

**Risk, Vulnerability and Sustainable
Livelihoods: Insights from Northwest
Pakistan**

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Babar Shahbaz

Abstract

This paper presents key insights that emerge from the case studies conducted by the Pakistan research group of the Swiss National Center for Competence in Research (NCCR) North-South. The core study area is the marginalized and fragile highlands for the North West Frontier Province (NWFP) of Pakistan. The paper provides an exploratory analysis of the vulnerability of rural people to risks and shocks. The primary research questions for the paper are as follows; ‘what are the meanings of vulnerability and risk in different contexts?’ and ‘what is the potential of the concept of vulnerability and risk for the mitigation of negative consequences of global change’. Our focus is on what the NCCR (North-South) experience can contribute to the larger literature on vulnerability and risk; or, to be more precise, on sustainable livelihoods and household security. Furthermore, we examine what key lessons can be to Northwest Pakistan in particular and the fragile mountainous regions of transitional countries in general. Based on the generated insights, we argue that the inadequate or limited access to livelihood assets increases the defencelessness and exposure (or vulnerability) to shocks and stresses (risks). Restricted or lack of access to certain livelihood assets increases internal side vulnerability (defencelessness, insecurity) as well as the external side of risks, shocks, and stresses (such as negative income shocks, diseases, and natural hazards) to which an individual or household is subjected to.

1. Introduction

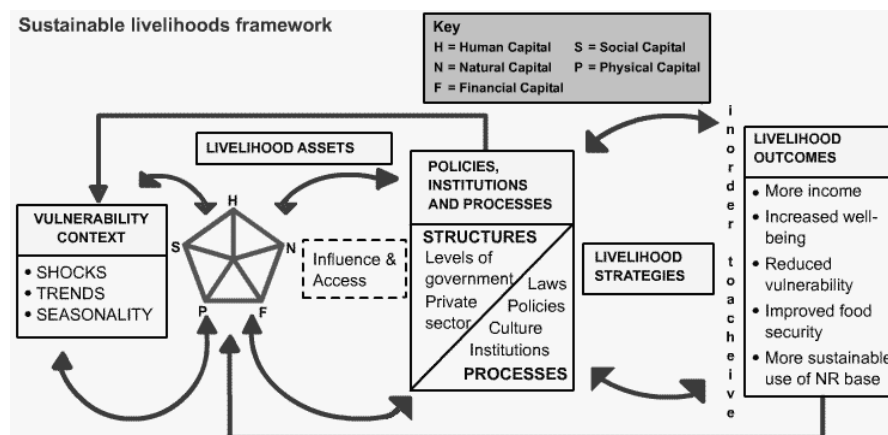
The interlinked concepts of risk, vulnerability, and human security have become dominant themes of on-going academic debates on sustainable livelihoods and rural dynamics (Moser, 1998; Delor and Hubert, 2000; Brauch, 2005; Knutsson and Ostwald, 2006). Risk, as defined by the UNISDR (2003), is “the probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable conditions. Beyond expressing a possibility of physical harm, it is essential to appreciate that risks are always created or exist within social systems”. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risks and their underlying causes. Jaeger et al. (2001) have therefore defined risk as “a situation or event in which something of human values (including the humans themselves) has been put at stake and where the outcome is uncertain.”

As a multifarious and dynamic phenomenon, the concept of vulnerability is rather difficult to grasp. The classical definition of Chambers (1989) still provides the most comprehensive

approach to encompassing its most critical elements. Chambers defined vulnerability, as a combination of defencelessness, insecurity, and exposure to risk, shocks and stress. Here, vulnerability refers to exposure to contingencies and stress, and difficulty in coping with them. Vulnerability thus has two sides: an external side of risks, shocks, and stress to which an individual or household is subject; and an internal side: defencelessness, meaning a lack of means to cope without damaging loss. It is the uncertainties in daily life that are affecting people’s well-being (Delor and Hubert, 2000). Wilches-Chaux (1989) identified 11 types of vulnerability, “natural, physical, economic, social, political, technical, ideological, cultural, educational, ecological and institutional vulnerability.” O’Riordan (2002) defined vulnerability at the societal level as “the incapacity to avoid danger, or to be uninformed of impending threat, or to be so politically powerless and poor as to be forced to live in conditions of danger.”

There is a close linkage between livelihoods and vulnerability. Understanding the nature of vulnerability and risk is a key step in sustainable livelihoods analysis. Rural people’s livelihoods depend on their livelihood assets (see Figure 1); these assets are poverty-reducing factors that gain meaning and value through a prevailing social, institutional and policy environment (the policy, institutions and processes box in the Figure 1). This environment also affects the livelihood strategies that people use to achieve beneficial livelihood outcomes. The wider availability of assets are fundamentally affected by different (external) factors of vulnerability over which they have limited or no control (DFID, 2001; and Hobley, 2002). Vulnerability may result from poverty, marginalization and exclusion, and it is generated by social, cultural, economical and political processes (Barnett, 2001). It may affect the well-being of individuals, households and communities in the face of social, cultural and environmental change and how people respond to and deal with such negative change (Moser, 1998; and Obrist, 2000). While it is usually negative it can also provide positive opportunities (Adato and Meinzen-Dick, 2002).

