khels*	16	14	18	12
Gali Badral				
Tanoli	54	52	82	50
Badral	23	30	–	20
Parwal	5	4	–	10
Saryal	5	9	9	–
other *khels*	13	5	9	20

Third, the chosen typology seems appropriate for this report's focus, as it shows very well how certain households 'function'. Especially in a highland-lowland context, it can provide useful insights into the context in which households operate to secure (or improve) their livelihoods. It certainly can serve as a good tool to understand under which circumstances labour migration becomes the often single key to survival for rural households.

4.2 Income diversification in livelihood strategies

The strategy types identified above only partly give us information on the respective degree of income diversification. Within a certain context – local, regional, national/international – a household can have more than one income source. Thus, this section asks for the types of income in different strategies. A diversified income structure is generally understood as a means to decrease a household's vulnerability. A household which is not only dependent on remittances alone, but has an additional cash income in the local context (e.g. by selling agricultural goods), is most probably in a better position to cope with certain shocks. On the other hand, there are also households which function well with a single income – if it comes from a secured, regular and well salaried job (either in the local/regional context or in migration). Therefore, conclusions regarding vulnerability must be made with care.

In a second part, the linkages between human capital and income diversification are analysed. The main question here is, whether or not quantitative (household size) and

[48] Due to the fact that in Chamttar, all households but one are Mohmands, the village has not been tabulated.

qualitative (education) human capital influence the type and diversity of a household's income sources. Finally, non-cash income generation (in the form of subsistence farming) is examined in greater detail. As not only cash incomes can be diversified, it is also important to examine to what extent subsistence farmers do diversify their cultivation patterns. In order to reduce complexity, the following analysis will concentrate on the three most frequent strategy types in each village as shown in figure 19.

4.2.1 Diversification of cash income

Figure 20 shows that farming households in Kanshian and Gali Badral are more or less equal in terms of diversification. Non-farm households, however, show a significant higher degree of diversification in Kanshian than in Gali Badral. The highest degree of cash income diversification can be found among farming households in Chamttar, a group in which more than 30% have more than three different cash income sources. The least diversified income structure is found among non-farm households in Gali Badral. However, the strategy types of spatial range identified in section 4.1 do not indicate what kind of income generation activity takes place in which spatial context. Figure 21 unveils more on that.

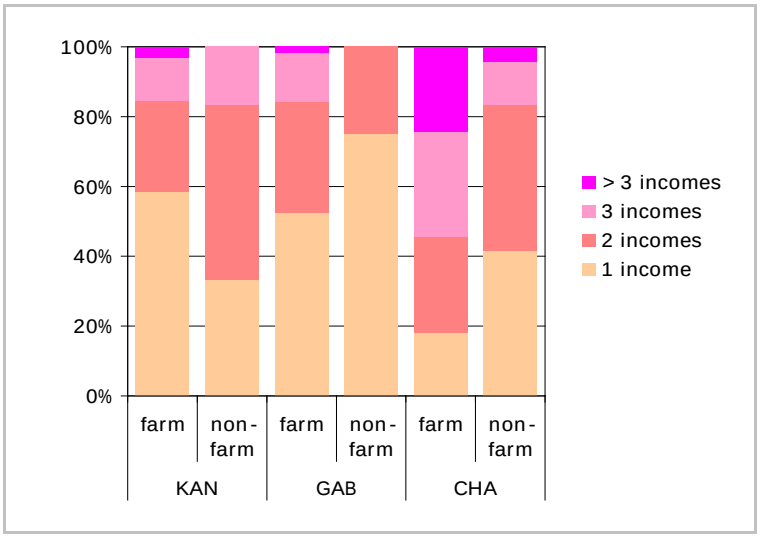

Figure 20: Number of cash income sources by household type. "Farm" includes the three household types 'owner farm', 'owner cum tenant farm' and 'pure tenant farm' (compare 3.1.1).

Generally, farm incomes are of minor importance in Kanshian. Even an average farm household relies on more non-farm than farm cash income sources. In terms of diversification, the 41% SubRem households in Kanshian are below the local average number of cash income sources. With 1.1 cash income sources on average, which – as they are generated in migration – are difficult to control often irregular, SubRem households seem highly vulnerable to any sort of crises. SubLoc households in Kanshian (15% of all households) are somewhat more diversified. With a small share of incomes from selling farm products locally, they generate the major part of their cash income through labour, a regular salaried job or a self-employed business in the local context. With two

cash income sources, they are clearly above the local average number of cash income sources. SubLocRem households in Kanshian (13%) have a very similar income structure. They sell farming products in the local context, too, or have a job or self-employed business in the village. This locally generated cash income is complemented by remittances. Compared with the other two strategy types tabulated for Kanshian, type SubLocRem seems least vulnerable.

As has already been discussed in section 4.1, farm incomes are of little importance in Gali Badral. SubRem households (38% of all households in Gali Badral) are as dependent on remittances as corresponding households in Kanshian. However, as many of these households often send more than one man into labour migration, their strategy seems somewhat less vulnerable than in Kanshian. Compared to Kanshian, SubLoc (18%) households are less diversified in Gali Badral. Very few households only sell any farm products locally; the majority earning their livelihoods with jobs, labour, or a self-employed business in the village. With an average of 1.5 cash income sources, SubLoc households are below the local average number of cash income sources. Among SubLocRem households (16%) in Gali Badral, only a few sell farm products locally. The majority in this group is doing local business, labour, or jobs, complementing the budget with remittances.

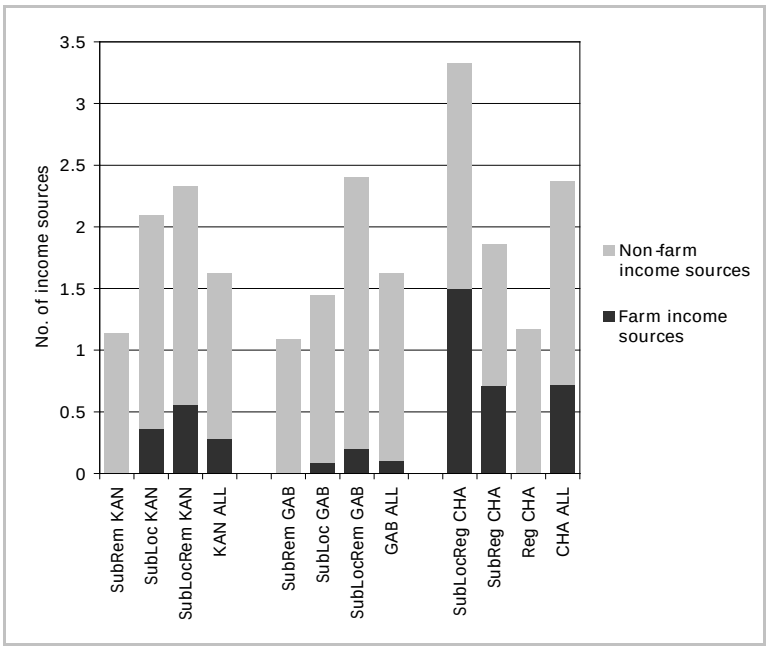

Figure 21: Farm and non-farm cash income sources by selected strategy types (Abbreviations see Figure 19)

It becomes obvious that farming households both in Kanshian and Gali Badral (where nearly all households cultivate their own land) earn most of their cash income outside farming – through jobs, businesses, labour or labour migration. The data thus confirms the findings made by Kurosaki and Khan in other rural areas of the province: "In NWFP's agriculture where land-man ratio is low, a typical owner farm household may not be able to make living from farming only. (…) Such households intentionally di-

versify their income sources through entering into non-farm business" (Kurosaki/Khan 2001, 17).

To a lesser degree, this is also valid for Chamttar. With 2.4, the average number of cash income sources in Chamttar is higher than in the other two villages – as is the average number of farm incomes. With more than three cash income sources on average, SubLocReg households (21% of all households in Chamttar) are even clearly above this already high figure. This strategy type, which operates both in the local and re-gional context, is highly dependent on farm incomes, which are complemented by about two other cash incomes from local or regional labour, jobs, or self-employed business. They thus represent the most diversified strategy type among the tabulated ones. SubReg households (12%) have 1.86 cash income sources on average, out of which farm incomes make about one third, non-farm incomes in the regional context two third. Those two third represent the often only income source for Reg households (11%). Yet although hardly diversified, those households do not seem to be very much vulnerable, as all of them can rely upon a regular cash income, as figure 22 shows.

Figure 21 additionally takes into account the regularity of cash incomes, putting up a matrix that shows the relation between total number of cash incomes and number of regular cash incomes. The scatterplots each display the average for the whole village and the three discussed strategy groups. In addition, the coloured area illustrates the range of records for the whole village. The regression line illustrates that the most regular cash income sources are found in Gali Badral: nearly every second cash income source is a regular one in this village. Unlike that, only every fifth cash income source is a regular one in Kanshian. On average, households in Chamttar have most cash income sources, yet they are less regular than in Gali Badral. This can be explained by the fact that many households at least partly depend on seasonal cash incomes from farming.[49]

[49] It should be kept in mind that the scatterplot does not include non-cash income generated by subsistence farming, which can significantly reduce a household's vulnerability. Section 4.3.3 will reveal more on that.

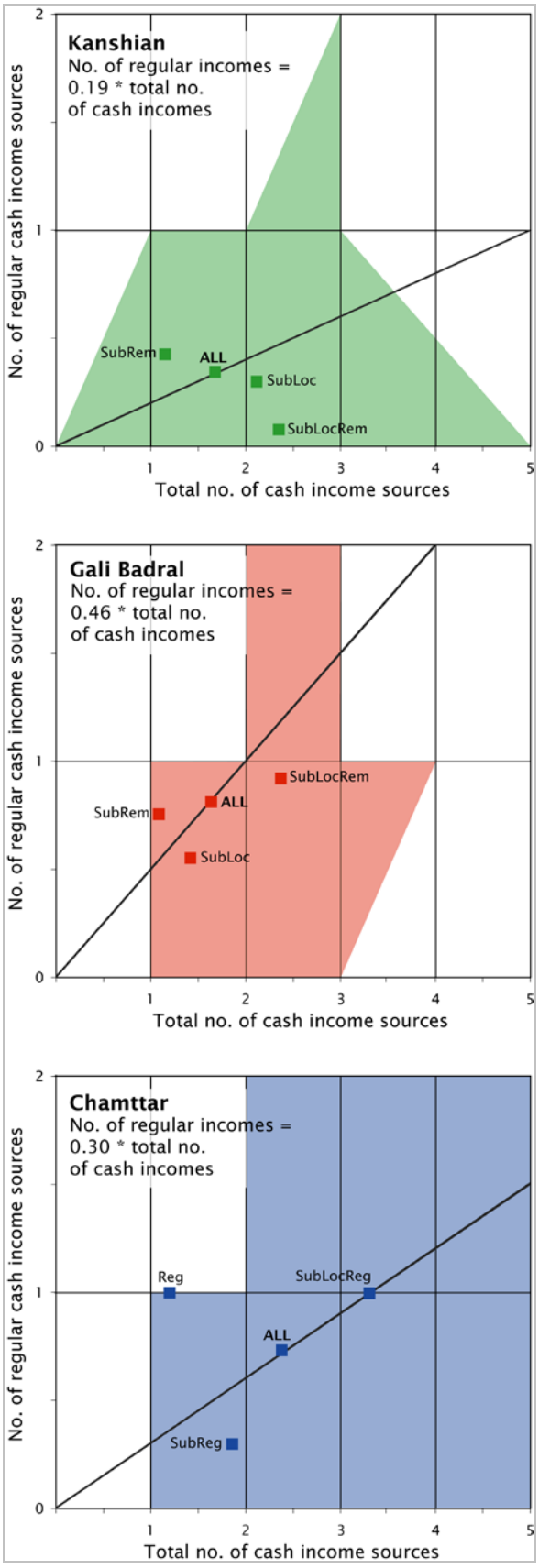

Figure 22: Share of regular cash income sources in total number of cash income sources. The coloured areas represent the total range of records for each village.

Comparing Kanshian and Gali Badral, SubRem households show a very similar cash income structure (in terms of regularity of incomes). The same can be stated for Sub-Loc households. In general, regularity of cash incomes is slightly higher in Gali Badral. This is also the main difference between SubLocRem households in Kanhsian and Gali Badral: While in the highland, these households hardly ever find a single regular cash income (even remittances are not sent on a regular basis), the same group has at least one regular cash income in the foothills. This might have to do with the fact that in Gali Badral, the share of farm-related cash incomes is very small, while in Kan-shian, this share is higher (compare figure 21). Thus, income security can differ widely even within the same strategy group, depending on the highland-lowland context.

In Chamttar, SubLocReg households have the most cash income sources (more than three on average), out of which one is regular. These households, which generate half of their cash incomes through farming, are therefore highly successible in finding an additional regular off-farm income. Although mostly dependent on a single income source only, Reg households must not be termed highly vulnerable, as their income is always a regular one. The financial situation, however, is less secure for SubReg households. Generating about one third of their cash income through farming, they are often not able to find additional regular off-farm cash incomes which would give them a certain financial security. In this regard, their situation is comparable with that of SubLoc households in the highland and the foothills.

4.2.2 Human assets and their potential influence on income diversification

Having identified certain types of livelihood strategies and their diversification, attention is now given to the assets they are built upon. Human assets can be crucial for income diversification both in terms of quantity (working force) and quality (qualification). It is therefore expected that households which build their livelihoods upon labour migration and farming (SubRem, SubLocRem), tend to *increase* their human assets by having big families, while households concentrating on non-farm activties (e.g. Reg) preferably *improve* their human assets by investing in education.[50]

Aspects of quantity

The observation made by Kurosaki and Khan, that “farm households tend to be larger because they can support more house-hold members through domestic food supply” (Kurosaki/Khan, 2001, 14) can generally be confirmed.[51] Regarding the selected strategies, the abovementioned differences exist but are less significant than expected. On average, SubRem and SubLoc-Rem households are a little bit larger in number than those of type SubLoc (exception: SubLocRem in Gali Badral). Especially in Gali Badral, where Sub-Rem households are clearly above the average, a significant correla-

[50] For an in-depth assessment of the role of human assets in rural areas of the NFWP, see Kurosaki and Khan 2001.

