

Shepherding Entrepreneurship based value creation below the base of the pyramid in Pakistan

Dr. Muhammad Tariq Yousafzai

Assistant Professor, University of Swat

Email: Muhammadtariq@uswat.edu.pk

Dr. Gul Ghutai

Sardar Bahadur Khan Women University, Quetta

Email: gulghutai@sbkwu.edu.pk

Dr. Neelam Akbar

Lecturer Centre for Management and Commerce, University of Swat

Email: neelamarwat@uswat.edu.pk

Abstract

The study aims to assess the tradeoffs associated with landless shepherding entrepreneurs working below the bottom of pyramid in the case of District Malakand. We use a transformative worldview, to raise voice for their welfare and to safeguard their livelihoods through a proposed formalization process as objective of study. The study uses an inductive-qualitative research design in conjunction with 20 semi-structured interviews and two focal group discussions conducted at veterinary clinics and analyzed with grounded theory methodology. The findings suggested that informal shepherding, serve as mechanism of a variety of wild herbs and shrubs dispersal and act as vectors of zoonotic diseases. Their high animal stocking density coupled with unsupervised herding exert anthropogenic pressures on environment such as causing barren mountains which trigger landslides. In cases of supervised herding, the impact is mitigated by the presence of experienced herdsman. Their transhumance creates traffic hurdles as well as make animals and public vulnerable to accidents due to their animal trespassing. These shepherding entrepreneurs have an innocuous presence yet, they exhibit rent seeking behaviors during up and downland vertical mobility, although we cannot blame shepherd's' for all environmental issues. Overall, the study concludes that their advantages in terms of food security, employment generation and ecosystem preservation outweigh their associated disadvantages. The study contributes to a better understanding of socially excluded and economically marginalized group of people with a transformative view to preserve their identity by way of recommending reforms for their formalization as a poverty alleviation mechanism below the base of pyramid.

Keywords: Shepherding entrepreneurs, Pastoralism, Semi-Nomadic people, Value creation, Bottom of Pyramid

INTRODUCTION

In agrarian economies people rely mainly on livestock rearing as they have little avenues for off-farm income generation (Hameed, Tariq, Buerkert, & Schlecht, 2022). According to Washaya and Washaya (2023) the agropastoral systems of livestock holding businesses is popular among indigenous people, because it complements their household income. The agropastoralism provide for necessary livestock input to food chains as Pakistan was ranked 9th in terms of cattle (Livestock) and 4th largest producer of milk worldwide as well as ranked 11th in poultry production (T. Shah, Hayat, Tariq, Khan, & Wang, 2021). This general trend in Pakistan is more prevalent in hardship rural areas of Northern Pakistan, where more than 40 % of household income is contingent upon animal husbandry (Hameed et al., 2022). The shepherding livestock rearing business acts as helping hand to mitigate the economic pressures confronted by resource strapped farmers as ruminants holding, require less dry matter, space and investment. Despite their off-farm income related benefits, there is mounting pressure to formalize the agropastoral systems operated by indigenous people to mitigate their possible externalities (Washaya & Washaya, 2023). Hence, there is need for conduct of research studies to figure out value creation below the base of pyramid.

The presence of these shepherding entrepreneurs is beneficial in terms of value created through meat, milk, manure and wool to the people and for industries as raw material. The indigenous shepherds exhibit pro-environmental behaviors (Nawaz, Yousafzai, Shah, Xin, & Ahmad, 2021) and therefore are referred as Shepherding entrepreneurs for this study. On the one hand, they exhibit pro-environmental behaviors, such as increasing food security and adding to soil fertility. On the other hand, they indulge in rent-seeking behaviors such as encroachment on other people farms, avoiding tax by staying in the unbanked sector and engage in over-utilization of pastures. Zhang et al. (2020) asserts rent-seeking is the type of unproductive entrepreneurship, which takes advantage of the environment to grow one's profits without reciprocating any benefits to environment. This calls for the need of pasture rehabilitation and measures such as collection of pasture utilization fees for investment in rangeland management (Hameed et al., 2022). Their existence and sustainability are a major concern as unsystematic growth can causes serious ecosystem imbalances, wherein, attention of policy makers for interventions are germane. Given a rising population, the significance of sustainable agropastoral practices cannot be over stated. Thus, documenting the tradeoffs of agropastoral systems require due attention (Hoerz, 2021).