Figure 1: Sustainable Livelihood Framework



Source: (DFID, 2001)

This paper presents some key insights that emerge from the case studies conducted by the Pakistan research group of the National Center for Competence in Research (NCCR¹) North-South. This research initiative is a long term program of the Swiss National Science Foundation, based on a network of partnerships with research institutions in the South and East, focusing on the analysis and mitigation of syndromes² of global change and globalization (Hurni et al., 2004). Its Pakistan group focuses on institutional change and livelihood strategies. The core study area is the marginalized and fragile highlands of NWFP of Pakistan. The sustainable livelihoods framework (SLF) developed by DFID (2001) was used to analyze the livelihood assets and livelihood strategies/outcomes in the context of vulnerability. The research entry point was the analysis of livelihood assets (human, social, natural, physical and financial) and the identification of key issues supporting or hindering the security of livelihoods and sustainable development in the area.

Our focus is on what the NCCR (North-South) experience can contribute to the larger literature on vulnerability and risk; or, to be more precise, on sustainable livelihoods and human security. Moreover, we pose the question as to what are some of the key lessons that can be drawn for Northwest Pakistan and moreover in the fragile mountainous regions of transitional countries. Linking livelihoods with the notions of risk and vulnerability (and considering the Chambers, O’Riordan and UNISDR definitions) we argue that inadequate or limited access of rural people to livelihood assets increases the defencelessness and exposure (or vulnerability) to shocks and stresses (risks). The access to livelihood assets is determined by the institutional context within which the people live. In our view, the lack of access (or limited access) to certain livelihood assets increases the internal side of vulnerability (defencelessness, insecurity) as well as ultimately increasing the external side of risks, shocks, and stress to which an individual or household is subjected to.

The structure of the paper is as follows. Following the introduction the context of the study is elaborated upon where Section 2 provides a brief profile of the study area (NWFP). Based on the analysis of insights gained from empirical studies in the context of ownership /access of the local people to livelihood assets, the research question is addressed and discussed (Section 3). The paper concludes with lessons and recommendations drawn from the synthesis (Section 4).

1.1 The Body of Literature Reviewed

The context of this paper is based on a review of literature produced within the NCCR (North-South). Recent years have seen the publication of a considerable volume of literature by the researchers of NCCR’s Pakistan research group, regarding natural resource dependence and livelihood analysis of the rural communities of NWFP. Steimann (2003) and Awais (2005) in their M.Sc. theses, and Shahbaz (2006) in his Ph.D. dissertation analyzed the institutional paradigm of natural resource management (forests) from the perspectives of the livelihoods

1 For details please visit: www.nccr-north-south.unibe.ch , and for the Pakistan research group: www.nccr-pakistan.org

2 Clusters of ecological, social, economic etc. problems or symptoms that form typical patterns and emerge in different regions of the world (Hurni et al., 2004)

sustainability. Shahbaz explored the perspectives of people living in the mountain areas of NWFP, while Steimann (2005) in his livelihood survey specifically investigated the livelihood strategies in the lowland-highland context of rural NWFP. Shahbaz and Ali (2003) examined the state of forests in NWFP and rural livelihoods; Siegmann and Sadaf (2006) in their paper explored the gendered nature of livelihood assets and workloads. Geiser and Steimann (2004) gave an account of state actors' livelihoods in the context of NWFP's forestry sector. Shahbaz and Ali (2006) analyzed the participatory approach to forest management; whereas Shahbaz et al. (2006) analyzed Pakistan's forest policies from a critical point of view and recommended policy implications for sustainable livelihoods. Ali et al. (2006) analyzed the myths and realities of deforestation in NWFP and Sultan-i-Rome (2005) provided a historical perspective of the norms and practices of natural resource management (particularly forests) in the state of Swat in NWFP. Siegmann and Steimann (forthcoming) analyzed the vulnerability and resilience in the North West Pakistan; likewise Shahbaz et al. (forthcoming) explored the impact of participatory forest management on vulnerability and livelihood assets living in the rural areas of NWFP. In his book, Suleri (2004) discussed the social dimensions of globalization in Pakistan context. Zaidi (2005) analyzed the political-economy of decentralization in Pakistan; while Rothen (2006) studied the impact of international norms on forest policy making in Pakistan.

2. NWFP: Land and People

The North West Frontier Province (NWFP) of Pakistan covers an area of 10.17 millions hectares with a population of approximately 15 million. It is located on both banks of the river Indus and is bound by the Hindukush, Korakoram and Himalaya Mountains in the north, Balochistan province of Pakistan to the south-west and Afghanistan to the north-west. The overall literacy percentage in NWFP is 43%, whereas the rural and urban literacy rate is 40 and 58% respectively (IUCN, 1996; and Govt. of Pakistan, 2005). While the NWFP is rich in natural resources and biodiversity, life for the local people of the mountain regions is not always trouble-free. Rugged and steep terrain, cold winter weather, land slides, floods, storms, earthquakes and forest fires are among the many unforgiving factors that contribute to the vulnerability context for the mountain people of NWFP (Steimann, 2003; and Shahbaz, 2006).

The economy of Pakistan and NWFP in particular are reliant on agriculture as more than two-thirds of its population resides in rural areas. The major apprehensions of the rural areas of the province are poor infrastructure, natural resource degradation, unsustainable environmental management, geographical isolation, poor health and educational facilities, limited access to economic opportunities, high illiteracy, bad governance, high gender disparities etc. For instance, only 15% of the females in the rural areas of the province are literate (IUCN, 1996; and Govt. of NWFP, 2005). For these reasons the overall incidence of poverty in NWFP is substantially higher than that for the country as a whole (Halle et al., 2004). NWFP ranked third out of four provinces of Pakistan in the human development index (see Table 1). There is also a wide variation in the human development indices (HDI) within the province (Hussain, 2003).