[51] In Kanshian, an average non-farm household is slightly larger, but the sample is very small (n=6).

tion between house-hold size and number of migrants could be ob-served. In this particular case, one can assume that quantitative human assets can serve as a constituting element for certain livelihood strategies. The emerging hypothesis therefore would be that SubRem households intentionally keep their households large, so that they can send more (male) household members into labour migration and thus improve their livelihoods. This could be done by not splitting households (after a son's wedding), by marrying several wives, or by having many children. Qualitative analysis could reveal more on such strategies. In Chamttar, Reg households are much smaller than those representing the two most frequent strategies (SubLocReg, SubReg). One reason is that these households are not farming; the other, that their livelihood strategy – a single but secured cash income source – does not require much workforce.

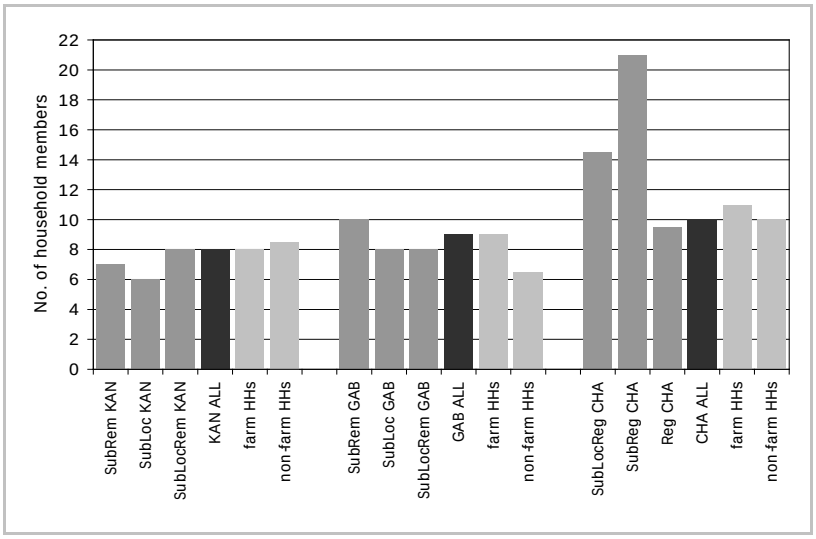

Figure 23: Number of household members by selected strategy groups (abbreviations see Figure 19)

Aspects of quality

With very few exceptions only, cash income generation is a men's business. That is why figure 24 tabulates male adults' literacy rate as an indicator for the importance certain households give to qualitative human assets in regard to cash income generation. First, male members of non-farm households are significantly more literate than their farming colleagues. Second, all three strategy types in Kanshian and Gali Badral are (with the exception of SubLocRem in Gali Badral) below the local average enrolment ratio. Third, in Chamttar, SubReg and Reg households are significantly above the (rather low) local average enrolment ratio. In the case of Reg households, this confirms the expectations formulated above, while the high figure for SubReg (which shows an important income contribution from farming activities) is a surprise. Figure 25 shows another important aspect of investment in qualitative human assets, by tabulating the overall (boys and girls) enrolment ratio. Basically, the picture given in figure 24 is confirmed. First, non-farm households in all villages show a higher enrolment ratio than farm households. Second, all strategy types tabulated for Kanshian and Gali Badral show an enrolment ratio close to or clearly below the local average. Third, strategy type

Reg (Chamttar) lies significantly above the village's average enrolment ratio, additionally representing those households which spend most on each child's education (not tabulated). Female literacy as well as girls' enrolment ratio are much lower in all villages and for all groups (compare 3.1.2). In view of the absence of any job opportunities for women, this does not surprise – as long as a household cannot capitalise on well-educated females, it will not invest too much in this regard.

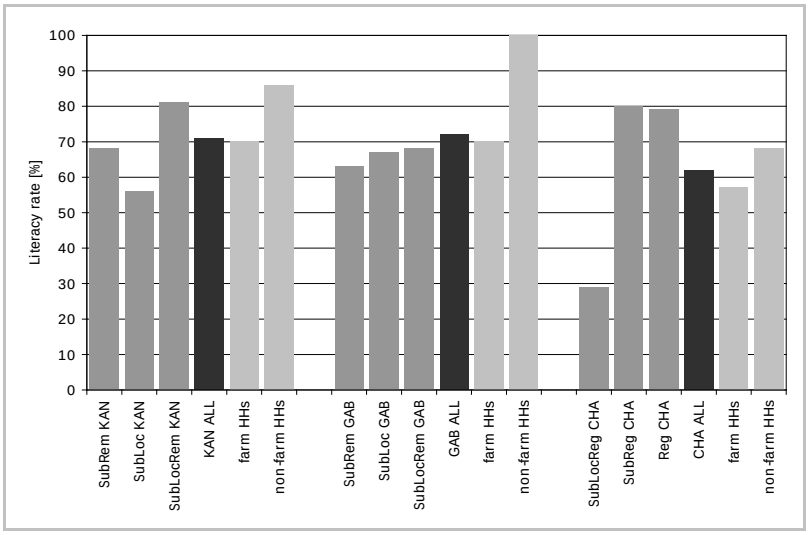

Figure 24: Male adults' literacy rate by selected strategy groups

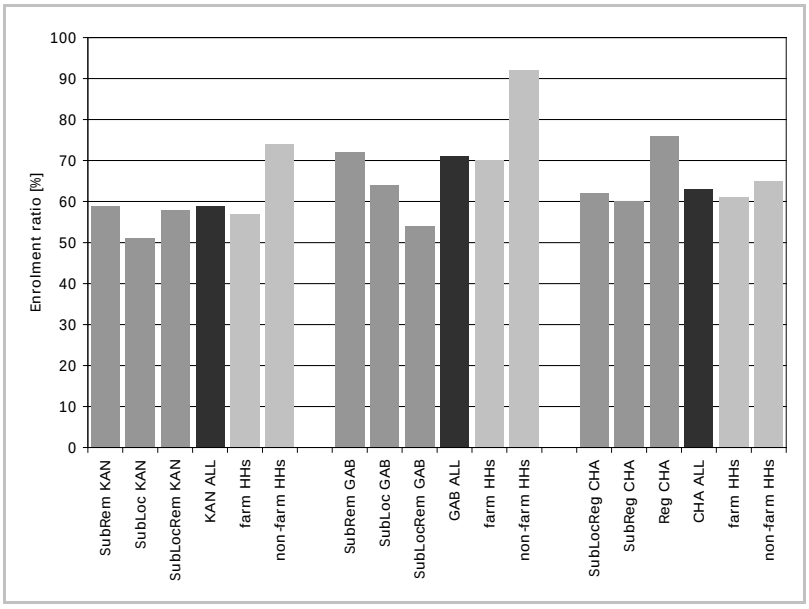

Figure 25: Overall children's enrolment ratio by selected strategy groups (abbreviations see Figure 19)

The figures thus confirm that qualitative human assets are particularly important for those households, which are not (too much) involved in farming and which in most cases generate their cash income through a regular salaried job. Such households often require an above-average education of at least one household member, what means that

boys are not necessarily equally promoted. Purposeful, selective investment in qualitative human assets can therefore become an important element of those households' livelihood strategies. Households concentrating more on farm incomes and/or labour migration tend to pay significantly less attention to education. As the latter represent the majority in all three villages, this confirms the findings made by Kurosaki and Khan: "Sample households were found to accumulate human capital more in quantity and less in quality (low educational level), with a significant gender bias against females" (Kurosaki/Khan, 22).

4.2.3 Synthesis

Elaborating on diversification as a constituting element of livelihood strategies, this section led to several conclusions:

Especially in Kanshian and Gali Badral, also farm households earn most of their cash income in a non-farm context. This results from a low agricultural productivity and the absence (or poor accessibility) of markets. In Chamttar, where mechanisation in farming is more developed, productivity and diversification of crops is much higher and markets are closer, farm incomes contribute more to the households' livelihoods, even though most farm households are tenants, paying rents to the landlords.

Taking the number and regularity of cash incomes as an indicator for the sustainability of livelihood strategies and the vulnerability of particular households, the most frequent strategies in Kanshian seem to be less 'successful' than those in Gali Badral and Chamttar.

Human assets represent an important element in many of the strategies identified. While farm households tend to invest more in the *quantitative* aspects of human assets (larger families in order to increase the available workforce), non-farm households invest significantly more in *qualitative* aspects (education in order to find regular, well salaried jobs).

4.3 The role of land access and subsistence farming

Section 3.2 already illustrated that in Kanshian and Gali Badral, most households are either land owners, or owner cum tenants. Only in Chamttar, more than 40% of all households are not farming, while the rest are all pure tenants (two exceptions only). Thus, it can be expected that land ownership or tenancy do not serve as a constituting element for the strategies of spatial range identified above. Nevertheless, differences regarding land size do exist and might have an influence on the choice of a certain strategy. This is what this section will examine first, before turning towards the contribution of non-cash income sources (in the form of subsistence farming) for rural households' livelihoods. As they are an integral part of most of the above identified strategies, such incomes will be discussed in terms of their availability and diversification.

4.3.1 Land ownership and access to land

Figure 26 shows the size of landholdings, which households of selected strategy groups can access. An average household in Kanshian has access to about 12.5 *kanal* of land (mostly owned land), but that due to the steep terrain more than half of this land can not be used for cultivation. In this village, SubLoc households are the ones with the most land, yet SubRem and SubLocRem households have access to more arable land. In Gali Badral, the average size of arable land per household is larger than in Kanshian, and the share of non-arable land is smaller. Yet section 2 showed that productivity is less than in Kanshian. SubRem households are the ones holding the most arable land, while those of group SubLoc own the most rangeland (non-arable land). Average land size is less in Chamttar, because only half of all households are involved in farming, which – as tenants – have access to seven or more *kanal* of arable land. SubLocReg households on average hold 12 *kanal* of arable land. Yet although differences in Chamttar are particular large, no significant correlation between land size and strategy groups could be observed.

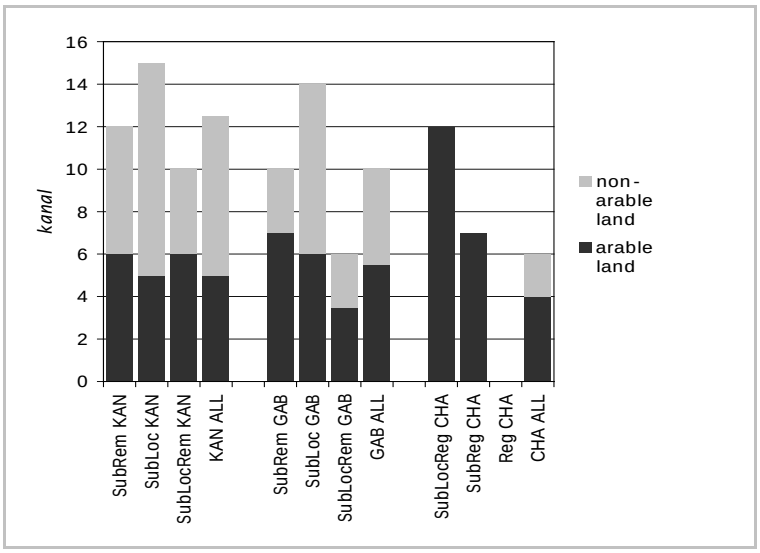

Figure 26: Access to land by selected strategy groups [1 *kanal* = 0.125 acre] (Abbreviations see Figure 19)

Why do, both in Kanshian and Gali Badral, SubLoc households hold the most land? One reason might be that these households, which operate in the local context only, use their non-arable land for generating more non-cash income through animal husbandry. Section 4.3.3 will unveil more on that.

Land holdings can also serve as important financial stocks, which can be turned into cash if needed. In Kanshian, where most farmers own the land they cultivate, every sixth household disposed of some land during the five years prior to the survey, mostly by mortgaging out a few *kanal*. Nearly as many households acquired some land during that time, either by leasing in or purchasing a plot. All in all, 32% of all households in Kanshian were involved in a land deal. In the other two study villages, only a few land

transactions were recorded. In Gali Badral, where only 5% of all households acquired or disposed of any land during the five years prior to the survey, the insecure land ownership status might be the main reason for that (compare 2.2). In Chamttar, most farmers are pure tenants, who cannot sell the land they cultivate.

4.3.2 Cultivation patterns

In the mountains and their foothills, where Kanshian and Gali Badral are located, maize is the only summer crop (compare figure 27). All households involved in farming are cultivating maize from May/June to September/October. During winter, many farmers grow wheat. In Kanshian, where winters are harsh and summers short, wheat often gets harvested before ripeness, in order to prepare the fields for maize. Wheat then is used as fodder for livestock. In Gali Badral, summers are longer and winters less cold, so that the conditions for growing maize are better. That is why winter wheat often can ripen before it is harvested. Nevertheless, to farmers in both villages, maize and wheat do hardly serve as cash crops.

In Chamttar, cultivation patterns are very much different and much more diversified. Besides maize and wheat, which are grown by 61% resp. 88% of all farmers, sugarcane is the third important crop. Sugarcane, sugarbeet, tobaccco, and rice are cash crops, while maize and wheat mostly serve as staple food. Cultivation patterns in Chamttar can vary from year to year, as they mainly depend on the growth and harvest of sugarcane. Agricultural diversification is thus highest in Chamttar, where a majority of farmers cultivates three crops per year, mostly maize and wheat (on the same land), plus sugarcane. In Gali Badral, 96% of all farmers cultivate two crops (maize and wheat). In Kanshian, 85% of all farmers grow maize only. Vegetables and fruits play an important role in Kanshian and Gali Badral. In Kanshian, half of the farming households cultivate various vegetables such as tomato, turnip, beans, spinach, and chili. Most common fruits are walnut, apricot, pear, and apple. The same vegetable varieties are cultivated by a fourth of all farmers in Gali Badral; apple, peach, walnut, and apricot are the most popular fruits here. In Chamttar, fruits are cultivated in large orchards belonging to a few major landlords. A few households only have some fruit trees on their own. Vegetable cultivation is not very common, too.

Figure 27 illustrates the diversification in farming. It shows that farmers in Kanshian often cultivate one crop (maize) only, yet give more importance to growing vegetables and fruits. In Gali Badral, all farmers but two practise crop rotation with both maize and wheat once a year The importance of vegetables and fruits is less than in Kanshian. In Chamttar, most farmers concentrate on crops only; more than 60% of all farming households can harvest three or more different crop varieties per year (mostly wheat and maize on the same land, plus sugarcane). The importance of vegetables and fruits is negligible.