Range management is a science and art of obtaining maximum production from grassland, shrublands and wetlands on a sustained basis (Smith, Metcalf, Metcalf, & Yung, 2023). Grazing land is a renewable resource, as energy from the sun can be captured by green plants which can only be harvested by the grazing animals. Pakistan was confronted with a massive flood in 2022 which submerged 33 percent of country, but still the livestock sector recorded a growth of 2.25% demonstrating its resilient nature (Econ Survey, 2023). In addition to this Pakistan confronted a massive earthquake of 7.6 magnitude in 2005 which claimed 86000 lives and left almost 40 million without homes and livestock (Shah et al., 2023). Grazing land supply us with food and fiber at a very low additional energy cost. These shepherding entrepreneurs use indigenous resources to spur economic benefits of livestock growth, which enhances food security. In doing so, these

indigenous people also create value for themselves, after all it is not from their benevolence that we receive meat and milk but from their regard to self-interest (Tariq, M. 2018). These indigenous people who exhibit a nomadic lifestyle tread their transhumance routes from uplands to downstream pastures during winters seasons to avoid freezing temperatures. These shepherding entrepreneurs are landless pastoralists who are actually Ab initio People called “Ajar” and speak Gujri language (Wajid Rashid, Nafees, & Rahim n.d).

Animal husbandry is an alternative livelihood source for rural dwellers in Pakistan, with more than 8 million rural families involved in livestock rearing. The agriculture sector contributes 22.9 % of GDP and 37.4% of employment (Hussain, 2023). Pakistan is the fifth most populous country with almost 38 % of its people living in poverty, contributing 1.85 % to the global population of more than 4 billion people living at the bottom of the pyramid (Alam, Hussain, Hussain, & Ul Hassan, 2023). The carbon footprints of Pakistan is less than 1 % of the global greenhouse gas (ghg) emissions (Michel Devadoss, Pariatamby, Bhatti, Chenayah, & Shahul Hamid, 2021), yet it is ranked amongst the top most countries impacted by adverse effects of climate change (Hamza, 2023). These shepherding entrepreneurs live a monotonous life to earn a livelihood below the base of pyramid. At the same time, their rent seeking behavior due to their nomadic migration from one area to another is matter of concern, as it causes problems for forest department as these herds eat away their planted saplings as well as precious herbal and medicinal plants and mushrooms. Their nuisance also manifests in the form of traffic congestion due to their slow movement on the road. Moreover, Non-Timber Forest Products (NTFPs) such as mushrooms, huckle berries, cinnamon and as well as Medicinal and Aromatic Plants (MAPs) are crushed under the animal foot during their transhumance (Hassan Sher, Ahmad, Eleyemeni, Fazl-i-Hadi, & Sher, 2010; Hazrat Sher, Ali, Ullah, & Sher, 2022). Their overgrazing also triggers erosion of natural slopes which causes floods severity during monsoon spells. Their formalization and restriction to farm ranges is need of the day to contribute to the sustainable economic development of the area. However, these sheep and goat herders cannot be blamed for all the ills of the economy and environment (W Rashid et al., 2019).

Pakistan floods submerged almost 33 percent in water which displaced 8 million people and more than 9.1 million were forced below poverty line (Econ Survey, 2023). Agriculture sector, contributes almost 22.9 % in GDP of Pakistan and generates 37.4 % jobs and helps mitigate food shortages and provide raw material for finishes goods processing of industrial sector (Econ Surv, 2023). Despite its importance to food security, agriculture contributes approximately 33 % of total emissions, while livestock added almost 18 % to worldwide greenhouse gases (Arbuckle Jr, Morton, & Hobbs, 2015). Majority of the agropastoral people and their workers live below the bottom of pyramid (BOP). The BOP concept is very much prevalent in Global South as asserted in the euphoric works of Prahalad and Hammond (Schrader, Freimann, & Seuring, 2012). This massive yet invisible market of more than 4 billion people across the globe earn less than 2 \$ per day in Global South as compared to the top of the pyramid populations of Global North (Joncourt et al., 2019). In the neighboring India more than 300 million people still earn less than a \$ today and according to reporting during past decade in China over a quarter of its population was earning less than 2 \$ a day contributing to the every expanding BOP markets (Markey, D. S. 2013)