Table 1: Rank of Provinces by Urban/Rural and Overall HDI

Province	HDI	HDI Ranking
Punjab	0.557	1
Sindh	0.54	2
NWFP	0.51	3
Balochistan	0.499	4
Sindh (Urban)	0.659	1
Punjab (Urban)	0.657	2
NWFP (Urban)	0.627	3
Balochistan (Urban)	0.591	4
Punjab (Rural)	0.517	5
NWFP (Rural)	0.489	6
Balochistan (Rural)	0.486	7
Sindh (Rural)	0.456	8

Source: Hussain, 2003

For the purpose of this study's synthesis, the study regions consist of the mountainous areas of NWFP (Mansehra and Swat districts) and the adjacent plains. The next section identifies and analyzes the diverse (interlinked) factors of vulnerability and risk from the perspectives of the livelihood assets of the rural communities of NWFP, by addressing the following research questions:

- What are the meanings of vulnerability and risk in different contexts?
- What is the potential of the concept of risk and vulnerability for the mitigation of syndromes?

3. Synthesis of the Literature Reviewed

This section attempts to answer above questions in the light of literature reviewed.

3.1 Meanings of Vulnerability and Risk?

The high dependency of the people of mountain areas of NWFP on natural resources (such as forest and water) for subsistence needs (Ali et. al, 2006) coupled with high rates of deforestation (FAO, 2005) for commercial interests renders most of the forest communities' people vulnerable to natural and financial shocks. Forests are one of the most important natural assets for the country's ecosystems and are an essential part of the daily lives of the rural populations living in the mountainous areas of NWFP. Local people benefit from forests through firewood, construction timber, forest soil, pastures, medicinal/edible plants and royalty payments (Steimann, 2003 & 2006; Awais, 2005; Ali et. al., 2006; and Shahbaz and Ali, 2006). Due to the non-availability of natural gas and the higher prices of alternate sources of energy like kerosene oil, electricity and liquid petroleum gas; the local people have no other option except to use forest wood for cooking and heating. Similarly, most of the homes in the high mountain areas are made of wood, therefore the local people also use forest wood as timber for the construction of new houses and/or the repair of the existing ones (Shahbaz and Ali, 2003; and Steimann, 2003).

Inadequate and poor medical facilities (physical assets) have also rendered the local people vulnerable to health related shocks/risks (Siegmann and Sadaf, 2006). Similarly, a high illiteracy rate and limited access to educational facilities (particularly higher education), has contributed to the local people's adoption of unsustainable livelihood strategies such as labour and daily wage migrant workers etc. (Awais, 2005; Steimann, 2005; Shahbaz, 2006). As a result, they become increasingly vulnerable to financial capital-related crises comprised of the occurrence of food shortage, job loss, remittance irregularities, market fluctuations, loss of livestock, high loan debts.

Labour migration which is the most important livelihood strategies is characterized by the low paying - contract jobs and irregular remittances and calls into question the sustainability of labour migration as it may reduce labour classes to fluctuations in jobs availability and socio political dynamics of larger core cities.

There are certain sources of risks to households' livelihood security. Some the sources of risks identified in the rural NWFP are the high prevalence of diseases (Siegmann and Sadaf, 2006), declining quality of services of public health and education institutions (Shahbaz, 2006), natural resource degradation (Steimann, 2005; Shahbaz, 2006), price shocks, food shortage, seasonal and climatic fluctuation in employment opportunities (Steimann, 2005).

3.2 What is the Potential of the Concept of Risk and Vulnerability for the Mitigation of Syndromes?

In this section the access of the rural people of NWFP to various livelihood assets is analyzed in the context of institutional changes and attempt is made to answer the above research question from the perspectives of the livelihood assets.

To answer this question, the following sub-questions are exclusively addressed;

- i. What evidences have been produced (insights gained) concerning the scale and distribution of risk and vulnerability?
- ii. Which individuals or social groups are most affected?
- iii. What support structures exist/ should be created to reduce vulnerability?
- iv. Which entry points can be identified for improvements in governance, for policy change or collective action?

3.2.1 Scale and Distribution of Risk and Vulnerability

Rural people's access to and ownership of certain livelihood assets may have a significant impact on their level of vulnerability to risks, as the limited (or partial) access to livelihood assets increases the defenselessness and exposure to shocks and stress (risks). As such, it would also increase the internal side of vulnerability (incapacity to avoid danger/risk) which ultimately increases the external side of risks, shocks, and stress to which an individual or household is subjected to (see UNISDR, O'Riordan, and Chambers definitions).

3.2.1.1 Access to Natural Assets

High rate of deforestation (FAO, 2005) is the most serious environmental issue for Pakistan as a whole and NWFP in particular (Shahbaz et. al., 2006). Scarcity of natural resources makes local people vulnerable to natural hazards. For example the floods of 1992 were attributed to the forest degradation in NWFP, and the devastating earthquake of October 2005 killed more than 75,000 people, leaving at least 3.5 million people homeless in the mountainous areas of NWFP and adjoining Azad Jammu and Kashmir (Beg, 2005; and IUCN, 2005). According to IUCN (2005) “forests, that were carelessly destroyed or left in bad condition before the earthquake took place, might have helped to reduce the damage and loss to life from the quake”. It would be pertinent to mention here that a nation-wide ban on commercial timber harvesting has been imposed after the floods of 1992 which has resulted in not only the discontinuation of the royalty payments to the right holders (Shahbaz, 2006), but also the loss of job opportunities for the local people (Steimann, 2006).

