Master Thesis

M.Sc. Sustainable International Agriculture (University of Göttingen and University of Kassel)

The Status of Female Empowerment in the Apricot Sector in Gilgit-Baltistan, Pakistan

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Abstract

Fostering and increasing female empowerment has become one of the trademarks of developmental work in all areas of the world. Particularly for ground project work it is decisive to know the local and cultural mechanisms that hinder successful female empowerment in order to adapt and create empowerment tools that are fitted to the social and environmental circumstances of its recipients. The northern mountainous regions of Pakistan, namely, Gilgit-Baltistan (GB) have experienced a significant investment in rural development projects with many specifically focusing on uplifting women economically and integrating them through, inter alia, educational and vocational training into the economic sector of the country. To aid the existing developmental agencies in increasing the effectiveness of their project work of targeting rural women in agricultural settings, this research has collected and analyzed data through the application of the 'Abbreviated Women's Empowerment in Agriculture Index' (A-WEAI) in GB in summer 2021. This index analyzes how input in productive decisions, ownership of resources, access to and decisions on credit, income control, group membership and workload contribute to the disempowerment of not yet empowered female head of households in apricot farming households in GB in comparison to male head of households. The research further compares socioeconomic characteristics of empowered and not yet empowered women in order to distinguish target areas.

Keywords: A-WEAI, Farmer Cooperatives, Female Empowerment, Rural Development, Socio-Economic

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Abbreviations and Context

Abbreviation	Meaning and Context
AKDN	Aga Khan Development Network
AKRSP	Aga Khan Rural Support Programme
ETI	Economic Transformation Initiative
FAO	Food and Agricultural Organisation by UN
GB	Gilgit-Baltistan
GBRSP	Gilgit-Baltistan Rural Support Programme
HH	Household
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
KKH	Karakoram Highway
LSO	Local support organization
PKR	Pakistani Rupees
USAID	United States Agency for International Development
WO	Women organization, usually on village level

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1. INTRODUCTION

Women in economically developing countries are main carriers of family structures and livelihoods – a fact that oftentimes remains hidden. Hidden, among other things, because of the adoption of a patriarchal, cultural lens, which naturalizes women's reproductive, care and emotional work and as a result denies the recognition of female gendered work as a form of labor. Despite the growing worldwide recognition that a holistically speaking prosperous society is based upon a structure of gender equality the invisibilization of female work has challenged the effectiveness of targeting female empowerment projects and policies (Batool, 2019). Particularly women in rural settings, who belong to the economically poorest parts of society, are faced with both monetary issues and considerable time constraints. As a consequence, vocational training as well as extension services, if existent, are oftentimes inaccessible (Zaidi., Farooq. et al. 2018). This poses a major hurdle in the journey of reaching more equitable societies as female economic empowerment defines a crucial stepping stone. To counter this ubiquitous issue, it is important to understand the regionally specific working realities of women to make empowerment efforts more effective.

This research will contribute to the understanding of the empowerment status of women in the female dominated agricultural sector of apricots in Gilgit-Baltistan (GB), Pakistan. Pakistan, which is a de facto patriarchal society with strong traditional gender roles is battling with the deeply ingrained inequalities that this system has brought forth. The low level of female empowerment is mirrored in Pakistan's place near the bottom of the Gender Gap Index, where the country was ranked 153st of the 156 countries that were studied (*Global Gender Gap Report 2021).* The report states that Pakistan's gender gap has increased within one year by 0.7 percentage points, thus failing for the 16th year in a row to improve their gender parity score (Iqbal, 2021).

To tackle this persistent issue, various studies, such as from Bushra and Wajiha (2015), Soharwardi et al. (2014) and Bhat (2017) have looked directly into and analysed determinants of female empowerment in Pakistan. The UN status report on rural women in Pakistan (2018) created the 'Women Economic and Social Empowerment Index' (WESE), a multidimensional approach to define and measure female economic empowerment in the four recognized provinces of Pakistan. However, no research has been found that specifically measured the

empowerment status of women in the autonomous "5th province" of Pakistan, namely Gilgit-Baltistan (GB). Over the last decades, GB has undergone a trend portraying the 'feminization of agriculture' (Batool, 2019). Supported through rising levels of education that foster rural exodus, commercialization of agriculture, and male outmigration, women's work load has been continuously rising (Zaidi., Farooq. et al. 2018). The harvest season in particular poses a challenge to women as agricultural work significantly increases, while at the same time, daily reproductive work continues (Batool, 2019). As a direct consequence, girls are oftentimes missing or are taken out of school during this period, in order to help out with household work as well as child and elderly care.

Apricot production is one of the main agricultural commodities in northern Pakistan and serves as an example of female participation in on-farm work, which predominates the labor involvement of men in the sector (Samee et al. 2015). Approximately 70% of all women are involved along the production cycle and they are responsible for the generation of livelihoods for around 93.5% of smallholder farmers in GB, especially in lower income groups (Samee et al. 2015; Kousar et al., 2019). The biggest market value farmers derive from apricots are dried apricots, however, due to substantial post-harvest losses and unhygienic processing methods, the revenue remains limited (Kousar et al., 2019). Numerous NGOs have realized the potential inherent in the apricot sector and are providing technical trainings to support farmers in harvesting their full potential. Due to the large presence of NGOs and other developmental institutions in the region a few studies have been conducted to measure the effect of the provided empowerment tools on women, such as vocational training through the well-established Aga Khan Rural Support Program (AKRSP). Another study by Murtaza (2012) focused particularly on the possibilities of female empowerment through higher education. A last study by Batool (2019) analysed the changing agrarian landscape in GB due to educational expansion and found a clear shift towards a gendered view on agriculture. Nonetheless, no research has been conducted concerning the status quo of female empowerment at the household level in GB.

In order to fill this gap, the contribution of this research will be threefold. The first objective (1) is to assess the current status quo of female empowerment in the apricot sector in GB. As means to do that, the 'Abbreviated Women Empowerment in Agriculture Index (A-WEAI)', a survey-based tool that measures female empowerment, will be employed. The second objective (2) of this research is to understand, which factors are contributing the most to the

empowerment and disempowerment status of women in the region. The answer to this question follows two steps. In a first instance, the index will be deconstructed into its five domains, namely, agricultural production, access to and control over productive resources, control over the use of income, leadership in the community, and time allocation. The empowerment scores in each domain, will highlight the areas in which empowerment and disempowered are the largest. Moreover, the comparison of the empowerment scores of women and men within the same household will help to assess the presiding inequalities that exist between their achievements and will furthermore show differences in empowerment between regions and religious affiliations. In a second step, a logit regression model will be used to examine socioeconomic factors that are likely to affect female empowerment in a positive manner. Lastly, the third objective (3) is to understand current and future empowerment opportunities of women in GB. For this, the developmental landscape of NGOs and initiatives will be thoroughly examined. By investigating these three objectives, the research aims to provide information that can help to create more precisely targeted empowerment projects and policies for female farmers in the region.

2. THEORETICAL FRAMEWORK AND METHODS

2.1 FEMALE EMPOWERMENT

Female Empowerment is a broad term that can be understood in many ways depending on which cultural and/or socioeconomic lens is applied. A popular definition is by Naila Kabeer (1999), who defines it as "the process by which those who have been denied the ability to make strategic life choices acquire such an ability". For this process to work she identifies three decisive components: resources, agency and achievement. Resources are related to material, social and human resources that are constantly exchanged through interactions with institutions and/or other societal or human relationships. Agency on the other hand relates to the ability of an individual to act according to a shared or individual goal. Lastly, achievements are the results of the interaction between resources and agency, which in turn fosters greater resource acquisition. Nonetheless, even though this definition of empowerment has been widely-recognized, researchers have struggled to operationalize the concept in a way that allows to measure it across differing local contexts over time (Meinzen-Dick et al., 2019). This is due to every person's understanding and perception of empowerment not only being subjective but highly shaped by a person's social context.