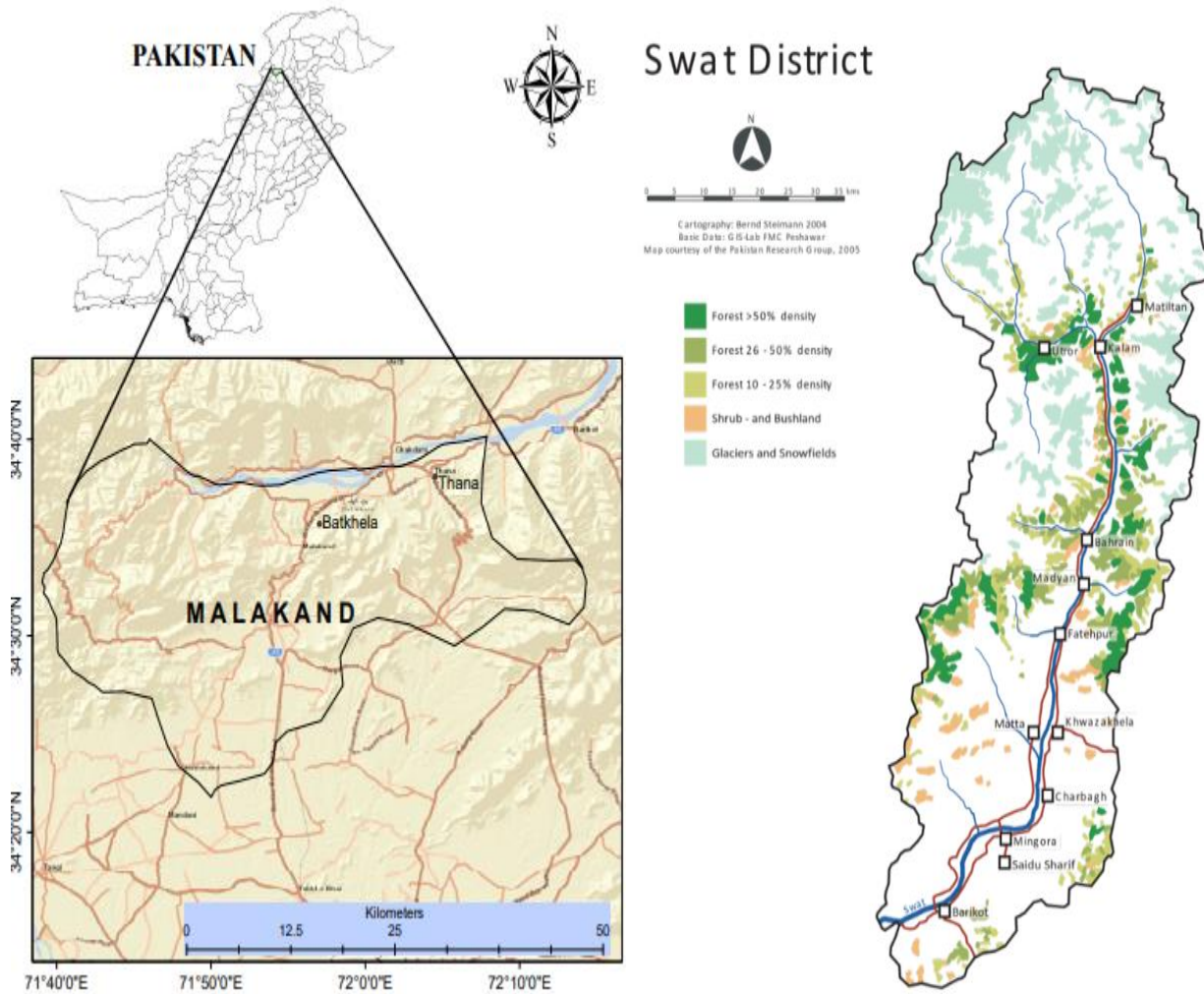
The aim of this grounded theory-based study was to explore the overall value created by indigenous agropastoral shepherding entrepreneurs in district Malakand by examining the tradeoffs. At this stage in the research, the shepherding entrepreneurs will generally be defined as

those landless shepherds who delve in the trade of rearing herds for making a living below the bottom of pyramid, yet exhibiting pro-environmental behaviors. The central research question of the study is “*What are the potential tradeoffs in terms of value creation associated with shepherding entrepreneurs working below the base of pyramid in District Malakand*”. The tradeoffs in terms of productive and unproductive contributions are seen through an entrepreneurial lens with special reference to freeriding and rent seeking behaviors (Baumol, 1996). After establishing the importance of shepherding entrepreneurs, who work below the base of the pyramid by offering a succinct yet comprehensive overview of the scholarly literature, next we describe the methodology section as to why an inductive qualitative research design with a social constructionist paradigm is used to analyze data collected from interviews and focus groups with help of Grounded theory methodology. This is followed by analysis of data with the help of interview guide questions, discussion on key findings followed by conclusion, limitations and future research directions.

MATERIAL AND METHODS

In this study, we used a transformative paradigm with a qualitative approach and grounded theory as strategy of inquiry. Inductive qualitative studies emphasize meaning making instead of frequency of occurrence to explain social phenomenon which is relatively complex and defy simple solutions (Eisenhardt, Graebner, & Sonenshein, 2016). The grounded theory methodology is used because of the exploratory nature of the study as little is known about shepherding entrepreneurs in district Malakand. The exploratory studies are conducted due to apriori off the shelf available theories or theoretical frameworks. Improving the lives of shepherding entrepreneurs by way of documenting their livelihood sources and resilience defy any straight forward solutions. The study utilizes the standards of reporting qualitative research (O’Brien, Harris, Beckman, Reed, & Cook, 2014) The reason for use of SRQR is due to the fact that Naïve ignorance from ethical conduct of research is in itself an unethical practice (T. Iqbal et al., 2018). Initially, 06 pilot and later, 14 in-depth, interviews and two focal group discussions were done on veterinary clinics. The choice of field work at veterinary clinics is discussed in data collection section along with reasons.