The top-down and non-participatory forest management practices by the state forest departments is reported as one of the main causes of forest depletion in NWFP (Suleri, 2002; and Sultan-i-Rome, 2005; and Ali et. al., 2006). Local peoples have had to face immense difficulties in their access to forest resources (Ali et al., 2006). The state is perceived (by the local people) as being in competition with access to natural resources (such as forests) and the interests of local people (Geiser, 2002). According to Suleri (2004), most of Pakistan’s forest policies have viewed people as a prime threat to the resource, and attempted to exclude groups, other than government officials, from decision making. This approach increases the vulnerability of the marginalized sections of communities. The restrictions in the access to forest resources through legal means has forced the local people to adopt other (illegal) means for example by paying bribes to the foresters or purchasing construction timber from the black market etc. (Steimann, 2003; and Shahbaz et. al., forthcoming). This has placed an additional burden on their financial assets. The results of the empirical researches show that the people of the highlands face more food shortage in winter than summer. One of the possible reasons might be a short vegetation period and less natural assets in winter, resulting in less staple food production during winter periods (Steimann, 2004). However, the studies also show that food crops grown by the farmers are not sufficient for their household needs even during the summer season (Shahbaz et. al., 2006). Therefore, it can be argued that the lack of food during winter (Shahbaz, 2006) months may be due to more expenses on the purchase of wood for cooking and heating during the cold season and consequently less money is available for the purchase of food items.

Land is also an important natural capital for people residing in rural areas. The land tenure of people living in the highlands of the NWFP is characterized by small land holdings (Steimann, 2004) and, therefore, low productivity of the crops (Shahbaz, 2006). The steep terrain and the usually harsh climate conditions limit agricultural production (Steimann, 2003). Most of the areas are *barani* (rain fed), which means that agriculture is completely rainfall-dependent. The problem arises as water resources are under pressure as precipitation levels (rain and snowfall) have been noticed to be decreasing in intensity over the past ten years (Steimann, 2003; and

Shahbaz, 2006). Due to the absence of an effective agricultural extension system, the local farmers are resorting to older, traditional technology of crop and fruit production, which generates a relatively low yield. Decreasing levels of soil fertility, increased incidences of disease/pest attacks and a shortage of water for irrigation are some of the limiting factors regarding crop productivity (Shahbaz, 2006).

3.2.1.2 *Access to Financial Assets*

The main income for most of the people residing in the highland areas is remittances from relatives working in core industrial cities or abroad, followed by daily wage labor. Agricultural production mainly serves the purpose of subsistence and is often not enough to be sold on markets (Steimann, 2003; Awais, 2005; and Ali et al., 2006). Most of the migrant workers are engaged in minor, contract oriented work such as labor/daily wage workers etc. (Shahbaz, 2006). There are limited economic opportunities in these remote villages. Financial capital tends to be the least available of assets for the rural people of NWFP (Shahbaz, 2006), where women have relatively less access to financial assets (for example access to savings, pocket money) as compared to men (Siegmann and Sadaf, 2006). Financial capital-related crises comprise of the occurrence of food shortage, job loss, remittance irregularities, market fluctuations, loss of livestock, high loan debts and business losses within a household (Siegmann and Steimann, forthcoming).

The expenditure patterns of the local people reveal that they allocate a major share of their expenditures towards food, medical treatment and fuelwood; and spend less on goods and services that might constitute investment in physical and human capital such as education and housing (Shahbaz, 2006). While fuel wood is collected from the forests (mostly free of charge or by giving some bribe to the forester) during the summer, people must purchase fuel wood from the market during the winter months (due to heavy snowfall and scarcity of fuel wood) and as a result spend less on medical treatment during the winter. The expenditure patterns provide us with an idea as to the vulnerability of the poor to income and price shocks, such as food and fuel. Any negative change in income or increase in food price might negatively impact the food consumption and medical care of these people, which in turn increases their vulnerability to health related shocks. Similarly, restrictions in the access to forest resources (imposed by the state) have forced local people to adopt other (illegal) means for obtaining fuel wood such as paying bribes to foresters or purchasing construction timber on the black market. This in turn, has exacerbated the situation and placed an additional burden on their already marginal financial asset base. Less natural assets during the winter months (forest wood) may result in food insecurity as the resulting increase in expenses for cooking and heating will place a stress on available budgets for the purchase of food items. In other words, the human capital (health) of the local becomes vulnerable to any negative trend or seasonality of the financial capital.

Labor migration is the most important livelihood strategy for the residents of the mountain villages of NWFP (Awais, 2005, Steimann, 2005; Shahbaz, 2006). Out of the different livelihood assets (capitals) defined in the SLF, physical and financial assets are least available for the local people; while the natural assets such as forests and land are degrading or have already degraded.