2.2 Abbreviated Women Empowerment in Agriculture Index (A-WEAI)

In order to quantify empowerment in the studied region, this research is going to use the "Abbreviated Women Empowerment in Agriculture Index" A-WEAI, an index that has been specifically created to capture female empowerment in agricultural communities. The A-WEAI is a survey-based tool that was constructed by the *International Food Policy Research Institute (IFPRI)* and other development-oriented organizations and initiatives in 2012. The aim of the index is to assess the general empowerment status as well as gender parity index of self-identified female and male decision makers within an agricultural household. The A-WEAI is an aggregated index that is composed of two sub-indexes: the five domains of empowerment (5DE) and the gender parity index (GPI). The 5DE, which capture the empowerment score of women in the domains of "(1) agricultural production decisions; (2) access to, and decision-making power over, productive resources; (3) control over use of income; (4) leadership roles within the community; and (5) time allocation" (qtd. in Malapit et al. 2017). These are in turn measured through six different indicators. Each indicator has their specific weight attached and the individual score achieved by a person reflects their empowerment status in each of the five domains/for each indicator (Table 1). Every indicator measures if a person has reached adequate achievements in that indicator or has crossed a certain threshold in each domain in order to be considered as empowered or not. The index defines that women need to achieve 80% of the weighted indicators or adequate results in four of the 5DE to be considered as empowered (Malapit et al. 2017).

Table 1: A-WEAI

Domains	**Indicators**	**Weight**
Production	Input in productive decisions	20%
Resources	Ownership of assets	13.3%
	Access to and decisions on credit	6.7%
Income	Control over use of income	20%
Leadership	Group membership	20%
Time	Workload	20%

Source: Malapit et al. (2017)

The A-WEAI is applied to survey data collected from primary female and male adult decision-makers within the same household. The GPI is a measure that is used after the calculation of the 5DE in order to capture the relative empowerment achievements between women and men in the five domains. A household is considered to have reached gender parity if the woman is, according to the results of the 5DE, empowered or has a score that is at least equal to or greater than the empowerment score of the primary male decision-maker in the same household. The values to capture the individual indexes are between 0 and 1, whereas a greater value equals greater empowerment. Finally, an overall empowerment score is calculated with the weighted average (0.9 and 0.1 respectively) of the above calculated 5DE score and the GPI as seen in the equation (1) below (Malapit et al. 2017):

$$(1) \qquad A - WEAI\ Score: (0.9\ x\ 5DE + 0.1\ x\ GPI)$$

Similar to other development indexes, the A-WEAI score can be used as an overall indicator for comparison. However, the A-WEAI is also constructed in a way that allows for its decomposition, thus the individual achievements of each indicator can be analyzed in order to see which area contributed the most to the disempowerment of women and men respectively (Malapit et al. 2017).

3. EMPIRICAL MODEL – LOGIT REGRESSION MODEL

After the A-WEAI score was obtained, as a first step the results of the 5DE empowerment status of women were selected in order to find, in a second step, possible predicting variables of the likelihood of a woman being empowered according to the 5DE. Since the empowerment results were coded as a dummy variable (0 = not empowered, 1 = empowered) a multivariate logit regression model was chosen for further analysis.

As a first step the independent variables (Xs) were tested for their predictability for the *p*-variable *female empowerment.* The variables that were significant (p-value ≤ 0.05) were cross checked for multicollinearity by using a Pearson correlation for continuous predictors and a Spearman correlation for discrete predictors. a multivariate logit regression model as explained below was applied.

Unlike a linear regression analysis, the binary logit regression model uses a binary or categorical variable to estimate the *probability* ($\hat{p}$) of an event occurring for any combination of the chosen independent variables, where *P(Y = 1)* denotes the probability of success and

$q = 1 - p$ the probability of failure (Srimaneekarn et al., 2022). As demonstrated in equation (2), the independent variables need to be linked together. For this a link function is needed, which is most commonly used in the form of logit, probit, and complementary log-log functions (Srimaneekarn et al., 2022). This function is also known as the sigmoid function or inverse function, which maps its results along an *"S"* shaped curve with probability values between 0 to 1, with input values ranging from $-\infty$ to $+\infty$ (Hartmann, Krois and Waske, 2018).

$$(2) \qquad \ln\left(\frac{p}{1-p}\right) = logit(p)$$

In the case of this research, p is the probability of a woman being empowered $1 - p$ refers to the probability of a woman not being empowered. As a next step, the inverse of the logit function is taken as demonstrated in equation 3 (Hartmann, Krois and Waske, 2018). Alpha refers to the linear combination of the chosen variables and their coefficients. This will return the probability that a woman is empowered (=1). Following, the coefficients are plotted as an *'S'* shaped curve, which shows the different combinations of the variables and their coefficients that are the most likely to bring about the event that a woman is empowered (Hartmann, Krois and Waske, 2018). The regression coefficients are calculated through the maximum likelihood estimation (MLE).

$$(3) \quad logit^{-1}(\alpha) = \frac{1}{1+e^{-\alpha}} = \frac{e^{\alpha}}{1+e^{\alpha}}$$

$\alpha =$ variables

$e =$ base of a natural logarithm (~ 2.713)

The predicting independent variables (Table 2) that were chosen for analysis are: the religious affiliation (sect), if the female respondent has received training, their education level, age, the respondent's region and valley, the remoteness level of the village to the next major market town, if they are a member and/or interested in being a member of a farmer cooperative, and the households total yearly income. Independent variables that were important to give explanatory power to the results, such as training and remoteness, were tested for their significance. Lastly, descriptive statistics were used to summarize main findings.

Table 2: Chosen indicators to calculate socioeconomic factors that influence female empowerment in the study region

Indicator Name	Indicator Description	Indicator Type	Min	Central Tendency	Max
Shia	Member of Shia community	Dummy	0	0.69	1
Ismaili	Member of Ismaili community	Dummy	0	0.22	1
Sunni	Member of Sunni community	Dummy	0	0.08	1
Training	Did the person receive training?	Dummy	0	0.32	1
Education level[1]	What is the education level of the person?	Categorical	0	0.91	5
Age[2]	What is the age of the person?	Continuous	20	43.92	75
Region[3]	From which region are you? (Gilgit =2 or Baltistan=1)	Categorical	1	1.49	2
Valley[4]	From which valley are you?	Categorical	1	3.42	6
Remoteness[5]	Proximity to next market town	Categorical	1	1.98	3
Farmer[6] **Cooperative**	Are you a member or interested in becoming a member of a farmer cooperative?	Categorical	1	2.22	4
Income	Yearly income of household	Continuous	158$	4 014$	19 136$

[1]Education level: 0 = No education, 1 = Primary, 2 = Secondary, 3 = Intermediate, 4 = Highschool, 5 = University, [2]Age: 1 = 20-24, 2 = 25-34, 3 = 35-44, 4 = 45-54, 5 = 55-64, 6 = 65-75, [3]Region: (1) Baltistan, (2) Gilgit (3) Other, [4]Valley: (1) Nagar, (2) Skardu, (3) Bagrot, (4) Ganache, (5) Ishkoman, (6) Karmang, (7) Other, [5]Remoteness: (1) Close, (2) Medium, (3) Far, [6]Farmer Cooperative: (1) Already member, (2) Interested, (3) Interested but ..., (4) No

4. STUDY AREA

Gilgit-Baltistan (GB), formerly known as the *Northern Areas* is an autonomous region in the north of Pakistan bordering Afghanistan, China and India. GB is divided into the two different regions of Gilgit and Baltistan. The area is known to be the home for five of the highest mountain peaks in the world and its environment is largely described as a high-mountain desert (Sökefeld 2014). Situated over three different high mountain systems; Hindukush, Himalaya and Karakoram, local settlements are typically situated within the main river valleys as well as along bordering valleys. However, due to high slopes and aridity, most parts of the area are uninhabitable (Sökefeld 2014). This creates a unique and difficult environment for subsistence agriculture. Cultivable areas are rare and are usually maintained through terracing, which are in turn fed through intricate irrigation channels that derive their water from glaciers or springs (Parveen et al. 2015; Sökefeld, 2014). GB's economy is predominantly agro-pastoral and the majority of the households are actively participating in agriculture. The average landholding per household is approximately 0.73 hectares (Samee et al., 2015). The practice of women going to high pastures during summer months has been declining tremendously over the last decades. This is a direct result of an educated youth that is seeking jobs outside the farm sector (Batool, 2019). Due to this, women and elderly increasingly have to take over the work that traditionally younger men did. Moreover, due to the remoteness and inaccessibility of many villages, poverty constitutes a major problem in the region. As a result, poverty-stricken households are more prone to overuse resources in a fragile resource-scarce landscape, which in turn feeds into the vicious cycle of poverty and vulnerability of its inhabitants (Ullah et al., 2014). Additionally, some areas experience a high pressure upon natural water resources that in combination with the manifesting effects of climate change pose a severe challenge for the future, especially for life-sustaining water supplies and ecological services (Ullah et al., 2014).