Figure 1: Maps of Pakistan and District Malakand showing Target area of Study



Source: Maps created using ArcGIS 10.5 (map of Malakand and Swat Districts).

DATA COLLECTION

These shepherding entrepreneurs are always on the move, although they take sojourn at few resting places in downstream areas (Wajid R. et al., 2023). Their working requires control and active supervisory presence to safeguard their assets from potential injuries, thieves and predators. Hence, data collection from these people is a grand challenge (Eisenhardt et al., 2016). Therefore, we devised an alternative strategy of data collection through a referral system at the veterinary clinics in district Malakand two tehsils of Thana and Tehsil Batkhela. We worked with the clinic personnel to recruit suitable participants and interviewed them during their free wait time for appointment. We made sure to protect the data and privacy of the participants as naivete from research ethics is also unethical practice (T. Iqbal et al., 2018). The participants were not forced to sign the consent forms as these people are 100 percent illiterate and most of them have never attained any formal schooling (Coomber, 2002). Although verbal consent was obtained as well as CNIC numbers and telephone numbers as proxy of consent. Their transhumance to downstream areas is triggered by first Fall of snow in winter in district Swat during December-January to downlands of district

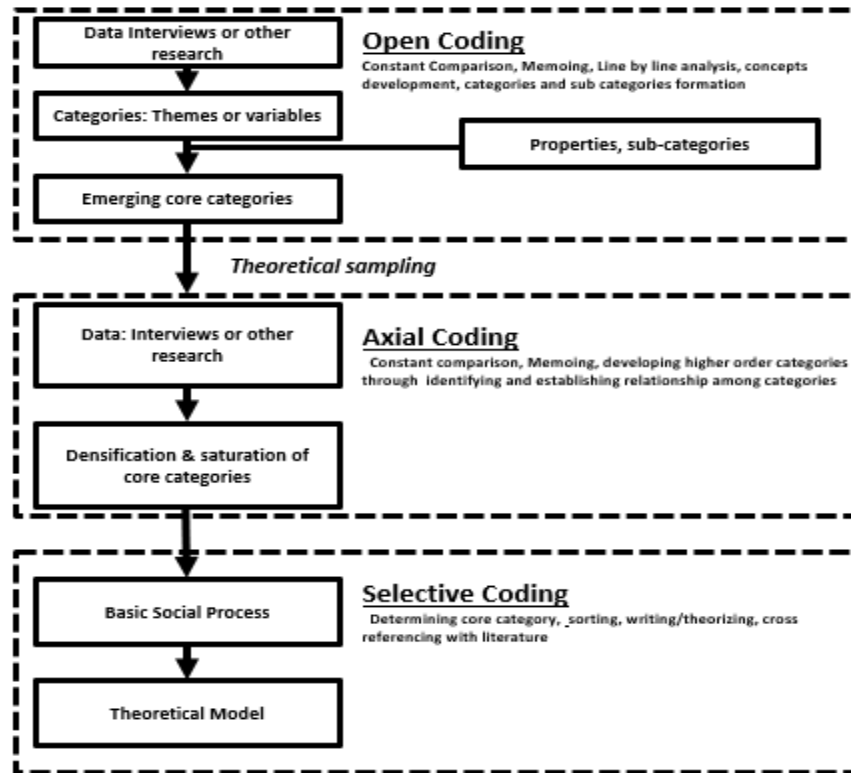
Malakand. They repatriate to their upland pastures during End of March or the start of April season signaling the arrival of spring.

INTERVIEW GUIDE <i>Table 1. Extracts from interview guide</i>	
1.	What are the productive and unproductive aspects of shepherding entrepreneurs in District Malakand?
2.	What forms of indigenous knowledge shepherding entrepreneurs utilize in their livestock businesses?
3.	What alternative Livelihood sources for shepherding entrepreneurs are present?
4.	What is the impact of climate change in terms of floods on shepherding entrepreneurs?
5.	How overgrazing impacts slope destabilization and indigenous flora of medicinal and aromatic plants?
6.	What are the reasons for the recent rise in forest fires and how they impact forest ecosystem management?
7.	What are the salient health hazards for shepherding entrepreneurs on public health?
8.	In what ways formalization of shepherding is beneficial through introduction of farm range management?
9.	Whether or not shepherds are respected in the society?
10.	What identity issues are faced by these shepherding entrepreneurs during their transhumance?