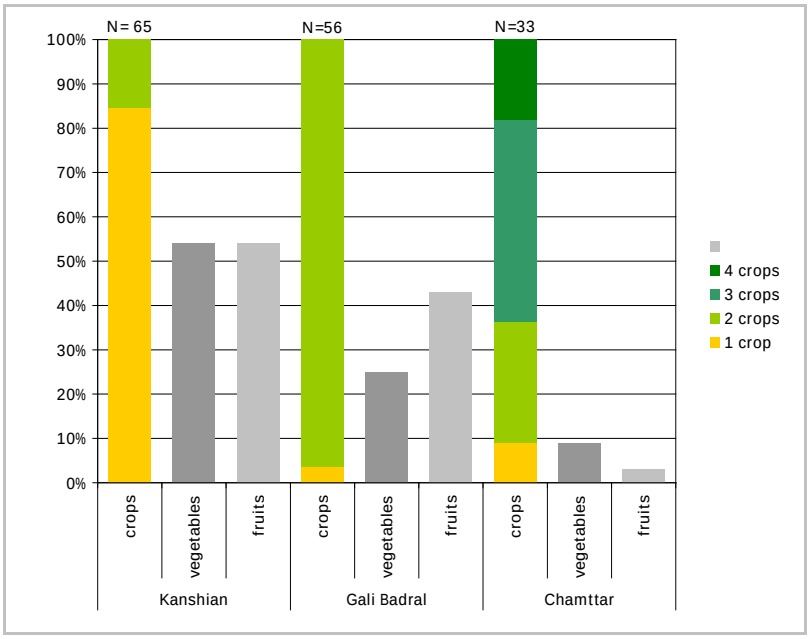

Figure 27: Village-wise share of farming households by number of cultivated crops; and share of farming households cultivating fruits resp. vegetables (non-farm households excluded)

Crops, vegetables and fruits: contribution to subsistence

Most of the agricultural production in Kanshian and Gali Badral serves for self-consumption. In Kanshian, two households sell about half of their maize production, while one sells all the wheat (as fodder). Every fifth farm household is selling fruits (mostly walnuts). Vegetables are not sold at all. In Gali Badral, one household sells most of its maize production, another one all the wheat. A single household only sells a variety of fruits. With the excpetion of fruit sale in Kanshian, contribution of farming to farm household's cash income in the two villages can therefore be neglected. The more important is the contribution to those households' food security. However, as productivity is very low, most farm households' production is not sufficient for their annual consumption. On average, the own production is enough for 4.8 months in Kanshian, and 3.4 months in Gali Badral. Only 14% (Kanshian), respectively 9% (Gali Badral) of farm households stated to be able to cover their own annual crop consumption totally by own production.

In Chamttar, 67% of all farm households are selling crops. While all households but one keep wheat and maize for themselves, 79% of all farm households sell sugarcane, mostly on regional markets, to middlemen, or directly to nearby sugarmills (compare 4.2.1). Out of all sugarcane producing households, 60% (=20 households) keep all or part of their production for self-consumption. Brown sugar, which can domestically be produced from sugarcane, is sold by another six households. The few households producing sugarbeet, tobacco, or rice sell their whole production. The normal land rent is Rs. 300/*kanal* for one seasonal crop (3 to 4 months). Since one piece of land often serves for three crops a year, most farmers pay an annual Rs. 900/*kanal*. However, many landlords prefer to lease the land for a short period of time only, because short-

term tenants do not receive the same legal status as long-term tenants do.[52] In the case of share cropping, both tenant and landlord receive 50% of the share.

Thus, maize and wheat (and to a lesser extent sugarcane) are contributing most to the households' self-consumption in Chamttar. As productivity is much higher in Chamttar than in the other study villages, this contribution is significantly higher. An average farm households' crop production is sufficient for 6.6 months, and for 27% of all farm households, it is even enough for a whole year.

4.3.3 Non-cash income diversification through subsistence farming

Diversification through cultivation

As most of the strategy types identified in section 4.1 build upon subsistence farming, Table 17 gives the median of each strategy type, comparing them with the median of all farm households in the respective village.

Table 17: Average land size, cultivation and sale of crops and fruits, and average degree of subsistence production by selected strategy types

	Arable land (*kanal*)	No. of crops	Crop sale	Veg. cultivation	Fruit cultivation	Fruit sale	Months with own production
Kanshian							
All farm HHs	5	1	–	3	3	–	4
SubRem	6	1	–	–	3	–	4
SubLoc	5	1	–	–	–	–	3
SubLocRem	6	1	–	3	3	3	4
Gali Badral							
All farm HHs	6	2	–	–	–	–	2.5
SubRem	7	2	–	–	3	–	2
SubLoc	6	2	–	–	–	–	2
SubLocRem	3.5	2	–	–	–	–	2.5
Chamttar							
All farm HHs	9	3	3	–	–	–	6
SubLocReg	12	3	3	–	–	–	3.5
SubReg	7	3	–	–	–	–	6
Reg	Not farming						

[52] After one year of tenancy, a tenant receives the status of a 'possessor' through the land revenue authority, enabling him to apply for agricultural loans with the consent of his landlord. In addition, possessors cannot be displaced anymore against their will or without litigation.

Table 17 reveals that strategy types SubLocRem (in Kanshian), SubRem (in Gali Badral), SubLocReg and SubReg (in Chamttar) are the ones with the most diversified farming structure. They all cultivate at least three different products/varieties (median). As mentioned above, most households hardly ever sell a whole production of maize, wheat, or sugarcane, so that we can conclude that these households have the most *diversified* non-cash income structure. However, not all of them generate equally *much* non-cash income. Although an average household possesses more arable land in Gali Badral than in Kanshian, the contribution of subsistence farming to the household's food security is less.

SubReg households in Chamttar are the ones which can live longest from their own food production, while SubLocReg households are far below average. In the case of type SubReg, non-cash income thus substitutes below-average cash incomes (compare 4.3.1). Households of type SubLocReg, however, have sufficient cash income sources, which can substitute a deficient non-cash income (compare 4.3.1).

Diversification through animal husbandry

Additional important contributions to a household's non-cash income can be generated through animal husbandry – even for households which do not cultivate any land. Table 18 tabulates the median Tropical Livestock Units (TLU)[53] for the strategy groups discussed above, comparing them with the respective local median.

Table 18 shows that poultry keeping is most popular in Kanshian, and least popular in Gali Badral. Interestingly, Reg households in Chamttar keep poultry more often than SubRem and SubLoc households in Gali Badral, although they are not farming. A similar picture can be drawn regarding TLUs: in terms of these units, households in Kanshian possess the most livestock, while those in Gali Badral possess the least. In both villages, however, SubRem households are the ones with the most livestock units. This might surprise, as SubRem households practice animal husbandry for subistence only, while some SubLoc and SubLocRem households generate cash income through selling livestock. In all three villages, buffaloes and cows are the most popular species, while many households in Kanshian additionally keep one or two goats or sheep.

In Kanshian, 65% of all farming households cultivate fodder plants. Winter wheat, which is harvested early in the year in order to sow maize, is often used as fodder. In Gali Badral, where most farmers practise crop rotation and use both wheat and maize for self-consumption, only 21% of all farming households cultivate fodder plants. In both villages, most farmers have access to pasture land. In Chamttar, where pasture

[53] Tropical Livestock Units (TLUs) allow to quantify different livestock types and sizes in a standardised manner, by describing them in relation to a common unit (1 TLU). The exchange rates used for this re-port are as follows: sheep/goat = 0.15 TLU; donkey/mule = 0.7 TLU; cow = 1 TLU; horse = 1.14 TLU; buffalo/bullock = 1.2 TLU (LEAD Virtual Research and Development Centre, http://lead.virtualcenter.org/en/dec/toolbox/Mixed1/TLU.htm#Metabolic, date of retrieval 25/4/2005; and ILRI 1995; http://www.ilri.org/html/trainingMat/ policy_X5547e/x5547e1j.htm, date of retrieval 25/4/2005).

land is very limited, 36% of all farmers cultivate fodder plants. Crop residues, especially from sugarcane. are the most important fodder in this lowland village.

Table 18: Share of households keeping poultry, and total Tropical Livestock Units (TLU; excluding poultry) by selected strategy groups

	% of HHs keeping poultry	Total TLU (median)
Kanshian		
All HHs	82	2.6
SubRem	83	3.0
SubLoc	82	2.4
SubLocRem	89	2.2
Gali Badral		
All HHs	48	1.9
SubRem	44	2.4
SubLoc	27	1.2
SubLocRem	80	2.1
Chamttar		
All HHs	63	2.0
SubLocReg	58	2.4
SubReg	57	2.7
Reg	50	1.4

4.3.4 Synthesis

Winding up the above-said, the cases of Kanshian and Gali Badral on the one hand, and Chamttar one the other, have to be treated separately. In Kanshian and Gali Badral, most of the households own all the land they have access to.[54] For them, land also serves as a financial stock, as it can be sold, leased or mortgaged out in times of need. The more land a household therefore possesses, the more resistant it is against crises. Differences among various strategy types are not very big. SubLoc households were found to possess more land in total, while other groups possess more arable land. Yet none of the types tabulated shows an above-average share of small resp. big farmers. Most households do keep a few animals only; the large plots of rangeland which most households possess do therefore serve as financial stock rather than as a production factor.

With a few exceptions only, farming households in Chamttar are tenants. Land thus hardly serves as a financial stock and must be as productive as possible. SubLocReg households produce more for the market, so that their non-cash income is rather limited.

[54] Although in the case of Gali Badral, ownership rights are still debated; compare section 2.3.

Those of type SubReg, however, produce more for subsistence. Without doubt, any land reform would thus strongly influence the local farmers' livelihoods. It would go too far to conclude that a particular strategy was better – or more sustainable – than another one. A cash-income based strategy is not necessarily more successful than a subsistence-oriented one. Only severe production losses or similar crises would reveal how resistant a household's strategy can be – section 4.5 will try to assess that.

4.4 How to overcome shocks: Short-term coping strategies

Section 3.6.3 already discussed shocks and crises in general. The following section examines how certain strategies work under 'abnormal' circumstances, i.e. how resistant they are against crises and shocks, such as serious diseases, accidents or death of household members, production losses, or market fluctuations. Do certain households have a variety of ways in which they can respond to a crises, can they choose an 'offensive' coping strategy (e.g. diversifying their income structure), or are they confined to more 'defensive' strategies (e.g. taking a cash loan)?

Figure 28 illustrates the average number of crises certain types of households experienced during the 12 months prior to the survey. As already discussed under 3.6.3, incidence of crises is highest in Gali Badral and lowest in Chamttar. In a majority of households, health-related crises (such as accidents, severe diseases, or deaths) make about one third to half of all crises experienced. Yet the number of crises alone cannot serve as an indicator for certain households' vulnerability, as the number of health-related crises also depends on the respective household size.[55]

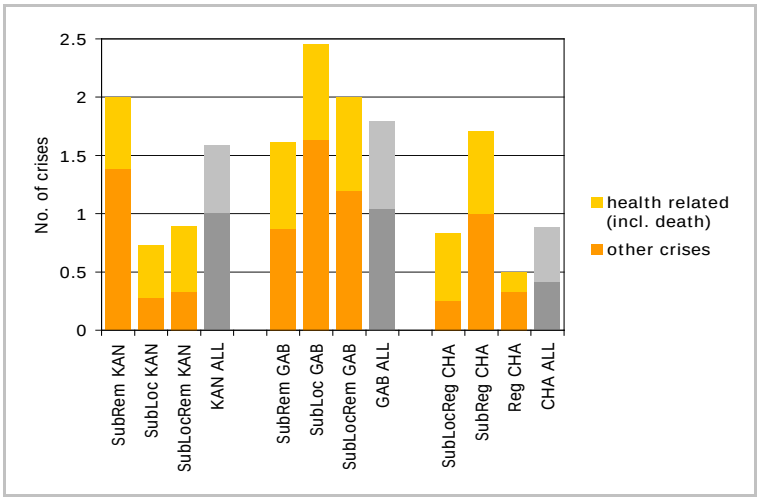

Figure 28: Average number and type of crises by selected strategy groups

[55] The different types of 'crises' as defined for data collection are: poor production; shortage of food; illness, accident of HH member; death of HH member; arrest of HH member; divorce; loss of job; irregular remittances; house damage; market fluctuation, inflation; loss of land; loss of livestock; theft; other.

4.4.1 Coping strategies based on financial assets

As finance-based coping strategies, we understand those strategies which build upon financial assets (i.e. regular incomes, cash savings, livestock, and cash loans). In order to understand why certain households can apply certain coping strategies, we first have to examine which financial assets are available to them. Table 19 therefore specifies the information given in section 3.3 for the respective strategy types.

Table 19: Existence of stocks and savings[56]

	% of HHs with cash savings	% of HHs with loans (last 6 months)	Average no. of loans	% of HHs with livestock
Kanshian				
All HHs	21%	59%	1.5	97%
SubRem	21%	72%	1.8	97%
SubLoc	27%	36%	1.3	91%
SubLocRem	0	44%	1	100%
Gali Badral				
All HHs	28%	62%	1.3	71%
SubRem	26%	61%	1.1	83%
SubLoc	36%	73%	1.5	64%
SubLocRem	30%	60%	1.5	70%
Chamttar				
All HHs	44%	73%	1.4	77%
SubLocReg	25%	92%	1.4	92%
SubReg	29%	71%	1.2	100%
Reg	83%	67%	2	67%

The tabulated figures show that only about one fourth of all households in each group has any cash savings. The only exception is type Reg (Chamttar), in which 83% of all households are able (or willing) to save cash money. Strategy types SubRem (Kanshian), SubLocReg and Reg (Chamttar) are the ones with the highest incidence of loans from relatives, neighbours, friends, or commercial money lenders/banks. SubLoc households (Kanshian) have a very low average loan debt. Basically, a correlation between incidence of crises (as tabulated in figure 28) and loan debt can be observed for Kanshian and Gali Badral. In other words: households which experience an above-average number of crises often take more cash loans than other households for meeting those crises. In Chamttar, this is not the case.