Therefore, most of the people have no other option except to engage in minor labor employment either within their own district, other districts (nation wide domestic migrants) or outside of the country (foreign migrants), to enhance their livelihood assets. Increasing their human assets (health, ability to labor, large family size etc.) and social capital (friendly relationship with relatives and neighbours, networks etc.) has also facilitated the enhancement of their asset base. Nevertheless, as labour migration is characterized by minor contract employment and irregular remittances, the sustainability of labor migration is questionable as it may make people more vulnerable to fluctuation in jobs availability, political situation of the big cities etc. This means that many households will have to cope with highly irregular (and uncontrollable) income which in turn, may breed more unsustainable behavior in terms of income generation activities.

3.2.1.3 Access to Human Assets

Human capital in the SLF is a livelihood asset which consists of people's education, knowledge, skills, information (Mayers and Vermeulen, 2002) that together enable people to pursue different livelihood strategies and achieve their livelihood objectives.

The illiteracy rate in the mountain areas of NWFP is very high (Shahbaz, 2006) and a larger portion of women are illiterate, as they can neither read nor write (Siegmann and Sadaf, 2006). A similar case is observed with school enrolment, as most of the female children of the mountainous rural areas of NWFP didn't attend school. A lack of sufficient school facilities for girls, who often have to leave school after obtaining a primary level of education, is the main reason for the low rate in some areas (Siegmann and Sadaf, 2005; and Shahbaz, 2006). In the *Pakhtun*³ dominant areas, however, most of the girls have to stay at home due to *Pakhtun* tradition, which strongly restricts female mobility and does not support female education (Siegmann and Sadaf, 2006). Poverty is reported as another reason for less school enrolment (particularly in high schools) among females (Shahbaz, 2006). A lack of education prevents the rural people from participating meaningfully in national negotiations and policy formulation (Rothen, 2006) which impacts the future and resource sustainability of their communities. With least access to transport, water, sanitation and other infrastructure, rural communities of NWFP are marginalized in their efforts to develop. The poor are at a particular disadvantage to influence decision-making or acquire the resources to initiate infrastructure development themselves. Moreover, infrastructure development in the province usually overlooks women. The social segregation between men and women, restricted mobility of females and lack of education result in women being ignored from productive activities; consequently, they have little or no voice in community infrastructure concerns. Furthermore, due to low levels of education and capacity, they are at a disadvantage even when their participation is sought (for example in women based CBOs, local government).

Health is another important indicator of human capital. The adults' health status in the rural areas of NWFP can be termed as rather critical (Steimann, 2005). The overall health status of females is relatively poor than that of the male family members (Shahbaz, 2006). Women are more than twice as likely to fall ill than men. Here, the more conservative lowland village show the largest

3 The largest ethnic group in NWFP.

gender gap in health status (Siegmann and Steimann, forthcoming). Siegmann and Sadaf (2006) interpret this finding as a reflection of gender norms restricting women's movement and thus access to livelihood assets. Stomach problems, blood pressure, joints pain, tuberculosis, diarrhoea, hepatitis and various kinds of cancer are the most frequent problems (Steimann, 2006).

3.2.1.4 *Access to Physical Assets*

Physical assets include privately owned assets, public owned economic infrastructure (roads, electricity etc.) and social infrastructure (schools, hospitals etc. (DFID, 2001). A house is one of the most important physical assets for the rural people. Most of the houses of the people of rural areas of NWFP are either made of wood or mud-stone (Steimann, 2004; and Ali et. al., 2006). Nevertheless, wood is the main component of the houses and the mountain people have to face enormous difficulties in obtaining access to construction timber (Steimann, 2003; and Shahbaz, 2006).

With respect to publicly owned assets, the results of the empirical studies conducted by Shahbaz (2006); Awais (2005); and Steimann (2004) reveal that the peoples' access to public assets (schools, medical institutions) was limited. In most of the highland areas of NWFP, the educational institutions are located far away from the village (except primary school). For example the average distance of a girls' high school from the study villages was 15 – 20 kilometres and that of college (both boys and girls) was about 30 kilometres (Shahbaz, 2006). A lack of sufficient educational facilities for girls, who often have to leave school after primary, is the main reason for the low education rate in the highland villages of NWFP (Steimann, 2004; and Siegmann and Steimann, forthcoming); while poverty is also one of the reasons for low education level in females (Shahbaz, 2006). The perceived quality of education of most of the educational institutions was very low (Awais, 2005). A similar situation was with the medical institutions as the average distance of hospital from most of the villages in mountain areas is more than 30 kilometers (Shahbaz, 2006), and due to poor condition of roads (Steimann, 2003; and Awais, 2005) the villagers had to face tremendous difficulties in carrying the patients.

The natural gas isn't available in most of the rural areas of NWFP (Steimann, 2003; and Ali et al., 2006); and due to higher price of electricity, kerosene oil and liquid petroleum gas, the local people have no other option except to use wood for heating and cooking purposes (Shahbaz et. al., forthcoming) thus putting further pressure on already diminishing forests.

3.2.2 Most Vulnerable Groups (or Individuals)

3.2.2.1 *Women*

Women are important stakeholders and the main users of natural resources. By tradition, they are responsible for the collection of fuel wood, fodder and the fetching of water for household needs (Siegmann and Sadaf, 2006). They are, therefore, the first to be adversely affected by the degradation of natural resources. A dearth of natural capital (such as forests and water) means

that they have to cover longer distance for the collection of wood and fetching of water. Cultural norms prescribe women to have food last and least. Due to restrictions to their mobility, they can hardly earn an adequate monetary income. In education, a pronounced gender gap was found, depriving women and girls of access to schooling (Shahbaz, 2006; and Siegmann and Sadaf, 2006). Education for girls is often considered a spilled investment with the result being a huge gender gap in literacy in NWFP. Only one sixth of the female population of rural NWFP is literate as compared to 40 percent of all men. Women's health is also considerably poor as compared to that of males. Women are more than twice as likely to fall ill than men (Siegmann and Steimann, forthcoming). Gender differences in access to human assets, such as health and education were found to be largest in areas where prevailing gender norms are most restrictive regarding female mobility (Siegmann and Sadaf, 2006).

