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RESEARCH PAPER

Livelihoods Diversification in Mountain Communities: Drivers of Change in Galiyat, Abbottabad, Pakistan

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ABSTRACT

This paper attempts to examine traditional livelihood practices and diversification strategies in mountain communities of Galiyat Pakistan. Three purposively selected villages were used as a study site. The study used both quantitative and qualitative techniques of household questionnaires, in-depth interviews, field observations, and key informant interviews for data collection. The data was analyzed and presented through descriptive statistics and diversification indices. The study indicates that agriculture was the mainstay of the economy at all three study sites. Out-migrations and limited government and private sector jobs were major off-farm activities. Diversification strategies adopted over time are highly site site-specific and include deactivation, abandonment, and intensification of agriculture. Climate change and the tourism industry are the most important factors for survival and opportunity-led diversification strategies. Both increase and decrease in out-migration were observed at the study sites inspired by such diversification. The study concludes that increased tourism activities appeared to be an important diversification strategy that could help improve people's living standard to a great deal. There is a need for public and private sector interventions, thereby making the small business and other innovation a survival strategy of the local community.

Introduction

Majority of the mountain population, i.e., more than 625 million, lives in developing and transitional countries (Alexandratos & Bruinsma, 2012). Mountain areas are typically characterized by poverty, lack of access to education, health and sanitation services, markets, and job opportunities(Asefa, 2003; T. Romeo et al., 2015). The deterministic features of the mountain communities, i.e., topographical remoteness and resultant restrictions in market access, the limited potential of agriculture, limited income opportunities, and political marginalization, are intrinsic to rapid socio-economic change in these communities (Carey, Molden, Rasmussen, & Jackso, 2017; ICIMOD, 2011; Maselli, Chiesi, Brilli, & Moriodo, 2012; Nusser & Schmidt, 2017). Modernization interventions were introduced in many parts of the Himalaya-Karakoram range in the fields of education, health services, physical infrastructure, business development, and capacity building through state institutions as well as NGOs (Hoermann, Soumyadeep, & Kollmair, 2010; Holsapple & Joshi, 2000; Khan & Rahman, 2009; Kreutzmann, 1991; 2004; 2009; Sati, 2014). The impact of such interventions has not been homogenous owing to a range of conditions. Policies that facilitated the development and

improved wellbeing significantly in some areas have had little or no effect in others (de Haas, 2012; Kaukab, 2005; Nyberg, 2012).

Mountain communities are traditionally found to be largely dependent on agriculture, animal husbandry, small-scale logging, and trading of non-timber forest products (NTFPs). Construction projects, the regional industry, public service, or tourism industry may also provide as important sources of livelihoods. But the vulnerability and rapidly changing climatic conditions in mountains increase the risk of uncertainty (Huber, Morlok, Weckerle, & Seeland, 2015). In the mountains, uncertainties are often addressed using three main strategies: intensification of agriculture, migration, and diversification of their livelihoods (Barrett, Reardon, & Webb, 2001; Das & Ganesh-Kumar, 2019).

Nearly 60% of the geographical area of Pakistan is a mountain where about 40 million people reside (Government of Pakistan, 2013). Most of these mountain communities are vulnerable to food insecurity due to low productivity, subsistence economies, the constraints of terrain and climate, poor infrastructure, vulnerability to natural risks, and high cost of food production and transportation. In recent years, various biophysical and socio-economic factors have led to the depletion of natural resource bases across the mountainous regions of KP, making them vulnerable to food insecurity and extreme poverty. As a coping mechanism, these communities are forced to find alternate sources of livelihoods using available resources. This diversification process in livelihood depends upon existing assets (physical, natural, financial, social, political, and human), the degree of external shocks and the institutional arrangements to address these shocks and improve the adaptive capacity of the local population.