DATA ANALYSIS

The data analysis process in grounded theory based inductive qualitative studies involves three levels of coding analysis namely open, axial and selective coding (Candelarie, D. 2023). In the open coding stage categories or formed and compared and interviews are conducted in the light of discriminant sampling procedure (Nawaz et al., 2021). Upon the arrival of core category, the axial coding analysis commences, which further filters the data collected in order to highlight the central phenomenon in the given context (Creswell, J. W., & Poth, C. N. 2016; Yousafzai et al., 2020). In the final selective coding stage, we integrated the data from preceding stages to come up with a description of the social process. Unlike, the preceding coding stages in selective coding instead of splitting the categories we integrate the categories as the point of theoretical saturation unfolds (Yousafzai et al., 2020). The figure (2) below gives a diagrammatic representation of the grounded theory stages.

Figure 2: Grounded theory coding stages



Source: (Adapted from Nawaz et al., 2021)

In this regard, the first sub question posed was, “*What are the productive and unproductive aspects of shepherding entrepreneurs in District Malakand?*” A recurrent theme which emerged during the open coding pertains to idea that shepherds are beneficial in a sense that it removes residual leftover created post harvest as well as shrubs and herbs grown on road side, streets and grass ways as well as add to fertility of farmlands.

“Their organic waste is sold at 5000 rupees per trolley which is generated in less than a fortnight,” said a respondent.

The above statement goes in consonance with Jagisso, Aune, and Angassa (2019) who contends that goats produce 300 g of manure per day, but on the flip side, piles or heaps of decomposing manure of sheep’s and goats causes environmental threats to public health. The axial coding suggested that shepherding entrepreneurs caters for the meat demands of the Eid Al Azha feat of sacrifice. According to a report of Arab News during (2021) Pakistanis alone sacrificed 9 million animals during Eid Al Azha worth 2.5 billion USDs (<https://arab.news/bqfuz>, 2021). At the same time, the massive slaughtering of animals also contribute to a whopping rise in waste during Eid Al Zha i.e., the feast of sacrifice. They also graze upon medical and aromatic plants as well as infiltrate public properties without permission. The selective coding analysis based on inputs from preceding two coding analysis, indicate that shepherding entrepreneurs exhibit rent seeking behavior in the form of grazing in other people pathways, yards, plots and farming lands without reciprocating any benefits to the owners of properties.

In the same vein, a second sub questions asked was, “*What is the extent of use of indigenous knowledge by shepherding entrepreneurs?*” A recurrent theme which emerges during open coding

entails that shepherding entrepreneur, observe the behavior of animals, insects and plants to predict rain and other conditions such as from which sides the clouds had emanated and observe the color of river to predict weather conditions. This goes in agreement with Manh and Ahmad (2021) who assert that indigenous knowledge is used to raise only traditional breeds of goats and sheep's which can bear the environmental stress. In addition to online weather predictions, they use indigenous knowledge to predict weather changes such as when frogs croak too much it signals rain, coming out of termites' signals stopping of rain. The axial coding refers to the use of indigenous farming calendars to determine appropriate transhumance timings to downlands and vice versa. They also are well versed in traditional use of medicinal plants to treat ailments of their animals. The selective coding analysis suggests that behavior of their animals suggests the right time for shearing of fur as well as signal health conditions of animals.

According to a respondent, "We predict the upstream weather conditions by looking at the color of river Swat".

The indigenous knowledge, practices and accumulated knowledge as passed on from one generation to another during their tending to livestock trainings in the fields as these people lack any formal schooling.

Moving ahead in the sequence of interview guide, a third sub question posed was, "*What are the alternative livelihood sources for shepherding entrepreneurs?*" A theme which recursively emerges during open coding analysis, indicates that shepherds also participate as part time laborers in their spare time. Their main source of income as highlighted during axial coding pertains to the selling of livestock ahead of the Eid Al Azha (feast of sacrifice) by selling livestock in the flea markets, wherein, livestock dealers and municipality taxes reduce their profit margins. This goes in conformance with Yousafzai, Nawaz, Xin, Tsai, and Lee (2020) who assert that in Peshawar shepherds of "Kochi" tribe collect kitchen waste from households, which is used as animal fodder in the absence of pastures. These people hail from mountainous area of Swat, wherein, they delve in agriculture as well as raise cattle and sell milk. The popularity off-season vegetables growing in mountainous regions have incentivized shepherders to delve in this more profitable source of livelihood (Khurshid et al., 2022).

"We travel to city centers early in the morning covering more than 8 kilometers daily by foot before dawn to sell milk to dealers," said a respondent.