Mobility can also serve as an indicator for 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 (Steimann, 2004). If girls are not allowed to move freely, accessing a school outside the village becomes a problem. This again has implications for the access to financial assets. If women do not acquire basic reading and writing skills, their chances for remunerated employment are poor (Siegmann and Sadaf, 2006). Likewise, participation in most types of institutions is considered a male issue. Men also resist any involvement of women in village development work through community based organizations (CBO) and consider it against the religion (Steimann, 2003). A male is considered disgraced if his wife or sister comes out of the home and participates in meetings of the village level CBOs and *jirga*⁴ (Shahbaz, 2006). Similarly, considerably more women than men reported not to have any savings. The impression of weaker female access to savings is corroborated by the gendered information about use of, i.e. control over savings (Siegmann and Sadaf, 2006).

In the traditional society of NWFP according to *riwaj* (customary law) only the males can own and hold land and other immovable property and the females had no right to own or hold or inherit land or other immovable property. The Islamic rights of women to inherit and hold land and other movable property are generally not recognized (Sultan-i-Rome, 2005).

3.2.2.2 *Residents of Highland Villages*

The remoteness of highland villages makes it more difficult to purchase food items during the winter months (Steimann, 2004). Vulnerability to human and financial capital-related crises is most pronounced in the highland village; likewise financial capital-related crises comprises of the occurrence of food shortage, job loss, remittance irregularities, market fluctuations, loss of livestock, high loan debts, and business losses within a household are most prevalent in the highland village than that of foothills and lowlands (Siegmann and Steimann, forthcoming). People use their social assets as resilience to financial crises. For example by taking loans from friends and relatives (Steimann, 2005; and Awais, 2006) they migrate to other cities or adopt diverse strategies to increase their financial capital. The exclusion (or less participation) of the poor and marginalized sections of society from the local institutions (Shahbaz, 2006) makes

4 A council or assembly of local elders, formed for conflicts resolution and decision making.

them even more vulnerable to financial shock or seasonality. Higher prevalence of crises caused by irregular remittances was reported in the highland village (Siegmann and Steimann, forthcoming). Similarly, the gender gap in education is worse in the highland areas. The people of highland areas face more food shortages in the winter than summer (Steimann, 2005).

3.2.3 Existing and Potential Support Structures

Participation in social networks has the potential to reduce vulnerability and strengthen resilience (Siegmann and Steimann, forthcoming). Social assets can also reduce insecurity and vulnerability in the relationship of different actors. Local people have a high degree of trust and better relationships with the local institutions (such as *jirga* – the council or assembly of elders), neighbours and relatives (Awais, 2005); whereas they showed very low trust towards state institutions such as police, courts, forest department etc. (Shahbaz, 2006). “*Jirga*” is normally composed of elderly males and most of them belong to the dominant tribes of a village. The youth, women, minorities and (sometimes) less powerful or smaller tribe of the village have no representation in the “*jirga*”. The male oriented, male dominated and rich represented “*jirga*” is perceived by developmental NGOs as a barrier to gender mainstreaming and equity in the rural society of NWFP (Shahbaz, 2006).

Some (new and) more democratic institutions such as local governments and community based institutions have considerable potential to replace the role of orthodox institution of *jirga* in the context of collective action (Steimann, 2003; and Shahbaz, 2006). According to Zaidi (2005), one of the more important and revolutionary interventions and changes made, in the local government system introduced in 2001, has been the allocation of one-third seats reserved for women. Now women, in addition to contesting seats at any level directly, also have one-third of the local government seats available for them. Therefore, considerable space has been created for women to enter the political field. Nevertheless, due to restricted mobility of females in the rural NWFP majority of them don't vote during the election (Steimann, 2005), and there is stiff opposition from males regarding involvement in elections in the conservative areas of NWFP (Zaidi, 2005). Due to poverty and a lack of education, the capacity of civil society to engage in policy making process has been very limited, and the national forest policy formulation (of Pakistan) took place without any significant involvement from the civil society (Rothen, 2006).

Similarly, women based CBOs could not develop their roots in the area on account of social constraints as the women would have to move or interact freely in the area. Another very important reason is the tight daily schedule of the women in their house hold chores (Awais, 2005). Although, real and meaningful change will take time, the institution of women based CBOs and local government systems is a very significant and positive move towards the politicization of women and bringing them into the mainstream.

Natural capital, particularly forested areas, are very important assets for the people living in the mountainous areas. Although the forest resources didn't contribute directly toward their cash income, the (indirect) benefits received from forest- for example the use of forest wood for heating and cooking, construction timber, and forest soil for the grazing of the animals - enable

local people to spend their money in other ways such as food, education, medical etc. The participatory approach to natural resource management system has considerable potential to create the sense of ownership and awareness among the local people and reducing the forest depletion (Awais, 2005; and Shahbaz et al., forthcoming).