In terms of its geopolitical situation, GB has never been fully granted the rights as an official province of Pakistan. Instead, it has been a disputed autonomous territory for over half a century, which has been, according to international codes, illegally occupied by Pakistan. According to the ethnologist Prof. Dr. Sökefeld "*it is safe to assume that the majority of Gilgit-Baltistan's population prefers the full integration of their area into Pakistan as the country's fifth province*" (qtd. in Sökefeld, 2014 p. 16). Indeed, as of 2021, debates are currently underway to officially grant GB the status as a 5th province of Pakistan. However, as of now

its 1.9 million citizens do not have the right to participate in any democratic processes concerning the country at large (Gilgit-Baltistan Democratic Alliance, 2017).

GB shows a high cultural, linguistic and religious diversity. Five major- and various other regional languages are spoken in GB alongside Pakistan's lingua franca, Urdu. The region is predominantly Muslim, with the exception of few Punjabi Christians, and GB is divided into three main sects: Shias, Sunnis and Ismailis. Additionally, a small portion of Nurbakhshis are settled in the region of Baltistan (Sökefeld, 2014). After continuous violent disputes between Shia and Sunni communities from the 1970s onwards, religious communities have adopted an endogamous stance and politics and social life has been structured according to the antagonism of the sects. Ismailis, who form the third largest religious group in GB, have taken a neutral position in the sectarian issue between Shia and Sunni communities (Sökefeld, 2014). Moreover, due to high levels of literacy and education, particularly among their female population, Ismailis stand out in comparison to other parts of GB's population. This is a direct result of the wide-spread developmental work done by the spiritual leader of the Ismailiyah, the Aga Khan who used the channels of the Aga Khan Development Network in GB to foster large-scale rural development (Sökefeld, 2014). Indeed, this differentiation can also be clearly observed within gender relations between the different sects. Whereas, *pardah* (gender segregation) is strictly followed among Shias and Sunni communities, Ismailis have taken a rather lax stance towards the issue, which allows their women a higher degree of social and physical mobility and visibility (Sökefeld, 2014). Furthermore, female access to education has spread considerably in GB in the last decades and in turn has improved opportunities for future employment, particularly as the number of local teachers has increased (Sökefeld, 2014). Nonetheless, employment opportunities are still limited in regards to their availability and the domains in which women are culturally accepted to work in. A recent change can be observed though; newly opened in Gilgit "*ladies markets*", which can only be accessed by women, provide women the opportunity to open up as well as run their own business, a position that had been culturally reserved for men (Sökefeld, 2014).

Lastly, through the creation of the Karakoram Highway (KKH) in 1978, China created a direct link to Pakistan's coast via GB, which led to a major boost in trade and mobility for the region (Kreutzmann, 2005). Despite the KKH, GB lacks overall proper infrastructure in particular between villages and towns outside the major market areas. The existing roads are oftentimes very poorly maintained as well as dangerous, due to its position beside high-rugged

mountains and river canyons (Hussain, 2019). This hinders farmers and small business owners in particular from exporting their produce. In this regard, the current construction of the China-Pakistan Economic Corridor (CPEC) is expected to bring considerable economic development opportunities into the region (Hussain, 2019).

5. DATA COLLECTION

5.1 STUDY SITE DETERMINATION

During a two-month field trip between June and August 2021, quantitative as well as qualitative data was collected by means of interviewing apricot farming households in GB in three different dead-end-valleys (Wiehle et al. 2021). Such data is useful for inferring the effects of remoteness on different socioeconomic factors, since the single road entry point of these valleys leads through different villages and ends in the most remote. In each valley, three villages were selected according to their varying degree of remoteness (close, medium and far) to the next market town. This was done in order to measure for eventual differences that occurred due to the remoteness of the area. The valleys that were visited with a close proximity to major market towns were: Bagrot, Ishkoman, Nager and Shigar. The two valleys Ganache and Karmang in Baltistan were the furthest remote (Figure 1). In the selection process of villages, the presence of ripe apricots played a large role as well as levels of remoteness and overall accessibility. Apricot farming households were chosen as apricots are considered the most important fruit crop in the region, with a long-standing cultural history, particularly for women and due to their potential to serve as a role model for agricultural transformation processes.

5.2 SAMPLING STRATEGY

Apricot farmers were selected according to 1) the presence and willingness of self-identified female and male primary decision-makers to be interviewed, 2) different levels of socio-economic characteristics (e.g.: lower, medium, upper income classes, landsize), 3) single headed female households, which are necessary for the A-WEAI to bring a higher variety and 4) the cultivation of traditional and/or modern apricot varieties (which covered the interests of a research colleague). Moreover, since complete official census data was not available, the research used linear snowball sampling in the household selection process as this was perceived as the best viable option for the given circumstances. In each village four to five farming households were interviewed.

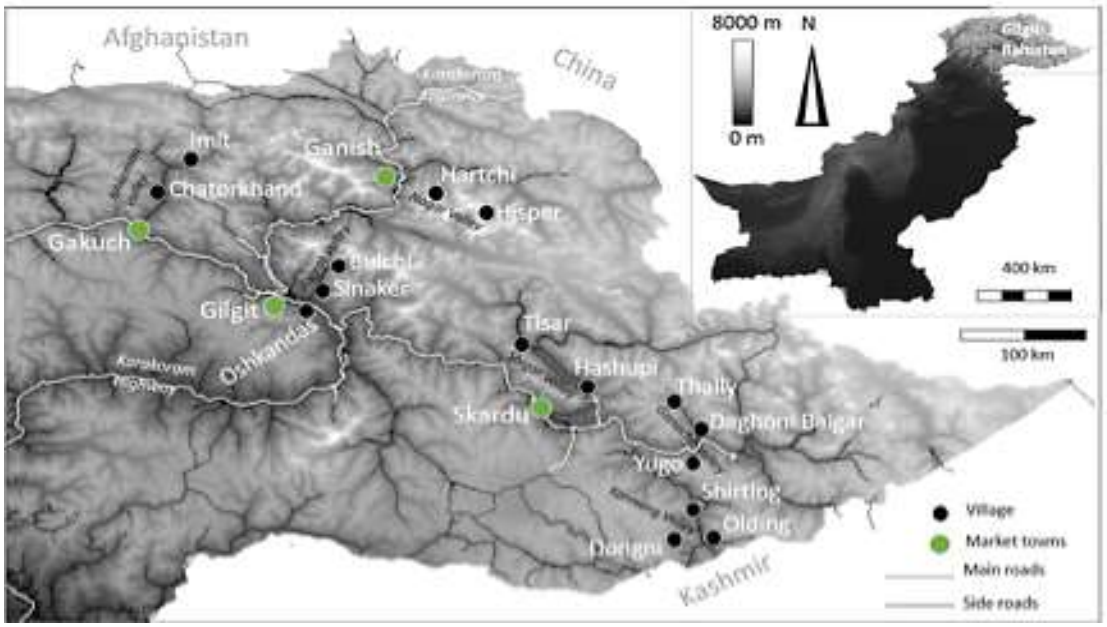

Figure 1: Selected villages along the silk road with a partial connection to the Karakoram Highway in six dead-end valleys in Gilgit-Baltistan. Source: DIVA-GIS, www.diva-gis.org/gdata, accessed 28 January 2020

In each household, the primary female and male decision-maker were interviewed in accordance with the structure of the A-WEAI as well in connection to a separate socioeconomic questionnaire. Information was collected initially through paper-based interviews and later on through the tablet-based 'Census and Survey Processing System (CSPro 7.6)'. Altogether 161 Interviews were conducted out of which 9 women came from single female headed households and the remaining from dual headed households. The majority of the interviewees were Shia, followed by Ismailis. Since the research was based in valleys where Shia and Ismaili were predominantly situated, we were able to capture only a very limited scope of information from members of the Sunni community. A clear limitation that was apparent using the snowball sampling technique was the biases of farmers choosing our next interview partners. Oftentimes we were forwarded to extended family members, which usually entailed a similar socioeconomic and religious profile. Furthermore, interviews were directly translated through a translator and in some cases double translation was necessary.