This goes in consonance with T. Shah et al. (2021) who contends that Pakistan is ranked 11th in poultry production as well as 4th largest milk producer in the world although the milk productivity is much 25 % less than developed world. The selective coding in the light of inputs from preceding analysis indicate that these people who raise cattle for commercial purposes deposit manure/dun cakes and sell them to farmers @ of 5000-8000 PKR per truck load. This goes in agreement with the fact that Pakistan fulfills 86 % of its fertilizer requirements indigenously (Economic Survey, 2023). Despite, their alternative livelihood avenues these people do not deposit their money in banking sector which is a drawback of their working and a severe blow to the circulation of wealth.

Having established their productive and unproductive aspects and sources of accumulated indigenous knowledge and alternative livelihood sources, the next sub question posed was regarding, "*What is the impact of climate change in terms of floods on shepherding entrepreneurs?*" A recursive pattern which emerges during the open coding, pertains to a realization of the climatic changes in the past few years, especially the intensive monsoon spells coupled with glacial lake outburst floods (GLOF) during months of June and July every year. During monsoon cloud bursts and nullahs are inundated which forces shepherding entrepreneurs

and their cattle flee the river bank areas back to steeper mountainous areas where animals often sustain injuries due to higher altitude. The monsoon floods submerged 33 % of Pakistan in 2022 and caused almost a loss of 94 million acres of cultivated land in Pakistan (A. Iqbal et al., 2023).

According to a responded, “during 2023 June and July months unexpected snow occurred which caught the shepherds off guard resulting in deaths of more than 1500 goats”.

Some of the goats and sheep can be seen herding at 300 meters above ground level in mountains. The axial coding indicates that floods had washed away the panoramic beauty of Swat and Malakand river banks. Pakistan is ranked the world’s 3rd most water stressed country and due to lack of climate readiness, the number of animals impacted by floods of 2022 were more than 1.2 million (Zhang et al., 2020) While a third of Pakistan population do not have access to clean drinking water (Markey D. S. 2013). The selective coding indicates that climate induced floods not only damage agriculture through land fertility loss but also brings with itself forest timber and gravel from upstream areas (Econ Survey, 2023) but yet the livestock related businesses recorded growth showing the resilient nature of this sector amidst the recurrent disasters.

The next sub question probed, *“How overgrazing impacts slope stabilization and indigenous flora such as medicinal and aromatic plants?”* A recursive pattern which emerged during the open coding indicates that unsupervised grazing causes loss of vegetation, which cascades soil erosion that ultimately renders the land barren and unsuitable for agriculture as well as causes land sliding. Such landslides mar the beauty of natural landscape terrain and may serve as a potential source of injury to humans and animals. This phenomenon also enhances runoff after rainfall which increases sedimentation in nearby river Swat, which causes loss of fertile soil. In axial coding the data indicates that shepherds use their expertise to divert their herds from overgrazed pastures, although a formal mechanism for rotational grazing is absent due autonomous informal nature of shepherding entrepreneurs. According to Bogunovic, Fernández, Kisic, and Marimón (2019) overgrazing may lead to soil degradation, reduction in vegetation and forest cover in vulnerable ecosystems. The selective coding analysis based on input from previous coding phases entails that unsupervised overgrazing also adversely impacts the indigenous flora such as medicinal plants as well as serve as a source of ailment of animals due to intake of poisonous plants. This goes in agreement with Hazrat Sher et al. (2022) who asserts that unsupervised grazing causes loss of non-timber forest products such as medicinal and aromatic plants and limits biodiversity due to depletion of precious plant species.

In the same continuation, a sixth sub question probed was, *“What are the reasons for the recent rise in forest fires and how they impact forest ecosystem management?”*. The open coding indicates that population explosion has compelled people to utilize mountain land for dwelling and agriculture, thus making land grabbing a lucrative business opportunity. Although this form of value creation is negative and falls within the domains of destructive forms of entrepreneurship (Baumol, 1996). Some of the forests are set ablaze to eradicate the green cover which makes them a common national property if forest grows there. Moreover, Alpine and cedrous deodara tree leaves are used in packaging of apricot, primogeniture and apples. Otherwise, if left unattended can cause forest fires due to their high combustion pyrogenic properties. The axial coding indicates that shepherds were generally given forest allowance to look after forest assets, which has been withdrawn since 2021. Local people also lament that lack of water in springs and streams is due to inordinate amount of plantation of eucalyptus which stresses the water table enormously. The selective coding indicates the important role of land and timber mafia (cartel) and local community

in in forest fires. These people sometime cite colonial era laws as pretext for their rent seeking behavior and cause problems for the forest department. This goes in agreement with a report of Express Tribune which states that forest fires burnt one lakh trees planted during the afforestation Billion Tree Tsunami Project (Y. H. Shah & Majeed, 2022). Setting ablaze forest as a legal gambit to safeguard against intrusion of government imposition of claim on forest and jungle areas as common property of state. Mountain agriculture is another aspect due to advent of sophisticated machinery.