4. Recommendations/Entry Points for Change

- i. The people of mountain areas of NWFP are highly dependent on natural resources for their subsistence. Restrictions in access to natural resources (such as forests) through legal means have added the extent of vulnerability by putting additional burden on other assets (for example financial). There is a critical link between the access of people to livelihood assets and the institutional context within which the people live (the policy, institutions and processes box in the Figure 1). The empirical studies have shown that the participatory approach to natural resource management reduced the rate of forest depletion by enhancing the sense of ownership and awareness. The participatory (or joint) forest management should be encouraged and the top-down paradigm of forest management should be replaced with the joint forest management. There is a need to provide incentives to the local people for forest conservation/protection. Alternate sources of energy (for example liquid petroleum gas and electricity) should be provided to the local people at subsidized rates to release pressure on forests. The integration of the natural resource management initiatives with other livelihood interventions, such as credit, infrastructure development etc. can boost the effectiveness of such interventions.
- ii. Migration to major cities is the most important livelihood strategy of the local people, however due to inadequate human capital (illiteracy, poor health) most of the migrants are doing minor and irregular jobs. Therefore, sustainability of labor migration is in question and in the long run it may make people more vulnerable to fluctuation in jobs availability, political situation of the big cities etc. It is recommended that technical training institutes should be established in the rural areas of NWFP so that the local people may obtain technical and vocational training and get better jobs in the big cities.
- iii. The Government's steps to ensure 33% representation of women in elected local bodies is positive, but the effects are hindered by deep-rooted societal attitudes. There is need to sensitize men including councilors on gender issues and to create awareness among communities for female education and to follow this up by establishing community-based schools for girls.

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References

- Adato M. and R. Meinzen-Dick. (2002). Assessing the impact of agricultural research on poverty using the sustainable livelihoods framework. FCND Discussion Paper 128. International Food Policy Research Institute 2033 K Street, N.W. Washington, D.C. 20006 U.S.A.
- Ali, T., B. Shahbaz and A. Q. Suleri. (2006). Analysis of myths and realities of deforestation in Northwest Pakistan: implications for forestry extension. *Int. J. Agric. and Biol.* 8(1): 107-110
- Awais, M. (2005). A futuristic study of institutional changes and livelihood assets of forest users in Mansehra district, NWFP, Pakistan. Masters Thesis. NCCR North-South. Department of Agricultural Extension, University of Agriculture, Faisalabad, Pakistan.
- Barnett, J. (2001). Adapting to climate change in pacific island countries: the problem of uncertainty. *World Development* 29(6): 977-993.
- Baumann, P. and S. Sinha. (2001). Linking development with democratic process in India: Political capital and sustainable livelihoods analysis. ODI, Natural Resource Perspectives. No. 68. Overseas Development Institute, London, UK.
- Beg, M. A. (2005). The strategy for rehabilitation and reconstruction. *The News International*, Islamabad, Pakistan. November 19, (2005).
- Brauch, H. G. (2005). Threats, challenges, vulnerabilities and risks in environmental and human security. Publication Series of United Nations University, Institute for Environment and Human Security (UNU-EHS), Bonn, Germany. No. 1/2005.
- Chambers R. (1995). Poverty and Livelihoods. Whose Reality Counts? *Environment and Urbanization* 7(1): 173-204.
- Chambers, R. (1989) Vulnerability, Coping and Policy. *IDS. Bulletin* 20(2): 1-7
- Delor F. and M. Hubert. 2000. Revisiting the Concept of 'Vulnerability'. *Social Science and Medicine* 50:1557-1570.
- DFID (2001). Sustainable livelihoods guidance sheets. Department For International Development, London, UK. www.livelihood.org/info/info_guidancesheets.htm
- FAO. (2005). State of the world's forests. Food and Agricultural Organization, UN. Forestry Department, Rome.
- Geiser, U. (2002). Contested forests in North-West Pakistan: present-day struggles and the role of the "colonial". Paper presented at Panel 38 of the 17th European Conference of Modern South Asian Studies, 9-14 September 2002, Heidelberg.
- Geiser, U. and B. Steimann. (2004). State actors' livelihoods, acts of translation, and forest sector reforms in northwest Pakistan. *Contemporary South Asia* 13(4), (December, (2004) 437-448.
- Govt. of NWFP (2005). 10th five year plan (2005-10). Government of the North West Frontier Province (NWFP), Peshawar, Pakistan.
- Govt. of Pakistan (2005). Economic Survey of Pakistan. Ministry of Economic Affairs. Government of Pakistan, Islamabad, Pakistan.
- Halle, M., J. Khan, and A. Imbach. (2004). Sarhad Provincial Conservation Strategy, SPCS Reloaded. IUCN, Sarhad Program, Peshawar. Viii.