Religious affiliation was not a determinant for our sampling strategy. However, it turned out to be an explanatory factor for this specific research; it is important to note that when the different sects are mentioned I am not trying to highlight one sect over another nor do I want

to speak for the sects as a whole. Religious affiliations will therefore only be mentioned if they were found as an important explanatory variable in a specific local context.

In order to gain a wider understanding of the status quo of the apricot sector as well as empowerment opportunities, 29 semi-structured expert interviews were conducted with:

1. One Local Support Organization (LSO) as well three Women Organization's (WOs): two different initiatives created by AKRSP to foster rural development through social mobilization),
2. Three representatives directly from AKRSP,
3. Two local processing units,
4. Six different farmer societies that have been established recently,
5. Seven experts and entrepreneurs,
6. Three people from the local agricultural department,
7. One person from the meteorological department (DoA),
8. One Credit Institution,
9. One representative from the Economic Transformation Initiative (ETI) that is funded by IFAD

6. RESULTS AND DISCUSSION

6.1 SOCIOECONOMICS

Findings from 2012 show that women represent about 48% of the total population of GB and make up approximately 49% of the total workforce. Nonetheless, the literacy rate for women remains low as does their representation in political and governmental institutions (Samee et al., 2018). Gender discrimination can be found at the core of all human development indicators, which are reflected in the limited access of women to basic social services, such as education and healthcare. Despite this, social cohesion and community-based management, as for example of resources, form a central building block of GBs society. This inter-dependence encourages community members to cooperate, foster development while having a higher incentive to maintain social harmony (2018).

A total of 161 Interviews in five different languages were conducted, with the majority in Balti (43%), followed by Shina (30%) and Burushaski (16%). The interviewees belonged by two

thirds to the Shia community, followed by Ismailis and only seven households (all in Baltistan) were Sunni. The average age of women interviewed was approximately 44 years old and for men 49 years. 89% of the sample group was married, 9% widowed and only one household indicated that they were single. The mean household size in the sample was measured at 9.45 members per household. Moreover, since access to education is a comparatively new phenomenon in GB, particularly for women, the illiterate rate was significantly higher for women than for men. 75% of all women interviewed had received no education compared to 23% of men, which is roughly 10 percentage points below the literacy ratio for women and men in GB as registered by the FAO (Samee et al., 2015). The average education level for women was found to be at 0.98 (1 = primary education) and at 2.08 for men (2 = secondary education).

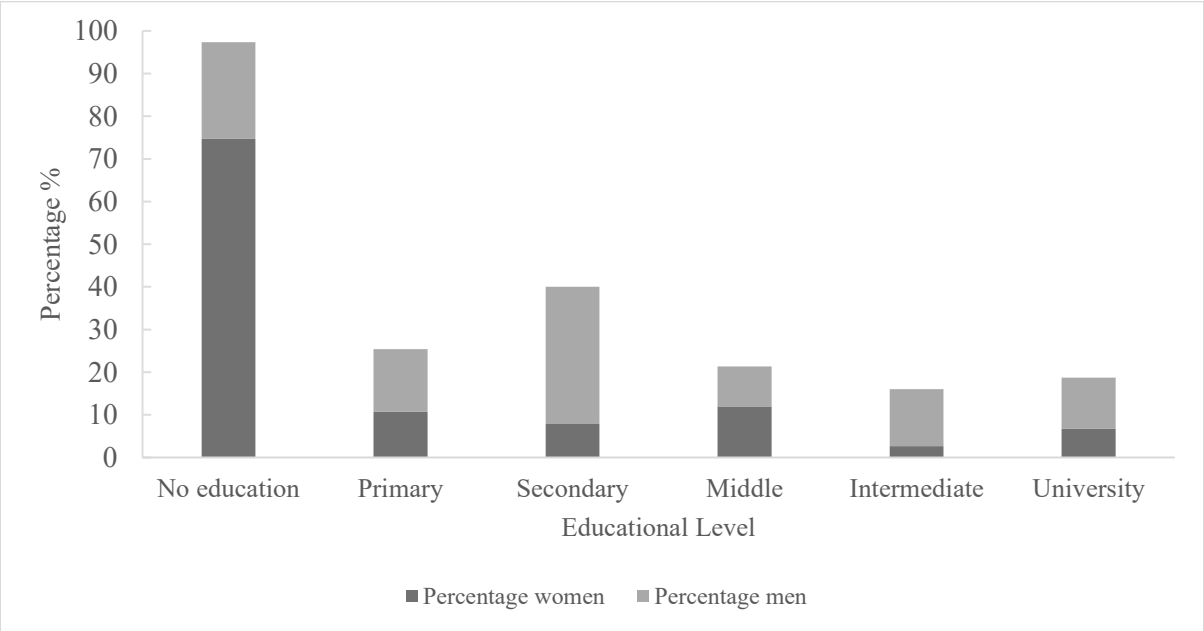

Figure 2: Comparison of education level between female and male respondents

Furthermore, the older the women were, the less likely it was that they had received prior formal education. Nonetheless, 50% of the women interviewed in the age group 25-34 had not received any education either. This suggests that despite the growing literacy rate in Pakistan, women in Pakistan cannot be perceived as a heterogenous group in terms of access to education and employment opportunities as the social system they are part of greatly determines their possible prospects (Jayaweera 1997; Khan 2007). Particularly, women from rural areas are much more limited in their scope, since dominant patriarchal paradigms confine them to a greater extent to the household sphere than it does in urban areas (Farah and Bacchus 1999).

Of all interviewees, five women and nine men had a University degree. However, only three women, all of whom held a university degree, indicated that they had another additional job outside of the house. All other women stated that their main occupation was *"Farmer & Housewife"*. These results are largely in accordance with the studies from down-country Pakistan. Here the national literacy rate of women (15-64) in rural areas lies at 35% and 3% of all rural women finished with a college degree. Moreover, 57% of all rural women with a college degree had formal employment, which is close to the 60% of university graduates in our sample (Rural Women in Pakistan 2018). Concerning the geographical distribution of education, women from Baltistan were on average more likely to be illiterate than women from the Gilgit region (Figure 3) Ishkoman valley (Gilgit) was found to have the highest percentage of educated women, where the average woman achieved a secondary school degree, followed by Bagrot valley (Gilgit) with an average slightly over primary education. All other valleys showed an education level that averaged to less than a primary degree (Figure 4). Education level was moreover relatively evenly distributed over the different levels of remoteness and no significant correlation was found between these two variables at a significance level of 0.05.