[56] "HH with loans" only includes loans from relatives/friends/neighbours and money lenders. Loans from shopkeepers are excluded, as in nearly all cases, these are goods purchased on credit and therefore do not directly serve as cash loans for meeting shocks or crises.

Livestock is an important financial stock for most groups. Considering these figures, one can expect that on the one hand, most strategy groups will be forced to use cash loans, or sell livestock in order to meet crises and shocks. On the other hand, many Reg households are probably able to cover similar expenses by their own savings. This would give us an idea of certain households' vulnerability.

Figure 29 reflects the relative importance of cash-based coping strategies. It shows that cash-based coping strategies are more often applied than non-cash ones. Overall, the largest share lies with the use of cash savings (37% overall), while taking cash loans from neighbours, relatives, or money lenders makes about one third of all coping strategies.

Considering the figures given in Table 19, a moderate correlation between loan debt and use of cash loans for meeting crises can be observed (SubRem Kanshian; SubLocReg, Reg Chamttar). However, the importance of cash savings in Gali Badral is somehow surprising. In this village, all strategy groups tabulated in figure 29 use own cash savings rather than take a loan in order to meet a crisis. Thus, the same strategy types (SubRem and SubLoc) handle crises very differently in Kanshian resp. Gali Badral. Selling livestock in order to earn money for meeting a crisis is only relevant for SubLoc households in Kanshian. Non-farm households in Chamttar (Reg) respond to crises and shocks with financial means only. Whether this can be understood as a sign of robustness or not, depends upon the remaining, non-financial coping strategies of other households.[57]

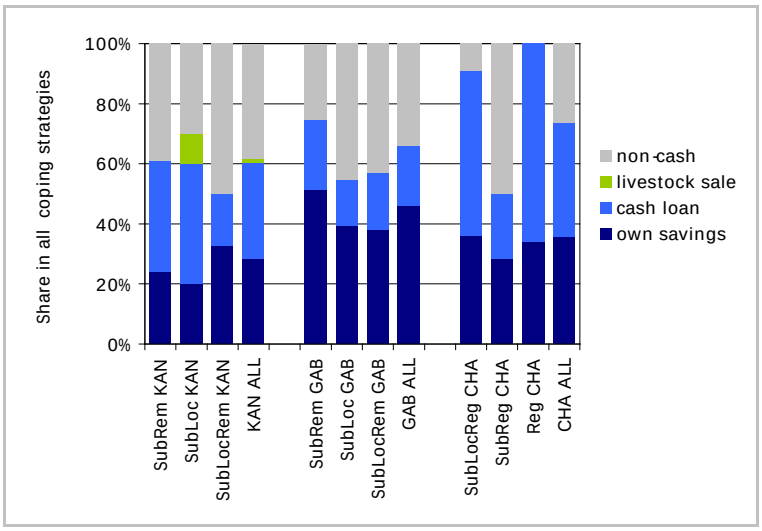

Figure 29: Incidence of cash-based coping strategies by selected strategy groups

[57] Other finance-based coping strategies, such as selling household items, jewellery, or land have not been recorded.

4.4.2 Coping strategies based on non-financial assets

Figure 30 visualizes the incidence of the remaining, not finance-based coping strategies. In general, these are more important (frequent) in Kanshian and Gali Badral than in Chamttar. Kind loans (food, tools) are especially important in Gali Badral, where all tabulated strategy types rely upon such loans from time to time. Meal adjustments are understood as a strong indicator for vulnerability – in most cases, a household will only start to cut down its daily food consumption if other options to meet a crisis are not available anymore. Therefore, households of type SubRem (Kanshian), SubLoc (Gali Badral), and SubReg (Chamttar) appear highly vulnerable to crises and shocks. What all these groups have in common is, that they are most affected by crises and shocks if compared to other groups (compare figure 28). In contrast to that, in Kanshian, groups SubLoc and SubLocRem are able to choose an 'offensive' coping strategy by opening up a new cash income source (labour) at short notice. Section 4.2.2 revealed that there are more opportunities for both farm and non-farm labour in Kanshian than in Gali Badral. Yet this only explains the absence of such coping strategies for Gali Badral, but not for Chamttar, where labour opportunities do exist. Support by relatives and/or neighbours plays another important role in Kanshian and Gali Badral. In Chamttar, none of the strategy types tabulated refers to a comparable coping strategy.

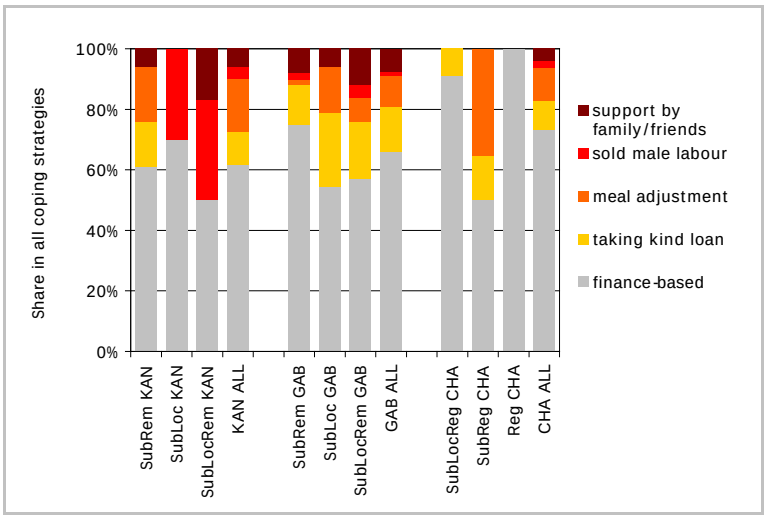

Figure 30: Incidence of cash-based coping strategies by selected strategy groups

4.4.3 Synthesis

It is rather difficult, if not impossible, to explain some the observed differences among the tabulated strategy types from the available quantitative data. Only further qualitative research could reveal more on the above-mentioned diffferences, i.e. why certain households do *not* choose a certain coping strategy although it was within their range of possibilities.

To summarize, the section shows that incidence of crises is especially high in Kanshian and Gali Badral, and for households of strategy type SubReg in Chamttar. It turned out

that cash savings on household level are not very widespread, except in non-farm households in Chamttar. The highest density of cash loans (apart from credits given by shopkeepers) were observed in Chamttar, too. This might explain why finance-based coping strategies are much more dominant in Chamttar than in the other two study villages. Consequently, more coping strategies based on other than financial assets are found in Kanshian and Gali Badral. In most cases, these strategies are of a 'defensive' type, which means that they attempt to quickly overcome a financial challenge (e.g. taking cash or kind loan, adjust meals). In few cases only, coping strategies are of an 'offensive' character, i.e. looking for labour as a source of cash income. Adjustment to meals as a coping strategy has been identified as a strong indicator for vulnerability. Considering that, households of strategy types SubRem (Kanshian and Gali Badral), and SubReg (Chamttar) appear most vulnerable to crises and shocks.

4.5 The role of forest resources

This section evaluates the importance of forest resources (both timber and non-timber forest products) in regard to local livelihood strategies, in order to test the hypothesis, that *forests are a key resource for rural people's livelihoods, and especially in the highland, an important share of households is generating its income through forest-related activities*.

On the one hand, this assumption evolved from previous research under the NCCR North-South. On the other hand, the ongoing deforestation that can be observed throughout the province caused intense discussions about the impact local resource use can have upon forests. In 1992, the Provincial Forest Resource Inventory (PFRI) pointed out the alarming gap between supply and demand, concluding that the actual pressure on forests was for the purpose of fuelwood (88% of overall wood consumption) rather than for timber (12%).[58] In view of reports about ongoing, extensive illegal cutting for commercial purpose, many experts doubt these figures. However, few doubt the fact that "unless special measures are undertaken, it is apprehended that the major part of the present natural forests would have been liquidated in the next 25 years."[59]

Availability of forest resources is very much different in the three villages examined for this survey. A description of available forest and other forest-related resources has been given under 2.2.2. Section 2.5.1 shows that despite the absence of dense forest in the plain area around Chamttar, forest products nevertheless play a certain role in people's daily life. However, it is important to distinguish between different roles forest resources can have in livelihood strategies. On the one hand, fuelwood, leaves, and – to a lesser extent – construction timber are used on a more or less regular, if not daily, basis. They are part of subsistence-oriented livelihood strategies, and thus an integral part of daily routines. On the other hand, forest products can be used for cash income-

[58] Government of NWFP, Forest Vision 2025, iv.
[59] Ibid.

oriented strategies, such as selling fuelwood on markets, or manufacturing wooden furniture.

4.5.1 Forest products as part of subsistence-oriented livelihood strategies

Fuelwood

Table 14 gives a detailed overview on which types of energy sources people use. It shows that nearly all households in all villages are using fuelwood for cooking purposes. In the mountainous and hilly areas, alternative energy sources are scarce; hardly one fifth of all households has an alternative at hand for cooking (mostly cylinder gas). In Chamttar, alternatives to fuelwood exist: 100% resp. 91% of households use leaf litter and dungcakes for cooking, too. For heating, there is not a single alternative to fuelwood. It is widely used in Kanshian and Gali Badral (96% of households); in Chamttar, where winters are less harsh, only 16% are heating with fuelwood. In addition, every fourth household in Kanshian and Gali Badral uses fuelwood for lighting rooms.

For the hilly areas of NWFP, various studies on fuelwood requirements have been made. Khattak (1995, 11f) calculated an average per head consumption of 1.5 m^3 per annum. At an average household size of 8.5 people, the fuelwood consumption of one household in Kanshian or Gali Badral would thus be about 12.75 m^3. As there is no dense forest left in the lowlands, similar estimates are missing for the area around Chamttar. However, one can assume that due to available and widely used alternative energy sources for cooking and the moderate winter season, fuelwood as well as total energy consumption in Chamttar is less.

In Kanshian and Gali Badral, most or all fuelwood is collected from the nearby forests. This is rather time-consuming and is the primary occupation for many people (both men and women) during winter; but it is for free, while alternative energy sources such as cylinder gas or electricity are comparatively expensive. Had people more job opportunities, they most probably would spent the time now used for collecting wood on earning money, with which other energy sources could easily be purchased. Yet jobs are scarce, and men often have time enough, as they have relatively little to do in the household, especially during winter. That is why even though electricity is available to most households, it is not used for cooking and heating. Dungcakes would be a cheap alternative to fuelwood, as they can easily be prepared at home, using cattle dung and straw. Surprisingly, not a single household both in Kanshian and Gali Badral uses dungcakes, although Kanshian shows the highest number both of livestock-keeping households and of animals per household. The reduced accessibility to dung in those two villages might be the reason for that, as it depends upon “whether or not cattle are corraled (as in irrigated areas) or not (in the barani, where only gathering from nighttime enclosures is easy)” (Campbell, 1992, 310).

In Chamttar, most people buy fuelwood on the market, for about 70 Rs. per 50 kg. 30% of all households (additionally) get fuelwood from neighbours owning or having access

to private land with trees. Considering such restrictions on getting fuelwood, alternative energy sources appear more attractive, as price differences are not too high. In addition, intensive crop cultivation throughout the year (sugarcane) produces lots of residues. Dungcakes, which are used for cooking by nine out of ten households, is another fuel that can be used 'for free'. Comparing the monetary and fuel values both of fuelwood and dungcakes, Campbell (1992, 315) and Sial (2002, 8) show that dungcakes are even cheaper in price than fuelwood, although the burning time of low-density materials such as dungcakes is about three times shorter than that of fuelwood. As collecting dung is relatively easy in an area where animals are mostly corraled (compare above), time used for preparing dungcakes is even less than for collecting fuelwood. Yet opportunity costs must not be forgotten: using dung as field manure would make much better use of its energy value.

Although much cheaper in price than densified fuels (oil, gas), fuelwood, dungcakes and leaf litter cause additional costs in most cases, affecting not only a household's financial, but also human capital: "Emissions from wood fires can be at least 10 times greater than particulates from oil and gas fires, and cause lung diseases (…) and be a carcinogen" (Campbell 1992, 312).

Table 20: Use of different energy sources by selected strategy groups

	Kanshian			Gali Badral			Chamttar		
	SubRem	SubLoc	SubLocRem	SubRem	SubLoc	SubLocRem	SubLocReg	SubReg	Reg
[N]	29	11	9	23	11	19	12	7	6
Average no. of energy sources	3	2	3	3	3	3	5	5	5
Share (%) of HHs using fuelwood for…									
… cooking	100	100	100	100	100	90	92	100	100
… heating	93	91	100	100	100	100	17	29	17
… lighting	35	18	11	30	–	10	–	–	–
Share (%) of HHs alternatively using…									
… cylinder gas	28	18	33	56	27	70	8	29	17
… kerosene oil	79	45	56	48	64	60	92	57	83
… electricity	72	82	78	100	100	90	100	100	100
… dungcakes	–	–	–	–	–	–	100	86	100
… leaf litter	3	9	11	–	–	–	–	–	–

It does not surprise that the analysis by strategy types (Table 20) does not reveal any striking differences. Cooking, heating, and lighting are basic needs of every household.

Moreover, the availability of potential alternatives to fuelwood is determined by the (lack of) communal infrastructure or the remoteness of the village rather than by a household's purchasing power or its efforts to find other energy sources. What can be seen is that SubRem households in Kanshian and Gali Badral are slightly more dependent on fuelwood for lighting than other household groups. One reason for that might be that they have less alternatives available than others, such as electricity (in Kanshian) or kerosene oil (in Gali Badral). On the other hand, SubLocRem households in Gali Badral show a reduced dependency on fuelwood, i.e. for cooking and lighting. It seems that they are able to partly substitute fuelwood with gas and/or oil.

Construction timber

Timber is widely used as a construction material all over Pakistan. While totally wooden houses are very rare even in the mountains, traditional roof types require a layer of wooden beams, covered with smaller branches, straw and loam. More modern types sometimes use steel girders, especially in the lowlands. In Kanshian and Gali Badral, people who can afford it build saddle roofs, timbered constructions covered with corrugated iron. A well-made roof usually lasts for several decades.