- Hobley, M. (2002). "Unpacking the PIP box", Hobley Shields Associates, Glebe House Thorncombe Chard Somerset UK.
- Hurni, H., U. Wiesmann, and R. Schertenleib (ed). 2004, Research for mitigating syndromes of global change. A transdisciplinary appraisal of selected regions of the world to prepare development-oriented research partnerships. Perspectives of the Swiss National Center of Competence in Research (NCCR) North-South, University of Berne, Vol. 1. Berne: Geographica Bernensia, 468pp.
- Hussain, A. (2003). Pakistan national human development report 2003. Poverty, growth and governance. United Nation Development Programme (UNDP), Islamabad, Pakistan.
- IUCN (1996). Sarhad Conservation Strategy, Sarhad Programme Office. IUCN–The World Conservation Union, Peshawar, Pakistan.
- IUCN (2005). The earthquake aftermath in Northern Pakistan. IUCN Alert Bulletin. Karachi, Pakistan.
- Jaeger, C., O. Rinn, E. Rosa, T. Webler (2001). Risk, uncertainty, and rational action. Earthscan (London-sterling). Cited in "Brauch, H. G. (2005). Threats, challenges, vulnerabilities and risks in environmental and human security. Publication Series of United Nations University, Institute for Environment and Human Security (UNU-EHS), Bonn, Germany."
- Knutsson, P and M. Ostwald (2006). A process-oriented sustainable livelihoods approach—a tool for increased understanding of vulnerability, adaptation and resilience. Mitigation and Adaptation Strategies for Global Change. (DOI 10.1007/s11027-006-4421-9)
- Mayers, J. and S. Vermeulen (2002). Power from trees: how good forest governance can help reduce poverty. Opinion. IIED: 2-6.
- Moser, C.O.N. (1998). The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. World Development 26(1): 1-19.
- Obrist, B. (2000). Struggling for Health in the City. An Anthropological Inquiry in Dar es Salaam, Tanzania. University of Basel, Switzerland.
- O’Riordan, T. (2002). Precautionary principle. In Mostafa, T. (Ed.): Encyclopaedia of global environmental change, vol. 4: Responding to Global Environmental Change. John Wiley: 369.
- Rothen, A. (2006). Impact of forest-related norms in Pakistan. In Troubled times: Sustainable development in the age of extremes. Sustainable Development Policy Institute (SDPI) and City Press, Pakistan: 69-87.
- Steimann, B. (2003). Decentralization and participation in forestry sector in NWFP, Pakistan: the role of the state. Master Thesis. Department of Geography, Zurich University, Switzerland.
- Steimann, B. (2005). Livelihood strategies in North West Pakistan. IP-6 Working Paper No. 5. NCCR North-South; Development Study Group, University of Zurich, Switzerland. 92p
- Steimann, B. (2006). Rural livelihoods and the role of forest resources in the NWFP. In Troubled times: Sustainable development in the age of extremes. Sustainable Development Policy Institute (SDPI) and City Press, Pakistan: 44-65.
- Shahbaz, B. and T. Ali. (2003). Sustainable livelihoods frame work and state of the Pakistan forests. In Mufti, S. A., S. S. Hussain and A. M. Khan (editors). Mountains of Pakistan:

- protection, potential and prospects Global Change Impact Studies Center, Jinnah Avenue, P. O. Box No. 3022, Islamabad, Pakistan
- Shahbaz, B. (2006). Analysis of institutional changes in forest management and their impact on rural livelihood strategies in NWFP, Pakistan. Doctoral Dissertation (forthcoming). NCCR North-South. Department of Agric. Extension, University of Agriculture Faisalabad, Pakistan.
- Shahbaz, B. and T. Ali. (2006). Participatory forest management. In *Troubled times: Sustainable development in the age of extremes*. Sustainable Development Policy Institute (SDPI), and City Press, Pakistan: 148-158.
- Shahbaz, B., T. Ali and A. Suleri. (2006). A critical analysis of forest policies of Pakistan: implications for sustainable livelihoods. *Mitigation and Adaptation Strategies of Global Change* (in press).
- Shahbaz, B., T. Ali, M. Ahmad and A. Suleri. (forthcoming). Impact of participatory forest management on vulnerability and livelihood assets of forest dependent people in Northern Pakistan
- Siegmann, K. A., and T. Sadaf. (2006). Gendered livelihood assets and workloads in Pakistan's North-West Frontier Province (NWFP). In: SDPI (Eds.) *Troubled Times: Sustainable Development and Governance in the Age of Extremes*. Sustainable Development Policy Institute and City Press, Pakistan.
- Siegmann, K. A., and B. Steimann. (forthcoming). Vulnerability and resilience in the North-west Pakistan.
- Sultan-i-Rome. (2005). Forestry in the princely state of Swat and Kalam (North-West Pakistan). A historical perspective on norms and practices. IP-6 working paper. National Center of Competence in Research (NCCR) North-South, Switzerland. (Available online at www.nccr-north-south.unibe.ch)
- Suleri, A.Q. (2002). Regional study on forest policy and institutional reform; Final Report of the Pakistan Case Study. Asian Development Bank, Manila.
- Suleri, A. Q. 2004. Social dimensions of globalization (A case of Pakistan). NCCR North-South, University of Zurich Switzerland; Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan.
- UNISDR (United Nations International Strategy for Disaster Reduction) 2003. *Disaster Reduction and Sustainable Development: understanding the links between vulnerability and risk to disasters related to development and environment*. Background document for the World Summit on Sustainable Development (WSSD) Johannesburg, 2002. : <http://www.unisdr.org>
- Wilches-Chaux, G. (1989). Desastres, Ecologismo Formacion profesional (SENA, Colombia): 21-40. Cited in Brauch, H. G. (2005). *Threats, challenges, vulnerabilities and risks in environmental and human security*. Publication Series of United Nations University, Institute for Environment and Human Security (UNU-EHS), Bonn, Germany.
- Zaidi, S. A. (2005). The political economy of decentralization in Pakistan. Transversal theme "decentralization and social movements". Working paper No. 1. National Center of Competence in Research (NCCR) North-South. Switzerland (available online at www.nccr-pakistan.org)