Moving ahead, the seventh sub question asked was *“What are the salient health hazards for shepherding entrepreneurs on public health?”* A recursive pattern during open coding indicates the lack of access to proper animal healthcare veterinary clinics in their upland areas due to their geographical isolation. There is also lack of vaccination availability for animals. The transmission of zoonotic diseases from their animals to shepherds and general public is a major concern as indicated during the axial coding analysis. This is true as majority of the diseases such as AIDs, Ebola, Bird flu, Swine flu, MERS and SARS had originated from animals (Zakaria, F, 2020). Diseases such as lumpy skin disease has widely prevailed in animals during past three years. This disease not only reduces the milk productivity but also reduces its demand Eid-Al-Azha season sacrifice causing significant economic losses of income. Another viral disease which is endemic in the area is foot and mouth disease (FMD) which cascades a bad impact on the weight of animals, milk production and even increases mortality rate of animals. The selective coding analysis based on input from preceding two coding stages indicates no occurrence of *“Crimean-Congo Hemorrhagic Fever (CCHF)”* also known as Congo virus which can affect both animals and humans. Although, its prevalence in other regions of Pakistan is endemic. The rise in animal diseases is attributed to excessive use of anti-pest chemical sprays by farmers which does not bode well with health of animals. Finally, the shepherds feel relatively satisfied with restoration of universal health coverage scheme of provincial government but lament that there are no facilities for the livestock.

In the same vein, another sub question asked was *“In what ways formalization of shepherding is beneficial through introduction of formal farm range management?”* The recurrent pattern which emerges during open coding entails that formalization can be beneficial for both agropastoral people and the broader ecosystem in a variety of ways, due to systematic approach and associated increases in productivity. These people have been in this profession of shepherding since generations and for them free movement alongside animals has become an essential part of their lifestyle. However, formalization will change their centuries old tradition of annual vertical mobility. The axial coding analysis entail that formal regulations and policies can safeguard the interests of both shepherds as well as preserve the environment through better sustainable resource practices. Access to better health facilities for animals, training and issuance of permits for rotational grazing can improve pastoral productivity and raise socio-economic status of those working below the base of pyramid and are stuck in vicious cycle of poverty. Moreover, the selective coding analysis reveals that formal range management practices can help protect red listed plants as well as medicinal and aromatic plants for greater productivity. Such formalization can also curtail the infiltration of animals into people farms, reduce conflicts and depredation and theft of animals. These can also reduce the free riding activities such as rent seeking of shepherding entrepreneurs improving the overall habitat through integration of traditional and modern range management practices

The penultimate sub question posed was regarding, “*Whether or not shepherds are respected in the society?*” A recurrent pattern which emerges during initial coding analysis pertains to the pattern that most of the people are sympathetic in their interactions with shepherding entrepreneurs. The people generally respect them and serve them with meals and water during their sojourns at various villages. During the month of Ramadan, the generosity is further extended as they are offered food for breaking the fast by locals. The axial coding suggests, that due to their animal movements on the roads, some of the drivers become irritated but we are left with no other option was a recursive pattern of answers. The selective coding analysis indicates that shepherds are generally respected in the society because in Muslim faith it remained a prophetic profession. Due to religious and spiritual symbolism the traits of shepherds such as patience, discipline, compassion and hard work are held in respect by people of the area. This goes in conformance with a report in the News International by Khan et al. (2021) wherein, the professions of shepherding was deemed a prophetic profession, which teaches the lessons of discipline hard work, patience for growth and prosperity. In the backdrop of preceding analysis, it is widely established that shepherding entrepreneur in the target area of the study are widely respected and which is one of the several reasons that pastoral systems are still in vogue despite their lackluster economic.

The final sub question pertains to *identity issues faced by these shepherding entrepreneurs during their transhumance?* A recurrent pattern which emerges during initial open coding entails that shepherd farmers are landless indigenous people from the “Ajarh” tribe who delve in seasonal vertical mobility along with their flocks. Their identity changes shape from time to time as they exhibit traits of nomads, transhumance and agro-pastoralism during the calendar year. The preceding finding goes in conformance with Wajid R et al, (2023) who also reported that Ajarh tribe speaking Gujri language is associated with shepherding in District Swat and Malakand. These indigenous semi-nomadic people experience an identity crisis on their transhumance as they are considered outsiders, despite trekking their most trodden paths for generations. The axial coding unveils that they mostly speak their ancestral Gujri language and observe a semi-nomadic lifestyle. This results in creation of dual identities for these people with one identity in their ancestral uplands and that of transient person during their downland transhumance. Moreover, their lifestyle has changed little in the face of modernization and socio-economic changes introduced by technological advancement. The selective coding analysis entails that due to poor economic returns the shepherds experience a sense of disconnection from their historical traditions. Many have switched to other full-time endeavors such as off-seasons agriculture farming in the uplands of District Swat. They sometimes are stigmatized for their simplicity and backwardness as younger generations seems less interested in their ancestral professions and preservation of their cultural heritage and traditional lifestyles. These issues call for intervention of policy makers and international donors to initiate educational opportunities, trainings and transfer of expertise of rangeland farming to blend together modern and traditional practices for cultural preservation and productivity in target area of study.