Most households in all villages have been found to use construction timber about once in 15 years. Khattak (1995, 11f) estimates that approximately 4% of all houses in a village are renovated or reconstructed each year, and that per house, 30m^3 of standing trees volume are needed. If we consider that an average household lives in one major building (not counting stables etc.), the annual need for construction timber in Kanshian is about 496 m^3 standing volume, in Gali Badral 216 m^3, and in Chamttar 220 m^3. Keeping in mind that alternative construction material is used in the lowlands (mainly steel instead of timber), the timber requirements are probably less in Chamttar.

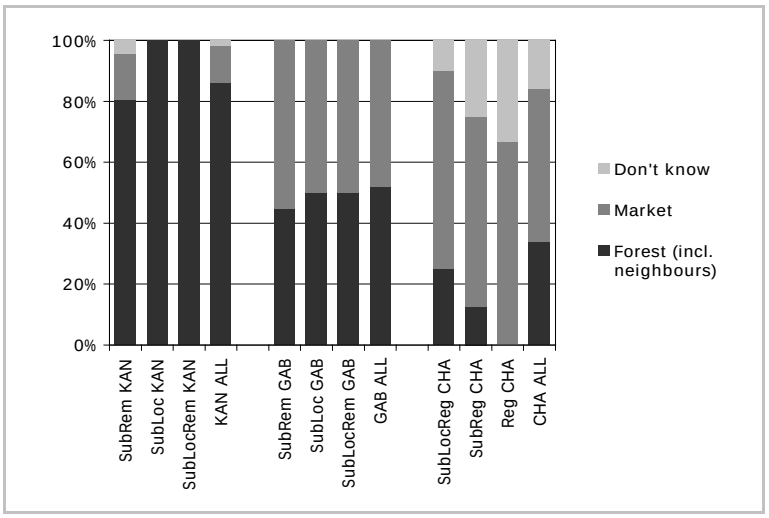

Figure 31: Sources of construction timber by selected strategy groups

Figure 31 shows that about 85% of all households in Kanshian get construction timber from the nearby forest. They cut it themselves (with or without an official permit from

the Forest Department) or get it from neighbours. Only 12% buy it on a market, mostly households of type SubRem. In Gali Badral, the share of markets is already much higher, and about the same for all strategy types tabulated. In accordance with the little local forest reserves, the share of 'forests' (in this case own land, or from neighbours) is smallest in Chamttar. Non-farm households (such as those of type Reg), which do not have access to any land, are completely dependent on markets. The term 'market', however, does not automatically imply that such timber has been harvested and purchased legally. In many cases, such 'markets' work on a local level, organized by middlemen, who deliver timber against direct payment. That is why it must be assumed that the share of households, which meet their need for timber from local forests, is higher than indicated in Figure 31. This is especially valid for the highlands and the foothills.

Non-timber forest products (NTFPs)

Apart from leaves (which are used in Chamttar by all households, but are mostly crop residues), NTFPs such as herbs and mushrooms are collected by less than one fifth of households both in Kanshian and Gali Badral. It can therefore be assumed that the resulting impact upon forest resources is not too high.

Grazing

Animal grazing in the forest and on barren land is expected to have a serious impact upon natural regeneration. Especially where the terrain is steep, it gives support to increased erosion. Although only a few households send their animals to the forest (12% in Kanshian; 4% in Gali Badral), most livestock-keeping households keep them on public or private rangeland. This should be understood as an indirect impact on, or use of (hypothetical) forest resources. As the number of livestock-keeping households as well as the median Tropical Livestock Units per household (compare 4.3.3) is highest in Kanshian (where in addition, the terrain is steepest and thus most prone to erosion), this kind of impact is strongest in Kanshian.

Time spent on forest-related activities

The amount of time that people spend on forest-related activities can be used as an indicator for the importance forests have in their daily life. Respondents have been asked for their daily activities during the seven days prior to the survey. Results show that 17% of all (adult) respondents in Kanshian and Gali Badral at least once a week go to collect fuelwood. Women spent nearly thrice as much time on fuelwood collection than men. In Chamttar, people less often go to collect wood, and men and women spend about the same time per week. It is important to mention that the survey was carried out during summer, while the peak season for collection and storing fuelwood is in winter (compare 3.6.1). But the general impression confirms the conclusion made

above, that fuelwood as an energy source is of much more importance in the mountains and foothills, than it is in the lowlands.[60]

4.5.2 Fuelwood and timber as part of cash income-oriented strategies

Generating cash income through selling fuelwood or timber

According to Figure 32, forest-related cash incomes through selling fuelwood or timber are negligible. Four households only in each, Gali Badral and Chamttar, are at least partly dependent on such an income. Out of these, only one household in Gali Badral is completely dependent on selling timber. Non-farming households are not involved in such activities, either because they do not have sufficient access to timber, or have other (better) cash income sources. In Kanshian, not one household seems to generate income by selling forest products. Considering the availability of forests and the observed deforestation, this seems rather questionable; the more so as during the survey, illegal timber harvesting by local residents could be observed. That is why such figures have to be handled with care – although at times local Forest Department officials might be involved in illegal practices, many people might prefer not to mention such sources of income. In another survey (Steimann, 2003) carried out in several highland locations of Swat, many people admitted to sell timber illegally. In other cases, external timber smugglers ('timber mafia') paid local residents for cutting and preparing trees. Although not to the same extent, one must assume that such practices exist in Kanshian and Gali Badral, too. As Figure 31 illustrates, Gali Badral has a vivid timber market that mainly functions on a local level – if nearly 50% of all households hence obtain their timber, it seems unrealistic that only two of them run the whole business. Yet timber harvesting is mostly done in winter, and thus can generate seasonal cash incomes only. In addition, large-scale timber smuggling requires appropriate means of transport, which are hardly available to local residents. That is why nearly all households with a forest-related cash income also have another, more regular source of cash income.

In Chamttar, the situation is slightly different. A few years back, the Swiss-funded Farm Forestry Project encouraged local residents to cultivate trees between their fields. Fast-growing species – mostly poplars – have been chosen, which would allow the farmers a soon return on investment if they sold timber and fuelwood on local markets. However, only a few households in Chamttar can profit from this intervention, as most trees belong to a few landlords. In addition, poplars consume immense amounts of ground water, which in turn has an adverse effect on crop productivity.

[60] In this case, analysis for the various strategy types of spatial range has to be omitted, as [n] becomes too small when splitting the data by strategy groups and sex.

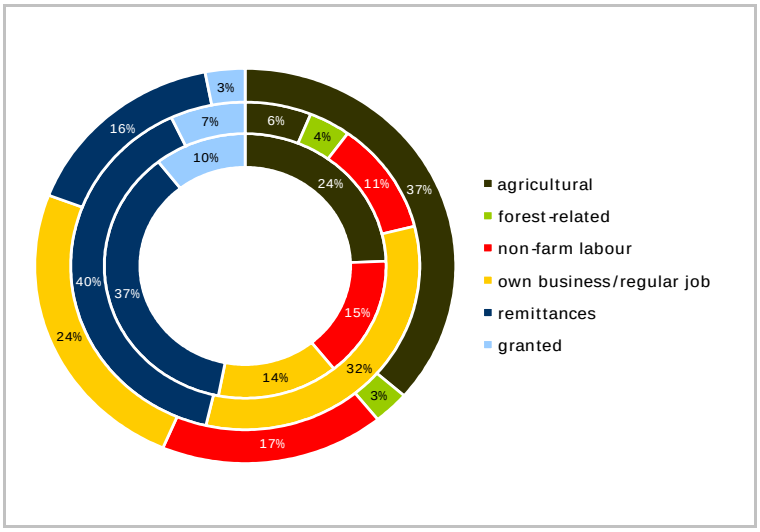

Figure 32: Share of different cash income sources in total number of cash income sources by village (inner circle: Kanshian; middle circle: Gali Badral; outer circle: Chamttar)

As the incidence of forest-related cash incomes is very small, an analysis regarding the various strategy types does not reveal many more insights. In Gali Badral, there is each one household of type SubLoc and SubLocRem generating a cash income by selling timber, resp. fuelwood. As their strategy type indicates, they sell everything locally. In Chamttar, one each one SubLocReg and SubReg household has been recorded – both of them sell timber through middlemen.

Forest labour and royalty payments

In the past, the Forest Department often hired local people for work in the local forests. Yet since 1992, when a nation-wide ban on timber harvesting has been put in place, the number of such job opportunities has become close to zero. That is why forest labour is no serious option for cash income generation anymore. If it is practised today, it is mostly on reciprocal basis among local *Guzara* owners and other residents, not generating any cash wages. The same effect did the ban have on royalty payments to right holders in Protected Forests (which can be found around Gali Badral): as official harvesting has been reduced to a minimum, local people do not get royalties anymore. In the Hazara Division, these payments were 80% of the timber sales proceeds, which was a good yet irregular cash income for local right holders.

4.5.3 Synthesis

The hypothesis which was formulated in the beginning of this section was, that *forests are a key resource for rural people's livelihoods, and especially in the highland, an important share of households is generating its income through forest-related activities*. However, it is rather difficult to answer this hypothesis in a quantitative way. What can be said is, that for subsistence-oriented strategies, forest products such as fuelwood and construction timber are of much more importance in the highlands than in the lowlands. On the one hand, this results from the (still) good availability of forest resources in the

upper areas; on the other hand, these products become more important when affordable alternatives do not exist. Up to now, especially fuelwood is of utmost importance for all people living in the highlands. Their dependency on this type of energy source cannot be overestimated. This is also why no major differences between various strategy groups regarding use of fuelwood and timber have been recorded. Only by comparing the same strategy groups in Kanshian and Gali Badral, data indicates that most households in the foothills have more alternative energy sources at hand. Thus, their dependency on forest products for subsistence-oriented strategies is somehow less than in the highlands.

As for cash income-oriented strategies, forest products are of more or less the same (minor) importance in all villages. Although illegal practices such as timber smuggling might have been 'overseen' by this survey, forests are of less importance as sources of cash income generation than expected, especially if compared with other, regular cash incomes from remittances (highland), selling crops (lowland), or regular salaried jobs and self-employed businesses (all villages). Regarding the strategy types of spatial range, it can only be said that the large group of SubRem households (both in Kanshian and Gali Badral) is not involved in generating forest-related cash income. Yet even in the other major strategy groups, only a few households generate cash income through selling timber or fuelwood, which is never sufficient to make a living for a whole household.

The statement made by LEAD (2003, 2) that "one single illness in the household would push the family into the poverty trap, compelling the people to resort to deforestation as a source of livelihoods", can therefore be rejected for the three study villages. In the hilly areas, it is rather the poverty trap that does not allow people to reduce their daily dependency on forests in form of fuelwood. Had people more income sources and money available, they could afford to use more efficient energy sources such as oil, petrol or electricity. In turn, this would safe and improve their natural as well as their human assets. However, it is a highly limited range of action which local forest users have. In order to find a sustainable way of reducing the pressure upon forests, it must be kept in mind when 'special measures' (compare 1.1) are imposed.

Thus, a new hypothesis emerges, which could serve as an entry point for subsequent (qualitative) studies: *that rural people are already well aware of the worsening environmental situation (as this paper could show), and therefore started to adapt their livelihood strategies – subsistence-oriented as well as cash income-oriented ones.* This would at least explain the surprising little amount of households involved in cash income-oriented forest-related strategies.

5 Synthesis and Recommendations for Future Research

5.1 Synthesis: Comparing selected livelihood strategies

Section 4 developed a typology of livelihood strategies and discussed their various aspects. Section 5 now addresses the question why certain strategy types appear more sustainable (or less vulnerable) than others.

5.1.1 Factors of vulnerability

Table 21 lists some of the major indicators which have been discussed in sections 4.1 to 4.5, thus allowing both a direct comparison between the three most frequent strategy types in each village, and an analysis of various indicators within a single strategy type. Eleven indicators seem most appropriate for analyzing the robustness/vulnerability of different groups:

Table 21: Eleven selected indicators for vulnerability / robustness[61]

Indicator	Increased vulnerability if…
Average number of cash income sources	… no. of income sources is small
Regularity of cash incomes (no. of regular cash income sources / total no. of cash income sources)	… regularity is small
Total no. of household members	… *(no statement possible)*
Overall adults' literacy rate	… literacy rate is low
Child school enrolment ratio	… enrolment ratio is low
Total accessible land (*kanal*)	… land holdings are small
Total arable land (*kanal*)	… arable land is small
Months with own food production	… contribution of subsistence farming is poor
Share of households with cash savings	… cash savings are scarce
Incidence of coping strategy "own savings"	… coping strategy is seldomly applied
Incidence of coping strategy "adjustment to meals"	… coping strategy is frequently applied

Table 22 lists all the eleven indicators for the selected strategy groups in each village, giving each groups' average as well as the correlation between a group dummy and each indicator. Significant positive or negative correlations are highlighted, pointing out entry points for discussion of the selected strategy types, as well as for future (qualitative) research.

[61] Note again that the amounts of incomes were not considered for this study (compare footnote No. 41).