Livelihood diversification is critical for poor and low-income rural households as the impact of environmental issues and related vulnerabilities is harsher in developing countries. Even within the same community, rich and poor households diversify differently due to differences in initial asset endowments (Barrett, Clark, Clay, & Reardon, 2005; Reardon, Berdegué, & Escobar, 2001). The rich typically engage in more capital-intensive and more remunerative activities while leaving the poor confined to labor-intensive, highly contested niches with a low barrier to entry and low returns. Wealthier households often mention “profit maximization” as their motive for entering into rural non-farm activities, as against “risk minimization” and “income stabilization” strategies of the poor (Schwarze & Zeller, 2005). People with more diversified sources of income are better capable of resisting the adverse effects of climate change and vulnerabilities (Ersado, 2006). Almost half (44 percent) of the mountain population in Asia, including the Hindu Kush-Karakoram-Himalaya region, is vulnerable to food insecurity and the number is rising every year (Dame & Nüsser, 2011; Fao, 2008; Rasul & Rogger, 2018; R. Romeo et al., 2015). These mountain communities do not specialize in livestock, fish, or crop production. The majority of these communities have diversified their productive activities to encompass a range of other productive areas, but the exact nature of this diversification and the resulting impact on the lives of people is known to a very limited extent. The research aimed to study: 1) the traditional livelihood practices of the mountain communities of Galiyat. 2) nature of challenges faced by local communities to traditional livelihoods or new opportunities that lead to diversification? 3) How did communities respond to these threats, vulnerabilities, and opportunities?

Materials and Methods

For a better understanding of the changing patterns of livelihoods and diversification concerning social and cultural settings, both qualitative and quantitative approaches were used. There is abundant literature on both qualitative and quantitative studies that have been employed in sustainable livelihood frameworks and its modifications to study both rural and urban livelihoods and their components over space and time (Cahn, 2006; Ellis, 1998; Parrott, Olesen, & Høgh-Jensen, 2006; Roa, Niehof, Price, & Moerbeek, 2015). Three villages from Galiyat, i.e., Malach, Namli Maira, and Bagan, were selected after meetings with key informants.

Geographic profile that shaped up distinct patterns of livelihood was the primary criteria considered while selecting the study area.