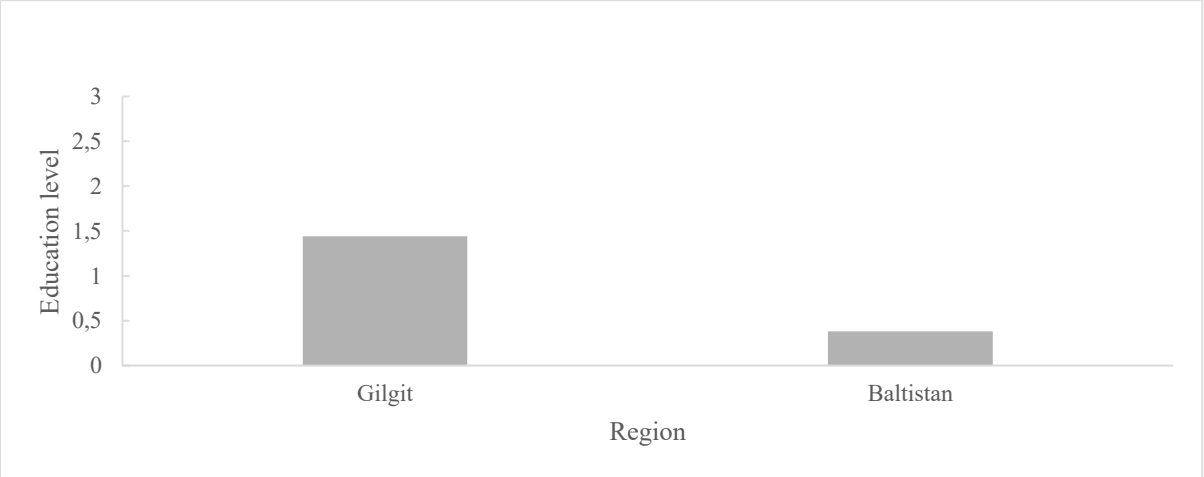

Figure 3: Average education level of women by region

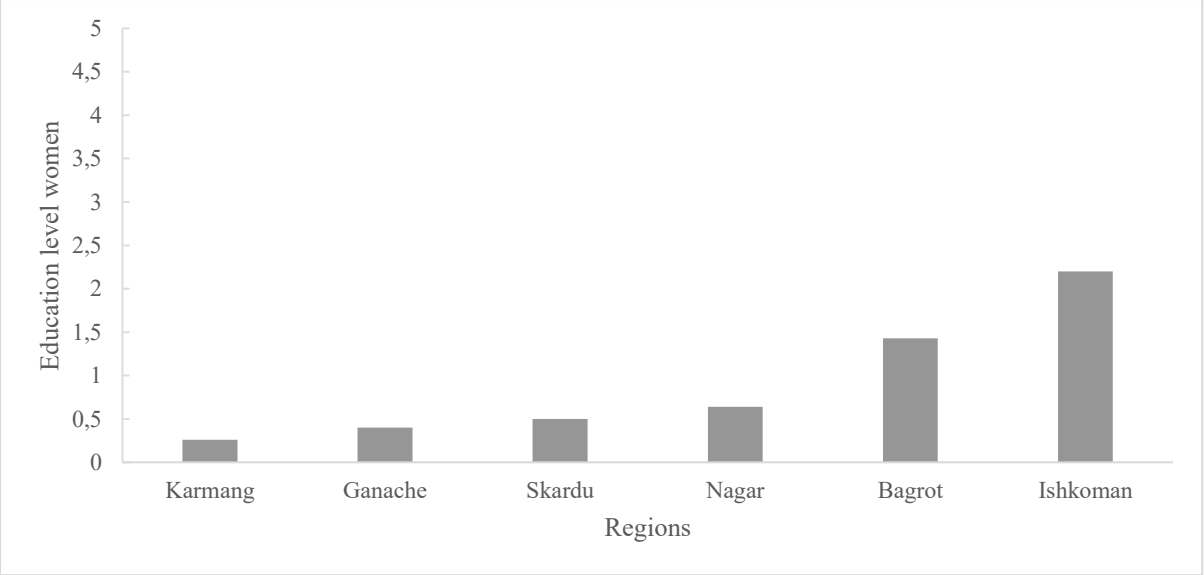

Figure 4: Average education level of women by valley

Among the different religious affiliations, Ismailis rated the highest among women and men concerning their educational background, followed by Shia and Sunni for both sexes (Figure 5). Indeed, women in the Ismaili sample had a higher education level than male Ismailis with 2.12 and 1.64 respectively, and Ismailis and Sunnis were more likely to live in towns closer to the market than Shias. All Ismailis interviewed lived in the region of Gilgit, the few Sunnis sampled all lived in Baltistan and the interviewed people from the Shia sect lived to a slightly higher extent in Baltistan than in Gilgit. Indeed, studies have found that the literacy rate in some Ismaili dominated villages lies at 100% (Murtaza 2012). This can be attributed to the considerable effort that their latest spiritual leader, the Aga Khan, has put into awareness and female education spreading programs in the region, especially in remote areas. These programs are open for everybody, regardless of religious affiliation. However, the adoption of education programs and training for women depend largely on the local context, including inter alia; local norms, prominent political and religious leaders as well as the presence of former royal families that still exhibit social power (local interviewee). The early recognition of the importance of female education gave some valleys, such as Ishkoman, a head start for future female empowerment. Some areas on the other hand, particularly in the southern area of Diamer district, still do not have any female schools (stand 2012) due to the prevalence of traditional gender norms (Murtaza 2012). The spreading initiatives of NGOs and other governmental institutions are persistently challenging the dominant status quo of female education even in the remotest areas (Murtaza 2012).

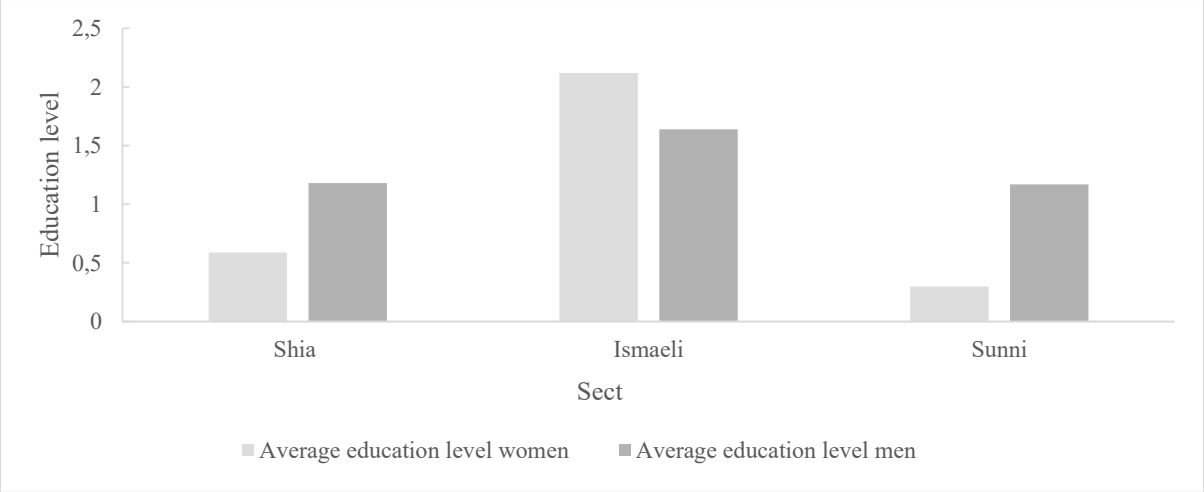

Figure 5: Distribution of average education level by sect and gender

Furthermore, the annual household income was on average 4014 US$ (1 US$ = 162.5 Pakistani Rupees, PKR) and 94% of the farmers indicated that they derive their income from two or three different sources. During the winter months (October-March), when their work is the least needed, many men move to urban areas in order to work on construction sites or in other labor-intensive jobs. This male off-farm income has helped to bring greater socioeconomic development opportunities to GBs households (Samee et al., 2018). Indeed, whereas a few decades ago villages in GB lived largely self-sustained, the connection to China and down-country Pakistan through the KKH considerably expanded off-farm income sources, mainly in regards to business opportunities, the tourism industry as well as the energy sector. The formerly largely agricultural-based economy was now supplemented with a new off-farm largely male dominated economy (Gioli et al., 2014; Shahzad et al., 2021). As a result, sources of income significantly diversified and income from off-farm labor rose from 43% in 1994 to 70% in 2020 (Shahzad et al., 2021). Up to now, the livelihood of local people in the area still heavily depends on their agricultural income as approximately 95% of the total population of GB is to some extent engaged in agriculture (Samee et al., 2018).

6.2 Ownership and inheritance rights

Concerning ownership of land 138 respondents stated that land is owned jointly by the family, actual legal ownership rights were held by 3 women. Moreover, a stark contrast was found in regard to ownership of cellphones, with only two men compared to 40 women reporting to not own a cellphone. Female ownership rights is a sensitive and controversial topic. Although Islam has a straightforward liberal and explicit stance to women's rights, including inheritance, the presence of deep-rooted patriarchal customary mindsets and practices has lead more often

to a conservative interpretation of its injunctions. Indeed, the Pakistani Constitution of 1973 includes in its definition of *'fundamental rights'*, among other things, the *'right to property and equality of citizens before the law'* and aligns this with laws of the Holy Qur'an and the Sunnah (Hashmi 2008). However, without the presence of an exclusive policy that protects women's right to inherit, discriminatory societal norms and customary practices easily evade the above stated rights. Indeed, a study by Hashmi (2008) that covered women's inheritance rights in Pakistan, including Gilgit, found that 36.58% of male and 27.17% of female respondents were of the opinion that women are generally underestimated and perceived as not able to manage their properties. In an additional group of respondents about 1/5 of the men and 1/7 of the women, felt that women should not have any property at all.