Table 22: Averages and correlation coefficients (in brackets) for selected indicators (compare Table 21) for the three study villages ("ALL"), and for selected strategy groups

	Kanshian				Gali Badral				Chamttar			
** – correlation is significant at the 0.01 level (2-tailed) * – correlation is significant at the 0.05 level (2-tailed)	ALL	SubRem	SubLoc	SubLocRem	ALL	SubRem	SubLoc	SubLocRem	ALL	SubLocReg	SubReg	Reg
[N]	71	29	11	9	61	23	11	10	57	12	7	6
Cash income sources												
Total no. of cash income sources	**1.62** (-.170*)	**1.14** (-.456**)	**2.09** (.230)	**2.33** (.310**)	**1.62** (-.149*)	**1.09** (-.540**)	**1.45** (-.102)	**2.4** (.446**)	**2.37** (.331**)	**3.33** (.398**)	**1.86** (-.153)	**1.17** (-.329*)
No. of regular income sources/total no. of income sources	**0.19** (-.107)	**0.37** (.195)	**0.08** (-.042)	**0.04** (-.263*)	**0.46** (.201**)	**0.76** (.267*)	**0.36** (-.200)	**0.38** (-.186)	**0.30** (-.093)	**0.31** (-.100)	**0.07** (-.073)	**0.89** (.419**)
Human assets												
Household size	**8** (-.276**)	**7** (-.058)	**6** (.002)	**8** (.025)	**9** (-.001)	**10** (.291*)	**8** (-.175)	**8** (-.021)	**10** (.292**)	**14.5** (.108)	**21** (.379**)	**9.5** (-.081)
Overall adults' literacy rate	**54** (.201**)	**47** (-.195)	**38** (-.224)	**69** (.186)	**48** (.031)	**42** (-.177)	**45** (-.066)	**46** (-.032)	**37** (-.243**)	**28** (-.480**)	**37** (.011)	**50** (.221)
Child enrolment ratio	**60** (-.119)	**60** (.015)	**50** (-.086)	**60** (-.006)	**70** (.138)	**70** (.019)	**65** (-.079)	**55** (-.239)	**60** (-.012)	**60** (-.015)	**60** (-.040)	**75** (.153)
Land access & non-cash income sources												
Total arable land	**5** (-.103)	**6** (-.018)	**5** (.090)	**6** (.094)	**5.5** (.079)	**7** (-.044)	**6** (-.023)	**3.5** (.185)	**4** (.028)	**12** (.334*)	**7** (.239)	**0** (-.211)
Months with own food production	**4** (.125)	**4** (-.052)	**3** (-.040)	**4** (.128)	**2.5** (-.131)	**2** (.115)	**2** (.010)	**2.5** (-.046)	**6** (.002)	**3.5** (.194)	**6** (.243)	**0** (-.298*)
Stocks & savings												
% of HHs with savings	**21** (.081)	**21** (.086)	**27** (.043)	**0** (.000)	**28** (.091)	**26** (.102)	**36** (.068)	**30** (.051)	**44** (.134)	**25** (.053)	**29** (.035)	**83** (.088)
Availability of cash savings *(Russel and Rao proximity measure; [0 is lowest, 1 is highest proximity])*												
Coping strategies												
Total no. of crises suffered during 6 months prior to survey	**1.6** (.073)	**2** (.215)	**0.7** (-.234*)	**2.4** (-.169)	**1.8** (.149*)	**1.6** (-.072)	**2.5** (.163)	**2.2** (.095)	**0.9** (-.229**)	**0.8** (-.021)	**1.7** (.295*)	**0.5** (-.122)
Frequency of coping strategy 'own savings'	**30** (-.061)	**25** (.071)	**20** (-.190)	**35** (-.149)	**45** (.228**)	**50** (-.030)	**40** (.098)	**40** (.029)	**35** (-.168*)	**35** (-.013)	**30** (.116)	**35** (-.089)
Frequency of coping strategy 'adjustment to meals'	**18** (.128)	**18** (.117)	**0** (-.157)	**0** (-.140)	**10** (-.021)	**2** (-.252)	**15** (.256*)	**8** (.003)	**10** (-.113)	**0** (-.134)	**35** (.562**)	**0** (-.089)

Why does strategy type SubRem seem more robust in Gali Badral than in Kanshian?

All households of type SubRem live from subsistence farming and remittances. Thus, their only cash income source is based on labour migration. Yet Table 22 shows that in Gali Badral, the income regularity is much higher. This can be explained by the fact that in Gali Badral, an average SubRem household can rely upon 2.5 migrants (Kanshian: 1.5). This difference might again result from the fact that SubRem households in Gali Badral are larger in number than in Kanshian. In terms of subsistence farming, which is the second pillar of SubRem households, those in Kanshian are more successful: on six *kanal* of arable land, they produce food for four months on average (Gali Badral: 7 *kanal*, 2 months). However, this cannot completely substitute the lack of sufficient cash incomes – every fourth household only is able to activate cash savings in times of need, while in Gali Badral, every second household can do so. As a result, in times of crises, many SubRem households in Kanshian have to adjust their meals (although not more often than the local average). Thus, an important difference between the two villages becomes visible: in Kanshian, households of type SubRem concentrate more on generating non-cash income through subsistence farming; in Gali Badral, cash income through labour migration is given the priority. Accordingly, the former more often have to activate their non-cash savings in times of need, while the latter are able adjust their cash savings. Only qualitative research could reveal whether it is only the human assets' quantity which makes the difference (larger household allows more migrants), or whether people in Gali Badral can more easily find opportunities for migration, i.e. through better access to migrants' networks.

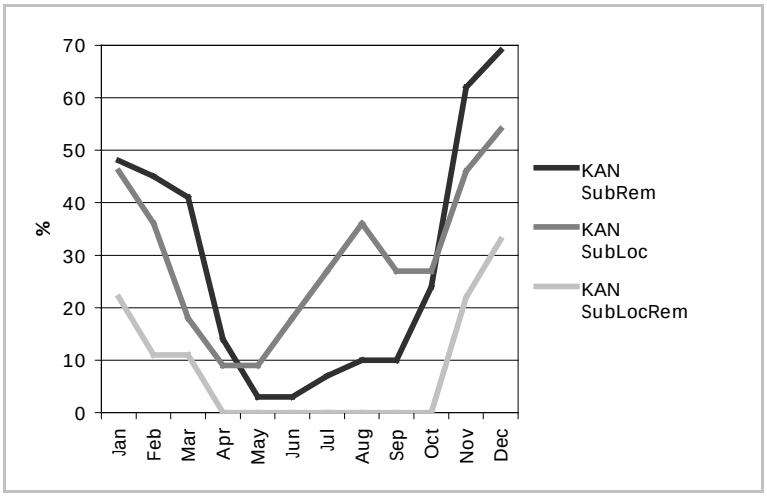

Figure 33: Share of households in Kanshian terming a specific month as 'difficult' (% of all households in the respective strategy group)

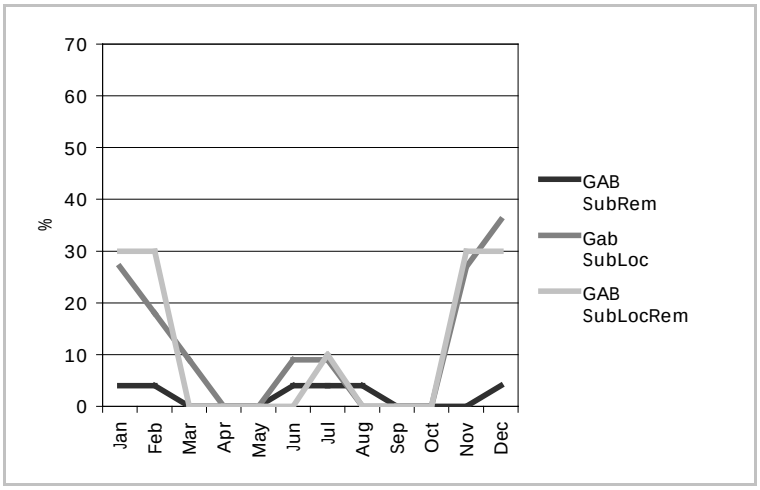

Figure 34: Share of households in Gali Badral terming a specific month as 'difficult' (% of all households in the respective strategy group)

Why do households of strategy type SubLoc show increased vulnerability?

SubLoc households operate in the local context only; they are farming mostly for subsistence and generate some other cash income locally. Most probably due to their comparably small household size, or weak social and/or qualitative human capital, they are not able to send adult men into migration, thus not having any cash income through remittances. This means that cash income can be generated in the rather limited context of the village only, where opportunities for regular salaried jobs or self-employed businesses are rather limited. In addition, SubLoc households show below-average education and enrolment rates. Thus, their qualifications for better (and regular) jobs must be assumed as being very poor. This results in income sources which are highly irregular (regularity is below the local average in both cases). Besides that, the outcome from subsistence farming is not very high. Although families are rather small, the subistence production is below the local average. As a result, the share of those households which are able use their own cash savings in order to meet any difficulties is rather small. In Gali Badral, there is even a significant correlation between SubLoc households and the coping strategy of "adjustment to meals". To say it in other words: households of type SubLoc are often those households, which have neither the quantitative (for labour migration) nor the qualitative human assets (for well-paid jobs) to secure or improve their livelihoods.

Figures 33 and 34 confirm the increased vulnerability of SubLoc households in both villages (as well as of SubRem households in Kanshian). Those households much more often experience certain months of the year as especially difficult.

In Chamttar, households of type SubReg seem most vulnerable.

Group SubReg gathers those households, which are mostly farming for subsistence, but also generate cash income in the regional context. These households do use most of their yield for self-consumption, so that agriculture's contribution towards non-cash income is average. A very strong positive correlation between SubReg households and

household size can be observed – nevertheless, these households do not make use of that immense quantitative human capital in terms of sending anybody into labour migration. It additionally surprises that SubReg households have to cope with highly irregular incomes – in spite of the fact that the literacy and enrolment rates are not below the local average. It seems that among SubReg households, human capital is used neither in its quantitative (for a more differentiated income structure), nor in its qualitative aspects (for better, more regular cash incomes). All the potential is concentrated upon farming, which does often not preserve these households from severe crises: a strong correlation between SubReg households and the coping strategy "adjustment to meals" can be observed.

Also here, a qualitative survey could reveal more on why these households do not use their quantitative human potential for diversifying and improving their income structure by entering e.g. into labour migration.

SubLocReg households (Chamttar) seem to make good use of their quantitative human capital

In Chamttar, SubLocReg households seem to be less vulnerable than SubReg households. The differences are striking: generating cash incomes both in a local and a regional context, SubLocReg households show a strong positive correlation with the total number of cash income sources. Although not as large in number as SubReg households, they thus apparently make better use of their quantitative human capital, while neglecting its qualitative aspects (strong negative correlation with overall adults' literacy rate). Another important reason for the rather good income structure might be that these households can cultivate 12 *kanal* of land on average – nearly twice as much as SubReg households. Figure 35 shows that SubLocReg households experience most (if any) difficulties during summer, when field work has to be done despite the heat. One can only speculate whether the decision not to invest in education is a result of those households' good access to land (and thus their focus on farming), or whether a poor literacy rate lets these households concentrate on farming. Most probably, the former is the case – why should a farmer, making a good living from his land, send his children to school, while their workforce on the fields helps to secure the household's income? Surprisingly, and despite of their low literacy rates, SubLocReg households still generate half of their income sources outside farming; even more than SubReg households, which on average are better educated. This again supports the impression that SubLocReg households are – besides being well equipped with natural capital in the form of land – able to make very good use of their quantitative human capital.

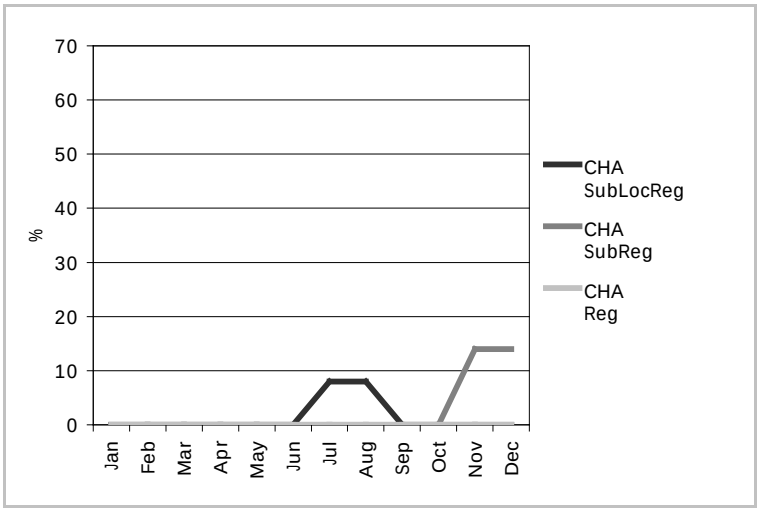

Figure 35: Share of households in Chamttar terming a specific month as 'difficult'

However, one must keep in mind that nearly all farmers in Chamttar – both *SubReg* and *SubLocReg* households – are tenants, and therefore do not have the full decision power over the land which they are dependent on. The fact that the communication between landlords and tenants in Chamttar seems highly difficult unveils an additional factor of vulnerability for both *SubReg* and *SubLocReg* households.

Making a living without land: Why do Reg households in Chamttar seem successful in earning their livelihoods?

Even though these households have but 1.5 cash income sources on average, they are far better than the local means in regard to most other indicators. This might have various reasons. First, Reg households are much smaller in number than those in the other two groups tabulated, SubLocReg and SubReg. Being non-farm households, they do not need that much working force (quantitative human assets). Instead, they tend to invest more on education (qualitative human assets), with the result that the group's average is even above the other two village's averages (except female literacy rate). Thus, one can assume that Reg households usually can live from one or two rather profitable and regular cash income sources. The fact that 83% of them are able to save money confirms that. The only confusing things is, that they do not more often than others use their cash savings for coping with crises. Instead, they very often take cash loans – most probably the most critical element in their livelihood strategy. Reg households, however, did not term any month as especially difficult (see figure 35).

5.1.2 Livelihood strategies in a highland-lowland context

This section highlights the main observed differences and similarities between livelihood strategies in a highland-lowland context.

Both in the **highlands and the foothills**, farming hardly ever yields enough for supporting a household throughout the year, not to mention for marketing of farm products.

Very often, the terrain is too steep, the soil not fertile enough, the vegetation period too short, or the infrastructure such as irrigation systems in bad shape or even inexistent. Thus, other sources of cash income have to be opened in order to make a living. These sources are often not related to farming, as either the agricultural markets are too far away (high transport costs), too small (local demand and purchasing power are limited), or – what is more often the case – the production is too small.

Considering these conditions, it cannot surprise that in the two villages representing the highlands and the foothills (Kanshian resp. Gali Badral), the same three strategy types of spatial range are the most often recorded ones. Among them, SubRem is by far the most popular livelihood strategy type, as about 40% of all households in both villages follow this strategy in order to make a living. For those 40%, remittances are the only cash income, supplementing an often not very productive subsistence production. Other frequently practised strategies include the local context, be it as the only location for cash income generation besides subsistence farming (mostly through labour or won small businesses), or in combination with labour migration. Thus, the importance of the regional context as a place for cash income generation is very limited. On the one hand, this is caused by the aforementioned limited accessibility of such markets; on the other hand, local markets (such as in Gali Badral) might be able to replace some of the functions of a regional bazaar.