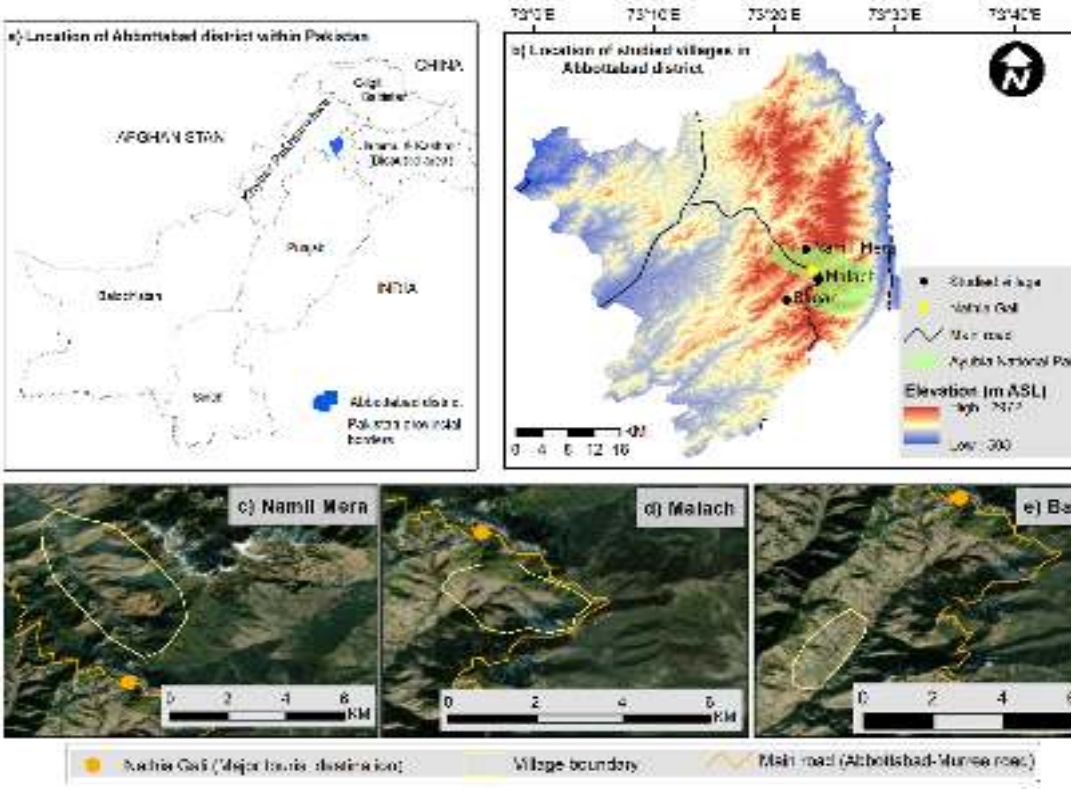

Fig. 1. Map of the Study Area

Self-administered questionnaires followed by in-depth interviews were conducted by the researcher over six months in the study area from March 2021 till August 2021. Questionnaires addressed most of the close-ended questions that focused on the quantitative dimension of the data, whereas interviews helped explore the qualitative dimension focusing on push and pull factors and social changes taking place in the lives of the respondents. Three focus group discussions were conducted in Bagan and Malach to understand the changing patterns of livelihoods in detail and where opposing views could be explored through debate among the participants. No FGD could be conducted in Namli Maira primarily because of the topography saturation of data that provided better insight with the need for FGD.

Table 1
Details of the Study Sites and Respondents

Names of the Villages	Brief Profile of the Study Area	Sample Size (Household Survey) n=53	FGD (n=3 with a total of 17 participants)
Bagan	1174 households with a total population of 6,084 inhabitants. 11.5 km from the tourist resort of Nathia Gali. Traditional Agricultural Practices with the highest distance from the main road. Located outside Ayubia National Park.	16	2 (7 males and 5 females)
Malach	958 households with a total population of 5,658 inhabitants. Proximity to the tourist destination of Nathia Gali. A high percentage of the population engaged in the tourism sector or working in NGOs. Limited engagement in agricultural activities. Located within Ayubia National Park.	18	1 (3 females and 2 males)

Namli Mera	8386 households with a total population of 1394 inhabitants. Modernization of agriculture through the cultivation of cash crops and better farm mechanization. Relatively higher education standards with higher engagements in govt. Job. Vocational training and newly developing tourist resorts as additional sources of income. Located at the boundary of Ayubia National Park.	19	
Subtotal of number of respondents		53	17
Total number of respondents		70	

Results and Discussions

Traditional Livelihood Practices and Economic Status of the Rural Communities

All three villages have unique topography and resultantly have a difference in agricultural land. Bagan is not only the smallest of other villages in terms of several households, but the average land holdings are also small as compared to other sites. The average farm size is 0.13 hectares (2.5 kanals) per household, with about half of the population having no agricultural land. Maize has been the major crop used for subsistence. Most of the population (46.7 percent) of the village falls in the lowest income group with an average household income of less than 20,000/- Rs per month. Malach, being located at a higher altitude and surrounded by thick forest, has relatively smaller agricultural land. About 35 percent of the households have no landholdings other than their homes. The average farm size is 0.15 hectares (2.9 kanals), but not all the cultivable land is actively under cultivation due to inaccessibility and difficult terrain. The households in Malach show the highest middle-income group where almost half of the households earn between 2000-35000/- thousand rupees per month. Among all three study sites, Namli Maira represents the most ideal location for farming. The cultivable land terraces are bigger with an average farm size of 0.4 hectares (about 7 kanals) which is the highest farm size among all three locations. Most of the households (71.6 percent) still own the agricultural land and are actively engaged in agriculture. Potatoes and maize have been the major crops grown for subsistence. Households with relatively larger farms also sold the produce to the local market. Apart from agriculture, government jobs have been very highly regarded and came as the earliest income diversification strategies.

Livelihood Diversification

Shift in Agricultural Practices

Although no precise data of Galiyat is available neither with the agriculture department nor with the dairy and livestock department to study the changes in crop production and rearing of livestock, field data shows there is an obvious shift in agricultural activities in the region. In most of cases, farming is either abandoned and agricultural land left fellow or cultivation is on a portion of agricultural land for subsistence use with off-farm activity being the primary source of income. These part-time farmers have less focus on agriculture, give less time to agricultural fields and cultivate only those crops that are less demanding and need lesser inputs. (Van der Ploeg, Ye, & Schneider, 2010) termed it as the "deactivation of agriculture". But in certain other cases, agriculture is modernized with farm mechanization and the introduction of new cash crops that were not cultivated traditionally.