"We cannot ask for share in inheritance because it is brother's right. It is adequate that our parents allowed us to attend the school and later they had given us in marriage"

Female respondent (qtd. in Hashmi 2008, p.77)

The author notes that this type of customary mindset 'inculcated an inferiority complex in them' (qtd. in Hashmi 2008, p.77). Similar observations have been made during the interviews of this research; many of the women exhibited very low self-esteem when it came to their decision-making power. Many explained that they do not feel capable of making decisions because they never went to school and that men are therefore the better decision-makers. Lastly, Hashmi has found that for women in GB the main obstacle in receiving their right to inheritance is either due to customs or legal difficulties.

6.3 CREDIT

In order to receive a detailed understanding of the availability of credit sources and the experience with loans, the respondents were asked if they had access and/or taken a loan from: NGOs, formal lenders, informal lenders, group-based microfinance and informal credit/savings groups in the past 12 months. Twenty-nine percnet of the households indicated that they had taken a credit in that period and only two households said that they do not have any access to credit. Several indicated that they had taken a loan prior to the last 12 months. However, due to the Islamic concept of *"Riba"*, interest rates taken on loans are considered as unjust exploitive gains and are thus considered as haram (Siddieq Noorzoy 1982). Depending on the village, we observed varying degrees of adherence to this Shari'ah Law, particularly the attitudes of people towards bank and informal loans were affected by this. Nonetheless, for the

households that took a credit, banks were still the second most important source for loans, with 14 borrowers in total. Microfinance, depending on the interest rates, was perceived as the most viable option of all credit sources and was taken up by 20 households. In both cases, one third of the women stated that they took part in the decision-making process of taking up a loan. How the loan would be used however was a decision that predominantly lies with the male members of the household.

6.4 FEMALE LABOUR

Next to their household and care work, women are highly involved in a variety of different agricultural activities, especially in the preparation of manure, herding, collecting fodder, raising poultry and rearing livestock, weeding, harvesting and fruit processing. They furthermore do much of the food processing and preparation required to keep a household running throughout the year. This includes: fetching water, the processing of grain crops, vegetables as well as meat and milk products (Samee et al., 2018). Outside of agricultural, household and care work, women's formal employment in Pakistan remains extremely low (Field and Vyborny 2022).

The daily working hours of women including reproductive and productive labor in the sample was approximately 12 hours a day, of which six hours on average were dedicated to apricot-related work. It is important to consider that this information was collected during harvest season in which the workload was significantly higher, as well as in a year in which many valleys had a low or even nonexistent apricot harvest due to unfavorable weather conditions during the blooming season. Moreover, the vast majority of women interviewed explained that during harvest season, women (family and/or neighbors) usually come together in groups in order to work in turn on each other’s fields. This is particularly the case for apricots and wheat. Studies have shown that women are highly involved in apricot production with about 70% of female involvement in production related labor. Nonetheless, a study by AKRSP shows that in 98% of the cases, men were responsible for the production of apricots, apples, walnuts and potatoes, in comparison to only 2% of women. Even though women take over large parts of the different steps involved in farm-gate production, predominant cultural and local norms hinder women to take up the role of leading the entire production cycle at the farm level (Samee et al., 2018). This role has stayed historically reserved for men.

Moreover, agricultural work in the sample shows that the distribution of apricot work is gendered. Whereas women generally took up the tasks of harvesting apricots, processing and storing them, men were usually responsible for planting, grafting and pruning the trees. Tasks such as transportation of fruits from the fields to the homestead and the propagation of trees were found to have a more equal distribution among genders (Table 3). This is aligned with the findings of various AKRSP studies as presented in Samee et al (2018). Apricot processing is usually done by women through old traditional methods of opening the fruits by hand and then sun-drying them outside, often times on rocks or walls. Since, the majority of women do not have trays or drying stations to process the apricots, the resulting produce is of low, unhygienic quality. This in turn leads to low prices at the market and low incentives to upscale their production.

Due to their carrying role in apricot production, female respondents were asked if they value their work therein as important. About 93% responded that they perceive their work as imported to a *high extent*, only about 3% said that their work is important to only a *small extent* or *not at all*. The results furthermore show that the carrying role of women in apricots are also reflected in the sole and/or joined decision-making process of apricot production.

Table 3: Female respondents answer about decision-making in apricot production

Women: sole-decision maker	Joined decision-making	Others make decisions
32%	59%	9%

In order to further narrow down the decision-making power of women in the apricot sector, the respondents were asked to what extent they feel they can make decisions about apricot production if they wanted to. The results highlight the autonomy of decision-making of women in apricot production in the study area.

Table 4: Women's felt sense of decision-making power in apricot production

High extent	Medium extent	Small extent	Not at all
76%	14%	8%	7%

Considering that apricots are the main fruit grown in GB and a cash crop for the majority of farmers (Zahoor and Arocha 2014), women's decision-making power in the production cycle is quite significant. However, since apricots are very versatile in their usage, they are highly important for rural households who use them for cooking (oil), animal feed (grounded left-over from seeds), for heating and in their dried form as a nutritional source during the harsh winter months. This may explain the high decision-making power of women in that area as the traditional nature of gendered work usually assigns household sustaining tasks to women (Singh 2014). Nonetheless, none of the women responded that they had a high decision-making power over the income derived from food crop farming (primarily for home consumption), cash crop farming (primarily for sale) or from livestock raising. This aligns with findings of other studies, in which men in strongly patriarchal societies are the main carrier of income activities (Manzanera-Ruiz et al., 2016; Peralta 2012).

Furthermore, whereas for food crop production more than half of the farmers sampled did not sell their produce, about 30% of the women stated they had, to a *medium extent,* decision-making power over the income derived. For cash crop income the results were mixed.

Table 5: Women's felt sense of decision-making power over income derived from cash crop farming

High extent	Medium extent	Small extent	Not at all
0%	51%	12%	37%

The results for livestock raising showed that women had comparatively less decision-making power over income than in the other agricultural areas questioned beforehand.

Table 6: Women's felt sense of decision-making power over income derived from livestock farming

High extent	Medium extent	Small extent	Not at all
0%	40%	14%	46%

Indeed, neither female nor male respondents stated that they had a *high extent* of decision-making regarding livestock-related income. Female respondents, however, had overall less decision-making power in livestock compared to men. This discrepancy may be explained

through the carrying role that livestock income plays in most rural households. With an average of 35-40%, livestock takes up a large part of agricultural revenue (Samee et al., 2018) and falls therefore into a similar monetary and gendered category as cash crops do. Since these areas are highly income relevant they fall predominantly, together with marketing and sales, into the responsibility sphere of men (Manzanera-Ruiz et al., 2016; Peralta 2012).

Table 7: Gendered mode and frequency distribution of workload in apricot production in the study area, northern Pakistan.

Name of variable	**Variable description[1]**	**Mode**	**Percentage frequency distribution[2]**					
			1	**2**	**3**	**4**	**5**	**0**
Propagation	Growing apricots from seed	1	24.4	1.2	16.3	0	19.8	38.3
Planting	Planting of sapling	5	9.3	2.3	17.4	7	60.5	3.5
Watering	Watering of saplings and trees	5	15.1	8.1	26.7	5.8	41.9	2.4
Grafting		5	4.7	0	1.2	0	76.7	17.4
Pruning		5	2.3	0	1.2	0	87.2	9.3
Harvest tree	Harvesting from a tree by hand	5	8.1	0	11.6	0	26.7	53.6
Harvest ground	Collecting from ground	1	62.8	12.8	23.3	0	1.2	0
Transport	Transport from orchard to home	3	26.7	16.3	37.2	0	18.6	1.2
Processing	Drying of fruit	1	68.6	9.3	19.76	0	0	2.3
Storage	Storage of fresh and dried fruit	1	67.4	7	15.1	0	8.1	2.4
Marketing	Marketing and income possession	5	19.8	3.5	12.8	9.3	44.2	10.4

[1]Catergorical variable from 1 to 5: 1 female, 2 mostly female, 3 equal, 4 mostly male, 5 male; [2]Distribution for each gender category, zero indicate % of HH where this practice was not used; Source: Köster et al. (2024)