DISCUSSION

This study assessed the potential tradeoffs in terms of value creation associated with shepherding entrepreneurs working below the base of pyramid in District Malakand in terms of their productive and unproductive value creation. Baumol (1996) asserts that entrepreneurship can be productive, when it causes wealth creation and unproductive when it induces a parasitical existence such as deriving rents from the environment. The study found that the advantages of agropastoral shepherding entrepreneurs in terms of employment creation, support to food security and ecosystem preservation by far outweigh the associated disadvantages, although some form of rent seeking behavior is exhibited by these shepherding entrepreneurs. Overall, the benefits outweigh their negative externalities, signaling positive value creation below the base of the pyramid although they act as vectors of zoonotic diseases which is inevitable. Such externalities can be controlled with policy interventions towards formalizations process of rangeland management. This goes in agreement with Malik et al., (2017) who reported via using a SWOT analysis that sustainable livelihoods of shepherding entrepreneurs in the form of nomads prevail in the positive realm in Cholistan desert of Pakistan. Moreover, they exhibit greater resilience in adverse circumstances as evident from their recorded growth in 2022 floods (Econ Survey, 2023). Their resilience is further evident from the fact that Pakistan is among the leading milk producers in the world, despite the fact that its cows and sheep yield less than one fifth of milk than their counterparts in Global North (Zakaria, F. (2020; Yousafzai et al., 2022). The agriculture and animal husbandry were professions practiced by the prophets as it involved patience, hard work and discipline (Khan et al., 2021). This study explored the alternative livelihood issues faced by a culturally intact group of shepherders who experience eternal vertical migration. Their conditions and working are monotonous although their working is pro-environmental in nature accidentally (Nawaz et al., 2021). The calamity prone geographic location of District Swat is evident from recurrent exogenic shocks, such as sudden change in weather patterns, hailstorms, earthquakes and flash floods. The topography of study area of Swat is vulnerable to Glacial Lake outburst floods (GLOF) and holds higher seismic hazard as well as recurrent demolition of forest due to bushfires which destroys biodiversity and conservation infrastructure and also compels its population of shepherding entrepreneurs to engage in seasonal vertical mobility to downlands in district Malakand and beyond as a survival strategy. This somewhat goes in consonance with Aryal et al., (2018) who assert that their hard work especially during transhumance and monotonous life outweighs the ecological advantages. This in addition to poor economic performance calls for formalization of shepherding work in order to attain economies of scale and scope as well as to preserve their historical relevance in the study area.

CONCLUSION

These indigenous shepherding entrepreneurs use resources at hand to create value for themselves and other. They enhance food security in terms of milk, meat, wool and provide raw material for leather industries. Their multiple benefits improve the fertility of land as well as act as mobile waste management actors by way of consuming the unnecessary herb, shrubs, and grasses to reduce the burden on general public. Their livelihoods is a blend of nomadism, transhumance and agropastoralism as they exhibit all these traits at various times of the year. The positive multiplier effects manifests, especially during the trading season of the feast of sacrifice in Eid Al Azha. In addition to their advantages, their animal also acts as vectors of zoonotic diseases, especially in the absence of proper healthcare facilities and availability of vaccination for animals. They utilize good improvisation and survival skills by way of the use of indigenous knowledge which has been

transferred from one generation to another. These people also experience an identity crisis during their transhumance vertical mobility, despite being native residents of area who has trodden their trekking path for centuries. In the light of analysis, the study recommends that Shepherds/indigenous people should be restricted to certain areas and made obligatory to plant and protect trees as rent seeking behavior is not sustainable in the long term. In addition to this, forest allowance may be restored as per past practice in order to support their livelihoods. There is need for conduct of further studies which augment the integration of formal and informal pastoralism practices towards environmental improvements employing both qualitative and quantitative measures. Such studies will help understand the effects of informal practices as well as raise voice for those who work below the base of the pyramid as shepherding entrepreneurs. The study contributes to better understanding of shepherding-based value creation at bottom of pyramid by mobile indigenous people in an effort to raise voice for seemingly muted voices of economically downtrodden people to improve their conditions.

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