Thus, natural resources such as land, forests, and water are important for subsistence production and non-cash income generation in the highland and the foothills; for cash income generation, though, natural assets do hardly ever play a crucial role (with the exception of illegal fuelwood and timber trade, which, as has already been mentioned, might be underestimated in this study; compare section 4.5.3). This also explains why no correlation between the size of arable land and any particular strategy type in these two villages could be observed. Land holdings can serve as financial stocks and do determine the contribution of subsistence production; their influence upon the choice of a particular livelihood strategy, however, is rather weak. Consequently, other assets such as quantitative human assets (workforce) become more important for the choice of a particular livelihood strategy. The example of Gali Badral, for instance, shows that larger households often send more men into labour migration, thus securing a more regular flow of remittances. Besides that, Kanshian as a whole shows a strong positive correlation with the overall adults' literacy rate. To some extent, this might reflect cultural differences between the three study locations (compare explanations on the lowland context below). Yet it also shows that such qualitative human assets can be crucial for sustainably practising a livelihood strategy: whoever has to look for cash income sources outside farming might have better chances for a good, regular salaried job when bringing along a good education.

Other strategy types prevail in the **lowland** study village (Chamttar). In general, a broader variety of different strategy types can be observed, which means that none of the strategies is as dominant as the SubReg type in the highland context. On the one hand, this might be due to the fact that only 58% of all households are involved in

farming. On the other hand, transport costs in the lowland are less, so that more opportunities and different ways to make a living are available. However, the three most often recorded livelihood strategies in Chamttar all build upon the regional context for cash income generation, irrespective of their involvement in (subsistence) farming, while labour migration does not play any role.

For those strategy types involved in farming, this has to do with the agriculture's character in the lowlands, speak with natural assets. Due to the flat topography and the long vegetation period (nearly 12 months), farming can be much more productive, and cropping patterns much more diversified, than in the highland. Combined with an easier access to agricultural markets (including sugarmills as buyers of sugarcane), farming can thus not only serve for self-sufficiency, but also for generating cash income, by selling a variety of crops. It is interesting that two different strategy types occur, both building upon market production *and* subsistence, but giving them not the same weight. SubLocReg households produce more for the market, selling products both in a local and regional context, but keeping less for themselves; while SubReg households do subsistence farming in the first place, selling their produce in the regional context only. As the preceding section showed, the amount of land available for cultivation (natural asset) might be a crucial factor influencing a household's strategic choice: SubLocReg households often have access to nearly twice as much land as SubReg households.[62] The importance of regional markets as a context for cash income generation gets underlined by the fact that the third most often observed strategy type, Reg, is completely dependent thereupon. As section 5.1.1 could show, this strategy seems rather robust.

Education, however, does not seem to be a priority for most of the households in the lowland context. Chamttar as a whole correlates highly negatively with the overall adults' literacy rate. On the one hand, this might be caused by the *Pukhtun* culture, which does not support female mobility, and thus female education (compare section 3.1.2 for details). On the other hand, however, many households are able to generate a couple of cash incomes through farming, for which quantitative human assets (workforce) are more important than qualitative ones (education).

If, out of all the information presented in this report, a last conclusion was to be drawn, it could be this one: Where the natural and physical environment allow it to generate cash income through farming – such as in the lowland context of Chamttar –, it is above all the access to land (natural asset) which can determine a household's livelihood strategy. In turn, the chosen strategy again can determine to what extent a household invests into quantitative or qualitative aspects of human capital. Where farming can serve but for subsistence production – such as in the highland and foothill context of Kanshian and Chamttar –, both qualitative and quantitative human assets can become a determining factor for the choice and the robustness of a particular livelihood strategy.

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[62] Consequently, access to irrigation water could be a limiting factor.

5.2 Emerging issues for future research

Analysis for this report concentrated on the household level. However, it will be highly interesting to analyze the available data from the Sustainable *Livelihoods Survey 2004* for potential gender and/or age differences on individual and household level. Forthcoming papers, i.e. from Sadaf [63] on gender-specific livelihoods, and Siegmann/Steimann[64] on factors of vulnerability and resilience, will do that.

Yet both on household and on individual level, the analysis has shown the need for further qualitative research. Some of them have been mentioned in this report, and shall be summarized here again:

- To what extent do *land holdings* (amount of land and ownership status) influence the choice of a livelihood strategy and the vulnerability status of a house-hold? Can land owners really convert their land assets into financial ones? Is tenancy a factor for increased vulnerability?
- Can *quantitative human capital* (workforce) really be seen as a determining factor for SubLocReg and SubReg households? Do these households intention-ally keep the number of household members large in order to make their livelihood strategy a sustainable one?
- Why do certain households not make use of a particular *coping strategy* (e.g. selling male labour), although they would be able to do so?
- How important are *social assets*? It has become obvious that measuring the importance of social assets with quantitative methods only is very difficult. What are the motivations behind social activties, and how do people make use of their social assets in order to improve their livelihoods? To what extent do (extended) families increase the social capital of households and individuals?
- How does *labour migration*, which is a core element of a majority of livelihood strategies in the highland context, influence the daily life of those staying at home? How does it change the gender-specific workload, or power relations within a household? Through which networks is labour migration organized, and which human and social assets are required to enter such networks?
- To what extent do the norms and values of the *Pukhtun* society determine the observed lack of particularly female education in Chamttar? How is female education interlinked with issues of mobility?
- Are rural residents in the highland context aware of the worsening conditions of *forest resources*; and if yes, to what extent does that awareness influence the way they use these resources?

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[63] Sadaf, T. (forthcoming). Gendered livelihood assets and workloads in Pakistan's North-West Frontier Province (NWFP).

[64] Siegmann, K. Steimann, B. (forthcoming). Vulnerability and resilience in rural communities of North-West Pakistan.

More policy-oriented issued raised by this report are:

- What could be done to foster *female education*? How could local and regional labour markets be opened towards women, so that female education would be-come economically interesting for rural households?
- What effect would *land reforms* have upon the livelihoods of tenant farmers? How would their vulnerability in regard to their financial and natural assets change, if they had more land rights?
- How could the highland population's dependency upon labour migration be reduced, and how could *local and regional labour markets be strengthened* (e.g. through tourism development)?

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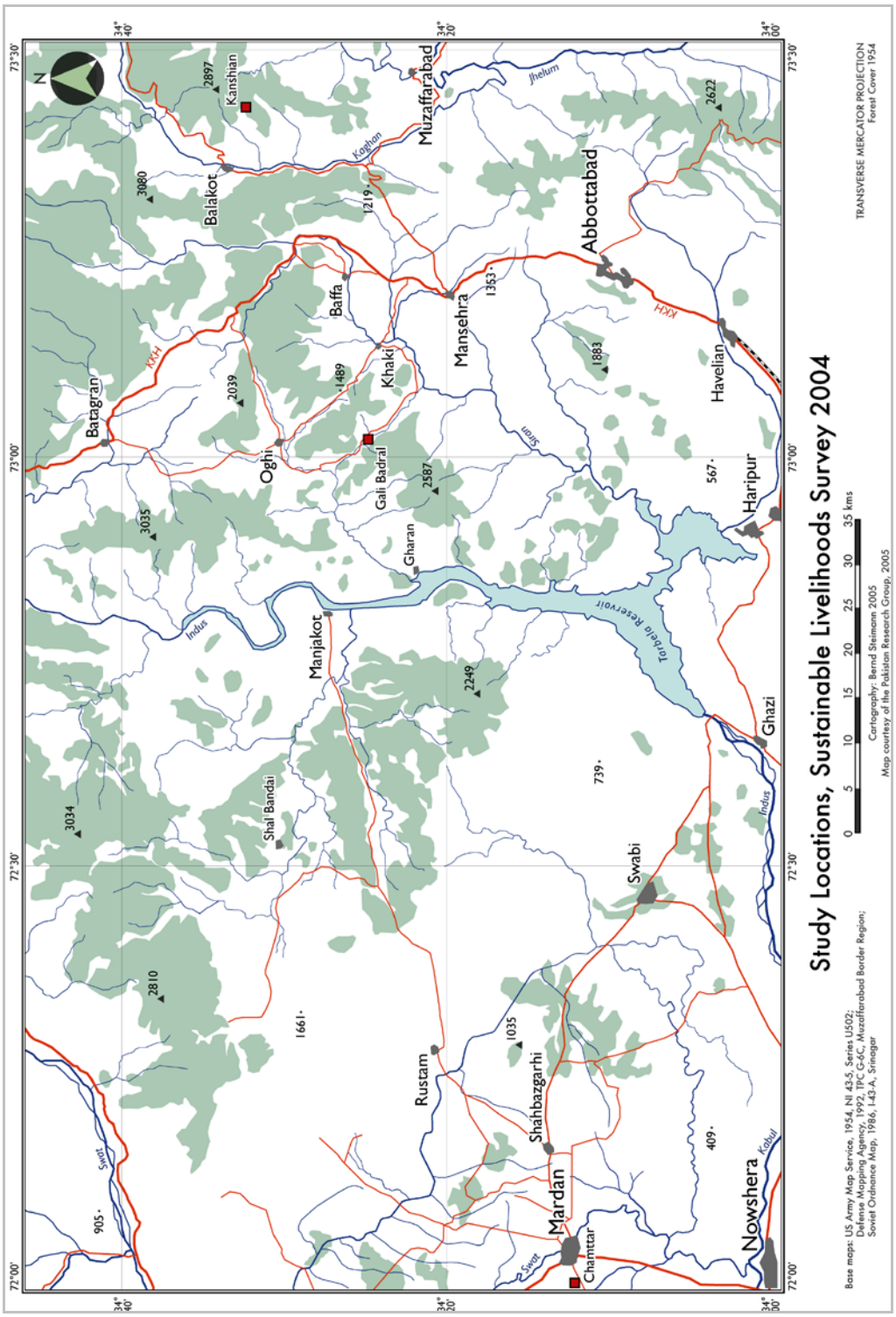
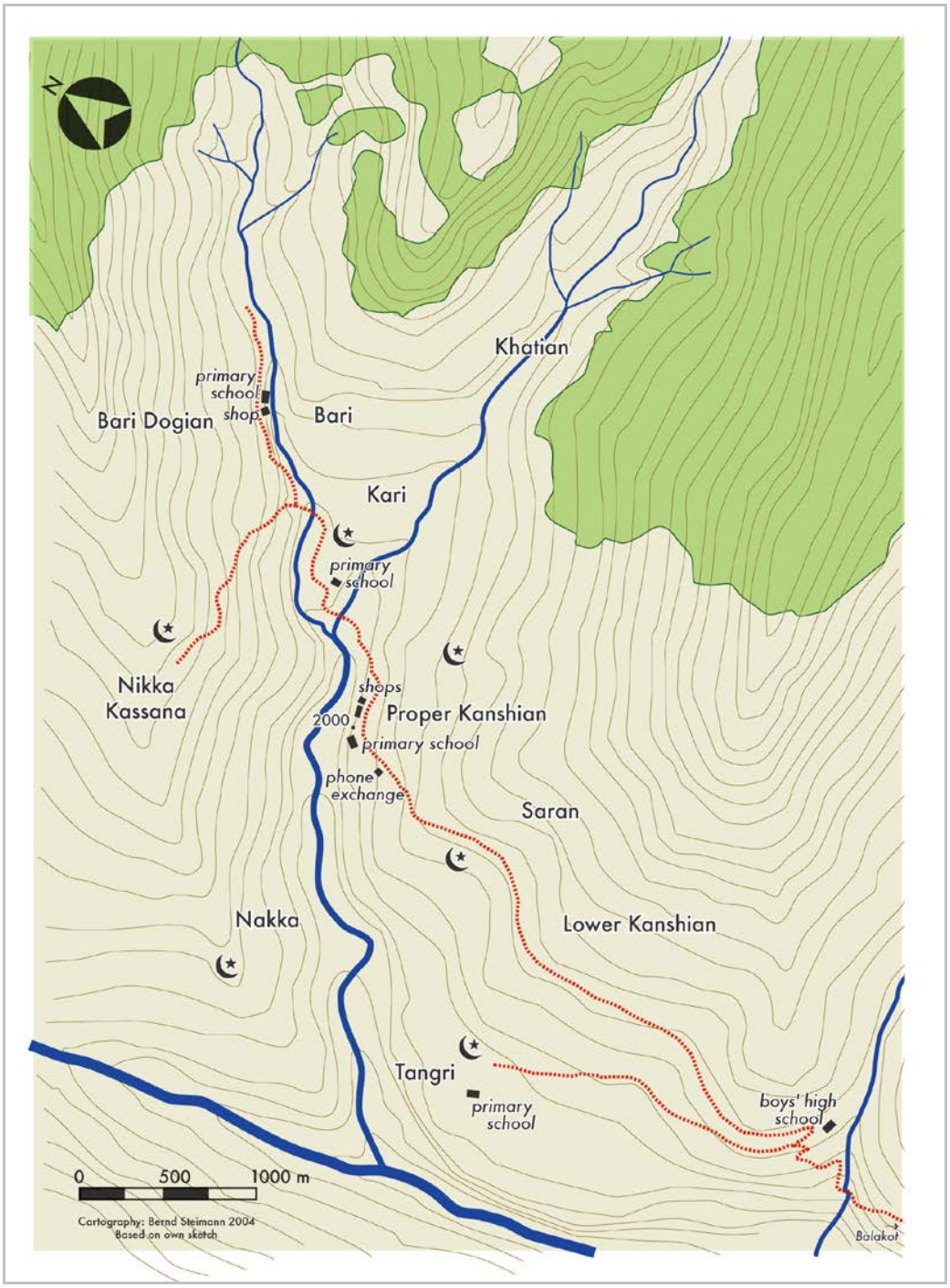
Appendices