6.5 Desirability of Female Empowerment

In order to understand the perception women in GB hold about female empowerment they were asked what they thought would be the effect of empowered women on society. Empowerment was further explained as having economic and social power, such as having a job and/or decision-making power at the household and/or societal level. The vast majority of women in Gilgit (74%) and Baltistan (80.5%) found decision-making power for women important and thought it would have a positive effect on society, even though not everyone could imagine what that may look like. Particularly, at the household level many respondents agreed that women should be the main decision-makers, since men are oftentimes not at home and that an increased level of decision-making power would lead to greater success for the family in the future. The connection to the household can be seen as an important indicator, due to the ubiquitous lack of employment opportunities for women outside of that sphere. This problem was stressed by various respondents across villages. However, some respondents highlighted that there has been a continuous upward trend in the last decades, even though this trend has not been homogenous. Additionally, many considered it important that decisions should be made between a husband and wife together. This has been found to be the case in many of the interviewed couples, even though it would be common that men made the final decision after consulting with their spouses and/or family. Indeed, Meinzen-Dick (2019) have made very similar findings across various study areas. They further found that husbands regularly consulted their spouses for agricultural decisions and that even though they made the last decision they emphasized that women's overall influence should not be underestimated. This type of influence was seen among female respondents in Ganish (Gilgit); here all agreed that women were already the decision-makers at home. The remaining percentage of women who were not in favour of female decision-making usually argued that men were better at making decisions and/or that women cannot make decisions because of their illiteracy. A small percentage of respondents also felt uncomfortable answering the question.

6.6 Training and initiatives

Extension services have considerably improved over the past decades due to it being an increased focus point of the government, AKRSP and the FAO (Samee et al., 2018). Particularly, interventions aiming at providing improved seed and crop varieties as well as new technologies have been pushed. Nonetheless, agriculture largely remains at a subsistence level

for the majority of farmers as a lack of market access, and necessary processing and storage facilities, remain a large hindrance for successful value-added production (2018).

Altogether 12% of the women interviewed, recorded to have received some sort of training in the past, many of them in apricot processing. This is above the national standard of rural down-country Pakistan in which only 4% of women and men received some sort of skill training (Rural Women in Pakistan 2018). Slightly more than half the sampled Ismaili women received some type of training, followed by Shia (27%) and Sunni women (7%). Most recipients received training in Ishkoman valley, closely followed by Nagar. Karmang on the other hand, which is also the most remote valley visited, was the only area where none of the women interviewed had any training.

Furthermore, Jutting and Morrison (2009) argue for the differentiation in training needs for women compared to men as they are more likely to work as unpaid agricultural workers or as contributors in family businesses, next to their domestic work and care responsibilities. Provision of practical efficient skill training can therefore serve as a game changer for women if the educational services were not available. Indeed, our study found that the training provided in GB fulfilled these terms. The training women received in our sample included new apricot drying methods, new forms of vegetable farming, fruit processing, such as making jams and pickles, technical support and in sewing and/or stitching. Trainings were received by most recipients through IFAD, AKRSP, the Agricultural Department, JICA or USAID, while one woman also received training through Baltistan Culture & Development Foundation (BCDF). Regarding the existence of a farmer cooperative in the village, 42% of the female respondents answered with yes and of them 18% were already a member. Here, Ismaili women had the highest share of members among all women interviewed. However, since the farmer cooperative initiative of IFAD was only implemented in 2019, not all members have yet to receive their training at the time of the interviews. Furthermore, 58% of all women sampled would like to be a member of a farmer society in order to receive training, expand their skills and increase their revenue. Seven percent would like to be a member but do not have enough time and 17% are not interested to be a member either because of time constraints or because they consider themselves to be too old. Indeed, time poverty next to financial poverty is an issue that a large proportion of rural women in developing countries face. This phenomenon is often referred to as the *'triple burden'* carried by women, encompassing the fields of reproductive work (household work, child and elderly care, health, etc.), productive work

(income through subsistence work, the informal sector or formal work) as well as community managing work (Satyavathi et al., 2017). Due to strong patriarchal, gender discriminating currents in the past, traditional female work has been naturalized and still lacks the working status recognition that male labor has always carried. Banerjee (2018) who did an in-depth ethnological study about the naturalization of gendered female work in tea plantations in India, found that the discourse of 'women's natural work' is so deeply rooted that it is equally reciprocated by women. Such views continue to uphold and strengthen the idea that their work is a natural, less demanding 'chore' compared to the work conducted by men. This can be seen in this excerpt of two female tea plantation workers who are additionally doing household work in their landlord's home.

"I work in the kothī (house). It is the usual work of cooking, cleaning and washing dishes. Initially, cooking was difficult as I did not understand their Punjabi taste, but soon I learnt. After that what is there? This housework I have done for forty years since my marriage and never considered it 'work'. Of course, doing it in another's house is different.

What is there in this work? It is easy work […]. *Even in my own house I had to do all these house tasks and then go for work* […]. *As a woman, all of us can do it, I can do it, you can do it. It's not like the work in the garden or in the factory that you have to practice. So in that sense, it is not difficult and the pay is good, but I don't like it.* […]*But Supurna, however nice the family is to you in the kothī, finally you are their servant (naukrānī)."*

(qtd in Banerjee 2018, p. 170/171)

A similar concept has been found during a study in Burkina Faso, where women did not acknowledge that the time they spend on reproductive work for other household members was actual work and thus perceived that men had a heavier workload than women (Meinzen-Dick et al., 2019). Indeed, receiving formal education and/or trainings can bring about a considerable change in women's self-esteem and fosters an improved recognition of their own value (Le and Nguyen 2020). This can help to challenge discriminating customary practices and mindsets, and empowers women as well as their communities in the long run. Lastly, it has been several times mentioned by respondents that even though the women themselves did not receive direct training they benefited from the training other household members received, particularly to technical support.

6.6.1 Development organizations and initiatives

In order to dive deeper into third objective of this research (3) *What are current/future empowerment possibilities for women in the region?* The following paragraphs aims to give a detailed insight into the workings of the main development organizations and initiatives in GB as received by the sampled women. This will provide an understanding of the status quo of female empowerment work and possibilities of female economic transformation in the future.

6.6.2 Aga Khan Foundation and Aga Khan Rural Support Programme (AKRSP)

The Aga Khan Rural Support Programme was created in 1982 and aims to provide comprehensive human development programs in order to decrease poverty and gender inequality in GB by helping women increase their independence, while simultaneously educating the public through, *inter alia*, awareness training (Ali, Bano and Dziegielwski, 2016). The Aga Khan Development Network (AKDN) an overarching programme of AKRSP was also the first institution to introduce an all-girls school in GB. Even though AKRSP is a programme with Ismaili origins, it is open to people from all sects. Nevertheless, the more stringent inter-sectarian stance in particular among some communities, resulted in a lower uptake of extension service opportunities from people of different sects.

As part of their strategy to empower women AKRSP created so-called '*Women's Organizations (WOs)',* which build up on the three pillars of Unity, Savings, and Skill Development. AKRSP provides training directly to the WOs in various forms, such as capacity training and technical support. Moreover, saving schemes form an integral part of WOs, these encourage women to save part of their income as for example gained by selling their produce, into a fund to which they have access to whenever needed. Indeed, 31% of the women sampled are part of a women's group, which is usually connected to a saving scheme but is not necessarily directly affiliated to a AKRSP created WO. According to statistics from 2015, altogether 1,432 WOs that cover 41% of households with over 52,357 members and a communal saving of approximately half a million dollars (~ 108.44 million PKR), have been formed (Samee et al. 2015). Additionally, there are over 45 Local Support Organisations (LSOs) that directly represent and support half of the WOs and about 44 other female need-oriented groups. These types of platforms provide women a communal space to address and create solutions for the common issues that they are facing. Due to this type of widespread institutional development, a large-scale transformational process has occurred in GB in regards

to how women relate within the context of their households as well as in their communities and/or villages (Samee et al., 2015).