'Deactivation' or Abandonment of Agriculture

Agriculture has witnessed a negative trend at all three study sites, except for Namli Maira where both abandonment and modernization are taking place simultaneously. In Malach, the growth of tourism provided better income-earning opportunities. Engagement of the younger generation in these 'opportunity lead income diversification' resulted in reduced

cultivation of agricultural lands. Both complete abandonment and reduced agricultural activities are witnessed here. In Bagan, both production per unit area and total cultivated area show a gradual decline. Almost half of the total land under cultivation about twenty years ago is now left fellow. Both, the reduced average rainfall, and fluctuations in the precipitation in the microclimate of district Abbottabad are reported in the literature e.g. (Tahir, Yousafzai, Jan, & Hashim, 2014). Although, rainfall harvesting and water storage in small self-made tanks is also observed on a limited scale, uncertain precipitation is the most reported constraint to crop production among relatively poor farmers of Bagan.

Increased attacks by monkeys and wild boars inflict severe damage to crops in peripheral regions of Namli Maira. The result is reduced cultivation or total abandonment of crops. Although the wildlife department provides financial compensation for the attacks on the livestock and humans, no such compensation is provided for the crops. However, farmers consider KP forest ordinance 2002 and resulting practices of the forest department as the main reason for increased wildlife population and resultant damage to crops. But climate change and the resulting migration of wild boars to the now warmer and habitable forest of Ayubia National Park is also to blame for this newfound constraint to agriculture (Amir et al., 2020).

Agricultural Intensification

With relatively larger farm size (0.4 hectares), higher education levels, better access to the local market, engagement with and access to public and private institutions, and generally better per capita income, farming in Namli Maira has witnessed intensification. Especially so in better connect lower and central parts of the village that is not bordering the Ayubia National Park, and threats of the attacks of wildlife are limited. Both the Agriculture department of the government and NGOs helped modify the agricultural practices with the provision of agricultural extension services on a more frequent basis. Training related to the cultivation of mushrooms, fruits, vegetables, and kitchen gardening to both men and women helped transform the agriculture sector according to modern needs to a great deal. Cultivation of vegetables, soybeans, and occasional medicinal plants helped improve the productivity of the sector. Relatively more accessible terrain as compared to Bagan and Malach allowed farm mechanization through tractors. Although the cultivation of fruits is not carried out on a commercial basis, the production of vegetables for the local markets is a more prominent feature for the agriculture of Namli Maira.

Changes in Rearing of Livestock

The most noticeable change in livestock rearing was observed in Bagan. Both the engagement of the number of households and the number of cattle heads doubled in Bagan during the last twenty years. Table 2 shows a shift in the rearing of livestock at the study sites as compared to the base period in the three villages.

Table 2
Change in Rearing of Livestock at Study Sites (2001-2021)

	Bagan		Malach		Namli Maira	
	Baseline	Now	Baseline	Now	Baseline	Now
Percentage of Households rearing Livestock	33	66	60	44	58	42
Average Number of Cattle heads per household	1.2	2.6	2.9	1.7	3.9	3.7

Engagement in off Farm Activities

Reduced overall engagement in crop production and changes in livestock rearing has an overall reduced labor force engaged in the agriculture sector. On the other hand,

the number of economically active households has increased at the same time. While compared with the baseline period, i.e., twenty years ago, the average number of households engaged in income-generating activities has increased to 1.61 as compared to 1.05 in the base period. The details of the active engagement of the households in off-farm activities are detailed in table 3.

Table 3
Household Engagement in Off-Farm Activities as Primary Source of Livelihood (2001-2021)

Study Area		Nature of Off-farm activity (percent of households)					
		None	govt. job	private job	own business in the area	own business anywhere else	labor
Bagan	Current	6.7	20.0	13.3	26.7	0.0	33.3
	Baseline	33.3	0.0	33.3	13.3	0.0	20.0
Malach	Current	5.6	22.2	50.0	22.2	0.0	0.0
	Baseline	50.0	11.1	27.8	5.6	5.6	0.0
Namli Maira	Current	0.0	26.3	15.8	21.1	10.5	26.3
	Baseline	47.4	26.3	0.0	10.5	0.0	15.8
Total	Current	3.8	23.1	26.9	28.8	3.8	13.5
	Baseline	44.2	13.5	19.2	9.6	1.9	11.5

The data shows that almost half of the population in the study area had no off-farm activity twenty years ago, which has shrunk to only about 4 percent. The percentage of the households with no off-farm activity in Bagan is still the highest, where agriculture provides the mainstay of the economy. The percentage of households engaged in government jobs is the highest in Namli Maira, with the highest number of households engaged in business activities, especially outside the village. The most noticeable change in off-farm activities is observed in Malach, where more than 72 percent of the households are engaged in jobs and businesses. The boom tourism industry is the major driver of this shift.