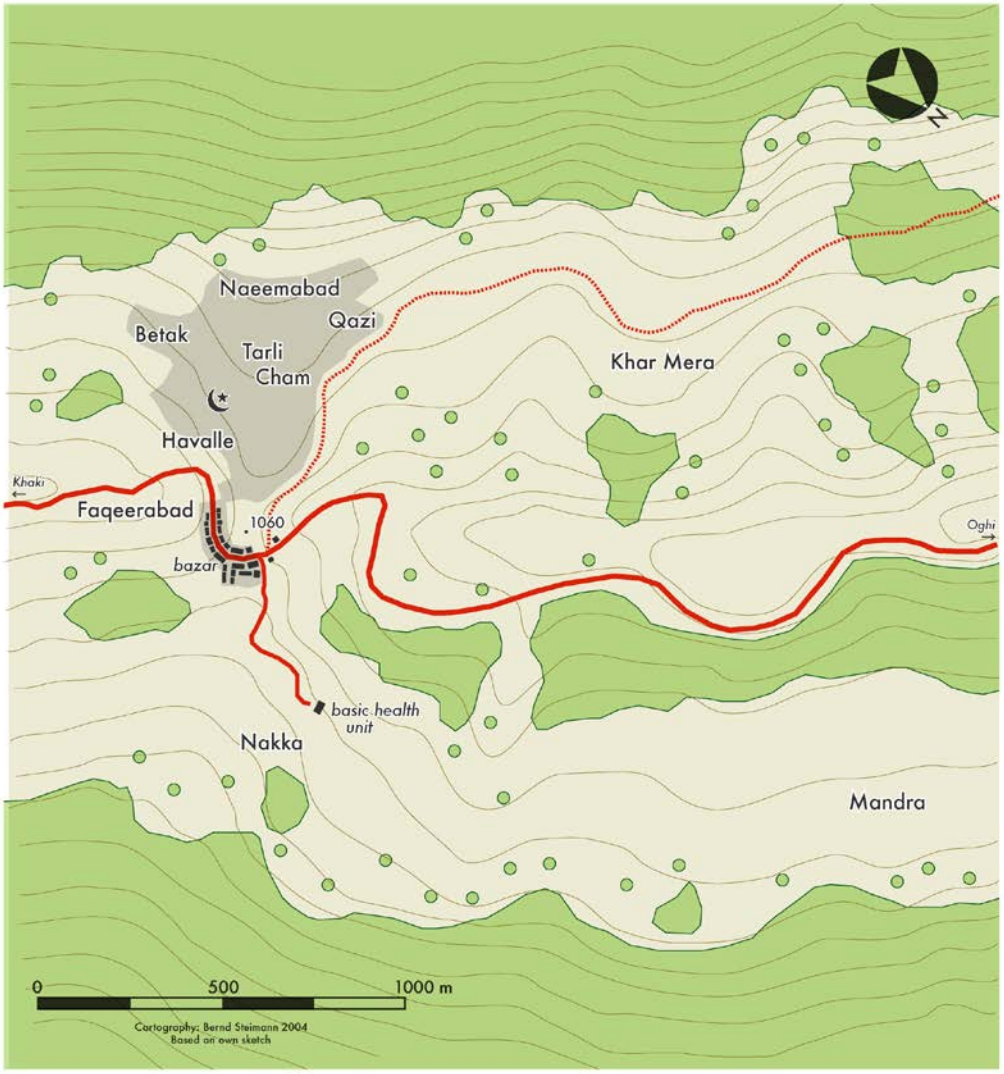
Appendix I: Overview map of study area



Appendix II: Sketch of Kanshian village



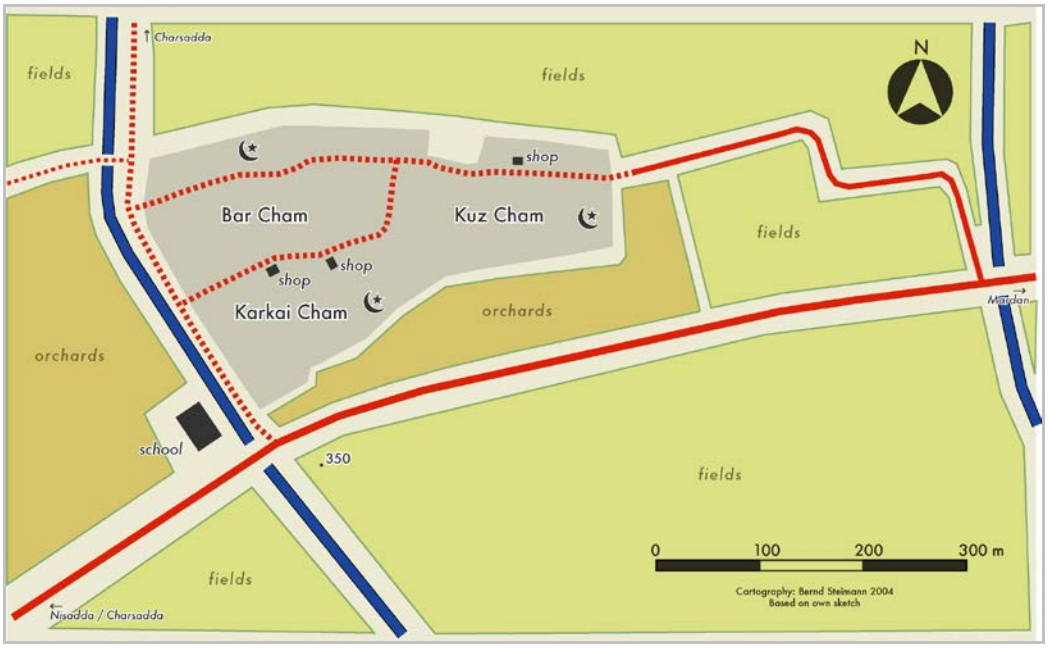
Appendix III: Sketch of Gali Badral village



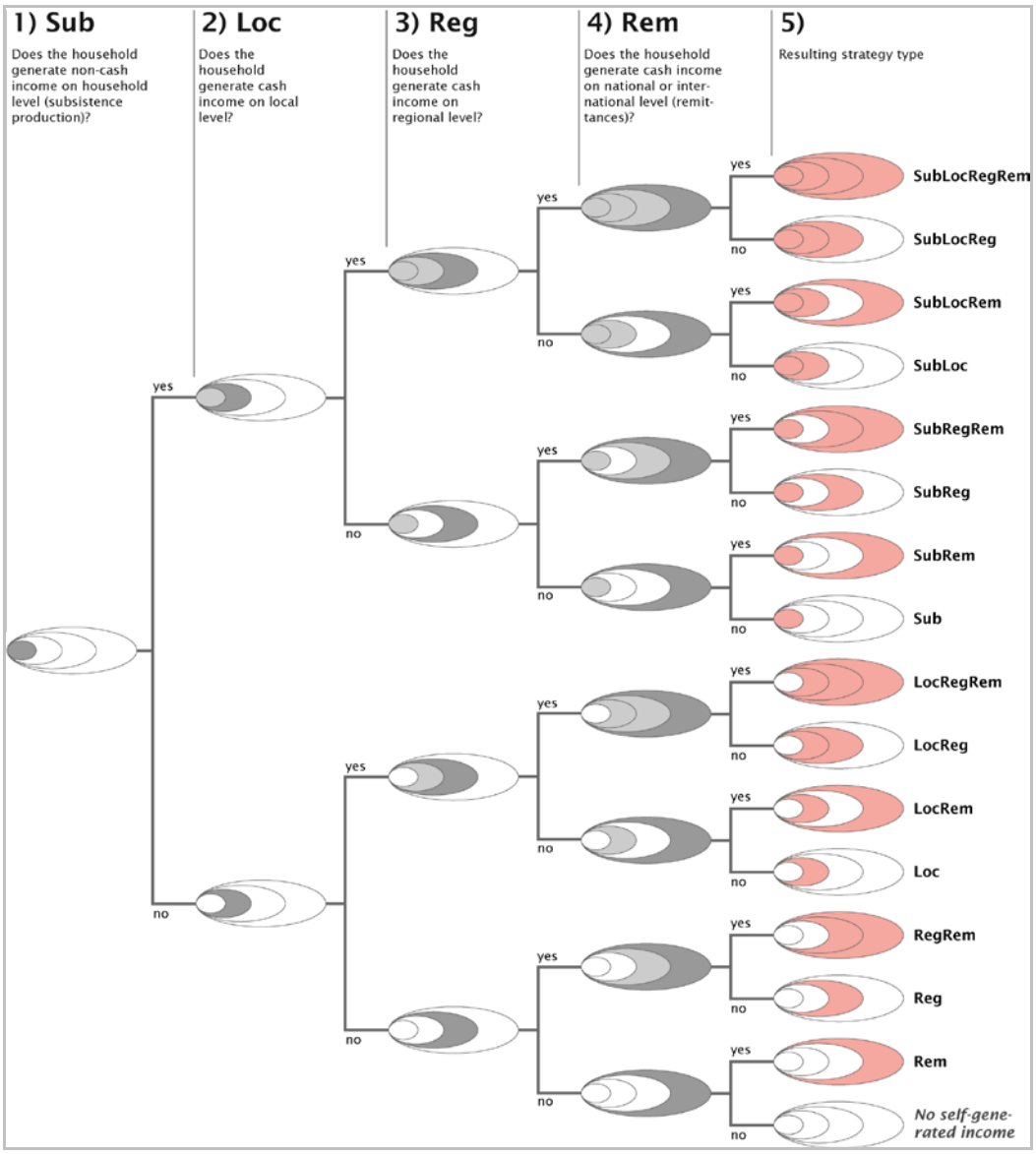
Legend for annexes II to IV

- forest
- farmland & rangeland
- riverine
- irrigation channel
- metalled road
- unmetalled road
- dense settlement
- mosque

Appendix IV: Sketch of Chamttar village



Appendix V: Flow diagram for strategies of spatial range



Appendix VI: Content overview of survey questionnaire

Block A: Household information

A1 Demographic particulars (Relation with head of household, age, sex, marital status, literacy, and place of living for every household member)

Block B: Physical assets

B1 Shelter/Housing (House ownership status, house structure, access to electricity, access to other houses, seasonal migration to other places)

B2 *Water supply* (Source and quality of drinking water, walking distance to next source, household members involved in fetching water)

B3 Energy supply (Fuel types)

B4 Transports (Availability of means of transport)

B5 Other physical assets (Availability of agricultural machinery)

Block C: Human assets

C1 Educational status (Whether or not visiting school, level, reasons for not visiting school for each household member 5 to 18 years of age)

C2 Health status (Types of diseases, ways of treatment by household member)

Block D: Natural assets

D1 Land tenure and access (Type and size of land, acquired and/or disposed of land during 5 years prior to survey)

D2 Land use (Cultivation patterns, average annual production, share of self-consumption/sale; major changes in production during 5 years prior to survey; major changes in sale of products)

D3 Forest tenure, access and use (Forest products used, frequency of use, sources, type of forests)

D4 Livestock (Availability of poultry and livestock, details on livestock)

Block E: Financial assets

E1 Income and expenditure (Household budget manager(s), sources and regularity of cash income)

E2 Savings (Availability and use of savings)

E3 Loans (Availability and sources of loans, interest rates)

E4 Expenditures (Type, amount and sources of Expenditures during 6 months prior to survey)

Block F: Social assets

F1 Formal institutions (Participation in organizations and institutions, type of institution, role of participant(s), regularity of meetings, personal benefits; Awareness of any other ogranizations and institutions, and potential benefits)

F2 Information (Media consumption)

F3 Political participation

Block G: Vulnerability context

G1 Crises, shocks, security (Experience of crises during 12 months prior to survey, types of coping strategies, no. of months with subsistence production, most difficult months)

G2 Long-term changes

G3 Main activities during last week (Time allocation by type of activity during 7 days prior to survey)

Block H: Institutions and processes

H1 Outside village (Contact to service providers during 6 months prior to survey, location of contact)

H2 Within household (Decision power on purchase of household items, availability of pocket money; female mobility)

Appendix VII: Letter written by Hakim Khan, president of Nikka Kassana Community Based Organization, Kanshian

This (originally Urdu) letter was given to the author by Hakim Khan, president of Nikka Kas-sana Community Based Organization, Kanshian. He therein lists the major problems which residents of Kanshian village are facing. In return for Hakim Kahn's invaluable services during the survey, an English translation of the letter is given here.

1) The Kanshian valley is beautiful and scenic, but due to poverty very much backward. Residents have no access to metalled roads and clean drinking water. Unemployment is another problem, which creates further depression. A good road could resolve most of these problems. Tourism would be increased, and agricultural production could be sold on markets in time. It would totally change the life in our village.

2) Agricultural production is small due to uneven and small terraces. Rain causes erosion and thus loss of land. Another reason is little use of good quality seed, as well as rains which do not occur when they should. Pest and disease attacks cause further losses. Farmers are not aware of new techniques which could enhance their production.

3) There is a need of support to the farmers in order to level their terraces. To stop erosion, boundary walls/checkdams along the terraces would be required. Provision of quality seeds is another need, as well as more irrigation channels for surface irrigation of the terraces. Insecticides should be used to reduce pests and diseases. Trainings for the farmers could further in-crease the output.

4) Negative impacts on human lives are caused by the non-existence of a hospital. Due to this, human lives are always in danger. People are less educated and not aware of health issues. Facilities such as severage systems in order to keep homes and surrounding clean are missing. People are continously using contaminated water. Suffocation occurs due to lack of ventilation in the homes. Generally, the environmental situation becomes worse.

5) Possible solutions would be: to establish a hospital with qualified doctors; to increase the awareness among the people on education; to hire a social worker which could increase people's awareness and knowledge about keeping their homes clean; to provide safe and clean drinking water, or ventilation systems in kitchens. To safe the environment, it would be necessary to protect the forest by doing more plantations

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Balakot Branch
Hakim Khan, President Kanshian Cluster
Union Council Garlat, Tehsil Balakot
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Bernd Steimann, April 2005, Zurich

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People in rural areas of Pakistan's North-West Frontier Province (NWFP) often live under very difficult conditions, with a per capita income among the lowest in the whole country. The terrain is often rugged and impassable, not always suitable for cultivation, and the infrastructure is in rather poor condition. Thus, access to food and public services is very much limited in the region – the more so for women, who are subject to strict social control in many areas. In addition, forests, which are often a key resource for construction and energy supply, are on the decline.

Under these circumstances, securing livelihoods becomes a true challenge, often demanding other sources of income in addition to farming. The NCCR Pakistan Research Group is focusing on natural resource management in the NWFP. It has conducted research on political structures and local forest use; with the present paper, it fills a gap regarding knowledge about people's livelihood strategies. A livelihood survey based on DFID's Sustainable Livelihoods Approach was conducted in selected locations throughout the NWFP, in order to better understand the importance of forest resources for rural people's livelihoods, and serve as an entry point into the question of the role of gender disparities in, and the impact of trade liberalisation, upon rural livelihoods. The paper ends with an identification of key factors that can make livelihood strategies strong or weak. In addition, it gives recommendations for future research.

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