Out-migration was never a source of livelihood diversification for the residents of Bagan. Lack of any social capital necessary for such out-migration has been the main reason for the absence of out migrations. Twenty years down the line, there is no change in those statistics and no resident of Bagan is engaged in out-migration. In the study sites of Malach and Namli Maira, there is quite an interesting scenario. While an increase in out-migration is witnessed in Namli Maira, there is a reversal in such out-migration in Malach. Although both the villages are not located far apart from each other, changes in socio-economic conditions at the micro-level have a bigger impact on the livelihoods of the residents. While the close vicinity to tourism spot and boom in the sector has provided better job and business opportunities for residents of Malach to bring them back to their native places, change in climatic condition and constraints to agricultural practices has forced the residents of Namli Maira to move out from their native places to find better livelihoods. Whereas the first case represents the opportunity-led diversification, out-migration in Namli Maira represents survival-led diversification. Table 4 summarizes the overall change in livelihood diversification and the drivers that caused this change in livelihoods over the period of time in selected rural communities.

Table 4
Drivers of Change and their impact on Livelihood Diversification in the Study Area

Location	Drivers of Change	Livelihood Diversification Activities
Study Site1: Bagan	- Provision of better Road Infrastructure	- Shift to livestock and dairy due to better market access.

	- Uncertain fluctuations and reduced monsoon rainfall - Availability of livestock at relatively cheaper rates	- Reduction in traditional maize production and shift to fodder. - Negative impact on the livelihoods of horsemen engaged in transportation business which ultimately shifted to labor and milk-producing livestock.
Study Site2: Malach	- Better road infrastructure and growth of tourism - Increased health and educational services	- Increased engagement in the tourism sector and abandoning of agricultural activities, both crop production and rearing of livestock. - Reduced out-migration
Study Site3: Namli Maira	- Provision of better road Infrastructure - Role of NGOs in farming, vocational training, and changing social attitudes. - Reduced access to forest resources and protection of wildlife by the forest department. - Climate change-induced migration of wild boar to Ayubia National Park and increased damage to crops. - Development of tourism resort at 'Namli Maira Waterfall'	- Increased access to local markets and assistance in farming helped diversify farm production—the cultivation of new cash crops. - Increased engagement of women in off-farm economic activities. - Drastic impact of wildlife on agriculture in the upper Maira and negative impact on agricultural activities. - Forced out-migration of the households for survival due to abandonment of agriculture - Engagement of local unskilled and semi-skilled labor in the tourism sector.

Conclusion

The livelihoods of mountain communities of Galiyat depend upon the combined effect of both climatic and non-climatic factors. Households are engaged in various diversification activities in response to very context-specific vulnerabilities and opportunities. These vulnerabilities vary, not only within a region but also within a village. The residents of peripheral regions of Namli Maira are facing extreme vulnerabilities for their livelihoods as compared to those living at the center or better-connected parts of the village. The response to such vulnerabilities varies and depends highly on financial, physical, social capital and assets the households have accumulated over the period.

Livelihood diversification is a continuous adaptive cycle in which households add new practices, maintain existing ones, or drop others, thus retaining diverse and evolving livelihood portfolios. Out-migration was a dominant and important off-farm activity for the residents of Malach in the past. Whereas jobs and business in the tourism sector at their native place is a better livelihood activity now. On the other hand, people in the peripheral areas of Namli Maira are forced to adopt out-migration due to increased damage inflicted to crops. So, out-migration was a progressive, adaptive strategy in the past while a stress-induced diversification strategy now. In changing dynamics, an opportunity for one community, household, or individual might be harmful to many others. Construction of road infrastructure in Bagan brought new opportunities for most of the residents, helping them establish dairy businesses and off-farm activities. It proved livelihood stress for others engaged in the animal-driven transport business. Both the groups shifted to new livelihood activities, one driven by opportunity other for survival.

While adaptation to vulnerabilities is not always easy, institutional intervention, both public and private, can help a great deal. Provision of vocational training and assistance in modern agriculture helped residents of Namli Maira diversify their livelihoods rather smoothly. Social capital plays a very important role in coping and adaptation strategies. A single factor that explains the high amount of out-migration as a viable diversification strategy for the residents of Malach as compared to Bagan, where out-migration has never been observed despite very limited livelihood opportunities available locally.

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