The WOs in Skardu and Hashupi in Baltistan reported that their saving groups were very successful and that they are able to provide not only loans without interest rates to their members but also to people in their community, regardless of their gender. The WOs in Skardu also reported that the training in apricot processing by AKRSP and the fruit drying facility they received significantly helped to empower the women in the group by increasing their income. As a result, a shift in the power dynamics at the household level has been witnessed. Nonetheless, starting the WOs was not without obstacles as they were not able to recruit enough members initially, due to the prevailing cultural norms that confined women to the household. However, this changed as the women and the community saw the positive outcome of the training and the support of AKRSP. The interviewees stated that a major problem was the waste of apricots that occurred, since the price incentive was too low and did not justify the hard work. In order to counter this, AKRSP provided training, technical support and access to a larger market. They were also the first ones to buy the improved products of the female farmers at a higher price. As a result, more women joined the WOs and as one of their members said: *'when the money came in, the male dominance decreased'.*

Local Support Organizations (LSOs) are another overarching component of the AKRSP-provided support in GB. During an interview with the manager of an LSO in Imit, Gilgit, the different focus points of women's development in the village were outlined. These include a vocational center that teaches sewing, handcraft, food processing (jams, pickles, etc.), jewelry through gemstone cutting and polishing (including a small store) as well as the provision of necessary machinery. Even though vocational centers to that dimension were rare in the study area, the National Skill Strategy (2009) recognized that this type of training only further strengthens gender stereotypes and has insufficient connections to the formal labor market (Rural Women in Pakistan 2018). It has been therefore recommended to combine traditional and non-traditional training with awareness programs for women, families and communities as well as more widespread social mobilization programs to increase their effectiveness. Female entrepreneurs also have the opportunity to get a ~250.00 US$ (50.000 PKR) grant if they want to develop their own business. As part of this scheme, women receive a 5- to 6- day training that teaches them how to develop their own business plan and after that the candidates with the most promising business plans are selected. No fixed number of grant recipients exists, instead

AKRSP provides funds depending on the number of people selected. Each year there are two chances to receive a training and thus a grant. This scheme is also available for men, but is separate from the selection process of women. Regarding obstacles to women development, the manager identified as major problems; the low level of education of women and that they do not receive permission from home to do business. In order to overcome this, they created awareness programs and are building upon the spreading educational landscape. The 50,000 PKR grant has also given an incentive for more women to join.

6.6.4 Economic transformation initiative

IFAD created the Economic Transformation Initiative (2015-2022) in GB. Their aim is to tackle rural development by increasing agricultural income, generate new employment opportunities, foster agricultural production, increase market access, develop infrastructure and by organizing smallholder farmers through farmer cooperatives (Economic Transformation Initiative – Gilgit Baltistan n.d.). ETI created 160 new farmer cooperatives in GB with a minimum of 250 members each with on average half of the members being female. In order to join the farmer cooperatives, farmers have to pay 30% and IFAD takes over the remaining 70% of the yearly membership fee which approximates to 6.8 US$. Moreover, depending on the project, farmers have to pay for a share of the equipment they receive, such as for vegeTable tunnels or apricot drying materials. Many of the cooperatives stated that their aim was to teach farmers to organize themselves, produce better products and link them more directly to the market by cutting out middle men who take a large share of the revenue. All of the farmer cooperatives also had apricot specific extension services. During which, they taught farmers modern drying and processing techniques, such as to open the apricots by knifes and to dry them on trays. Some farmers also received fruit drying facilities, which lead to more hygienic products and thus to higher prices.

The '*Women Agricultural Cooperative Society Hasanabad'* is the only solely-women society that has been created in 2020 through ETI in Gilgit. Initially, it was created without a gendered focus, however, since men did not show any interest, women took over. This is not uncommon; several interviewees have mentioned that even though their husbands are officially members of a cooperative, it is the women who are more involved in agricultural work and are thus the main beneficiaries of the farmer cooperatives. The interviewees said that due to the bad quality of the fruits it was necessary to change something. At the time of the interview they had already received technical support, and prior to IFAD, some training from Japan

International Cooperation Agency (JICA) and USAID. IFAD further taught them new marketing strategies and trained one member specifically in marketing. This person will be responsible for the marketing process once ETI runs out and the farmers continue the cooperative by themselves. The closeness of Hasanabad to a market town may explain the high amount of training possibilities for these women. Moreover, all farmers of the cooperative already sold their improved produce to the local market. In order to lose dependency on middle men, IFAD trained them in direct market access strategies and contacted wholesalers to fix a rate before the farmers sold in-bulk to them. The women also explained that all members are additionally part of WOs and that they save part of their revenue from sales in the form of saving schemes. During a group discussion at the cooperative, the question was raised how the training, the cooperative and the WOs have affected their lives. They said that before AKRSP and their equity training[1] men made decisions and now women have more decision-making power. Especially in agriculture the women are decision-makers, while in the family decisions are being made together. They furthermore agreed that all women in the cooperative are empowered and that they are now the first generation where women claimed their space as decision makers. The cooperative recently also received training about women's rights.

In regards to challenges, it was repeatedly mentioned that the improper infrastructure present in combination with scattered villages has made the mobilization of members a major obstacle for the creation of new farmer societies. Furthermore, a widespread trust deficit of farmers against organizations that ask for financial contribution is present. This is the result of decades of promises from varying organizations that appeared and disappeared without significantly improving the farmers' lives. However, due to the legal nature of the farmer organizations, IFAD is able to counter this stigma.

[1] Awareness training on gender equity is the first step of AKRSP as soon this idea is firmly established they will proceed to the notion of equality (a managing person of AKRSP explained)

6.6.4 Japan International Cooperation Agency (JICA) and the Department of Agriculture, GB

JICA launched a project in which they provided oil-pressing machines to all women cooperatives who have at least 25 members. As part of the project, three members, of a female based apricot-oil cooperative that was visited, were invited to Japan in 2015 in order to receive training in, among other things, apricot drying, pruning and fertilization. After that, they received an oil-pressing machine for a trial period of three years that they were allowed to keep later on because their business proved to be profitable. They explained that they sell their oil only locally and that for the production they use kernels from their own farms as well as additional kernels that are bought from other local farmers.

Moreover, JICA in cooperation with the Department of Agriculture in GB launched a project (2012-2017) with the aim of teaching farmers to produce high quality apple and apricot products in order to sell them at better prices at the market. The trainings given in Hunza and Nagar District were visited by approximately 60% female participants, and in Baltistan where less trainings took place, around 11% of the participants were female. Lastly, the Agricultural Department is very active in the region and has many female specific trainings, especially in kitchen gardening as taught through WOs.

6.6.5 USAID

USAID has an extensive network of developmental projects in GB, particularly in agriculture, hygiene innovation, and improved water systems (Globalwaters n.d.). One of the entrepreneurial female farmers in Hasanabad explained that she received a greenhouse and a dehydration unit through USAID and that she is now able to also produce flowers for sale. Flower-selling is a business that has gained importance in recent years particularly for the market in down-country Pakistan.

6.7 Results and discussion

6.7.1 A-WEAI

Due to the occurrence of a few incomplete questionnaires, not all interviews were fitted for the calculation of the 5 domains of empowerment (5DE) sub-index of the A-WEAI (Table 8). For women altogether 73 out of 85 interviews were used and for men 61 out of 76. The 5DE score for Gilgit-Baltistan, which are presented in Table 4, shows that 46.6% of all women used

in the sample can be categorized as *empowered*. Among the 53.4% of the women who are not empowered yet, we can find that they show on average inadequate achievements in about 28.2% of the domains. As a comparison, a study conducted by Malapit et al., (2015) in Bangladesh, a country with a similar cultural as well as socio-economic background, found that slightly more women were empowered (53.6%). However, the not yet empowered women in Bangladesh showed a higher inadequacy in their achievements in the five domains (37%) than the sampled women in GB did.

Table 8: 5DE analysis

Indicator	**Women**	**Men**
5DE	0.849	0.924
Disempowerment score	0.151	0.075
N (number of observations)	73 *(before 85)*	61 *(before76)*
% of women achieving empowerment	46.58	73.78
% of women not achieving empowerment	53.42	26.22
Mean 5DE score for not yet empowered women	0.718	0.712
Mean disempowerment score for not yet empowered women	0.282	0.287
GPI score	0.915	
N (number of dual-adult households)	152	
% of women achieving gender parity (1-H_{GPI})	0.559	
% of women not achieving gender parity (H_{GPI})	0.441	
Average empowerment gap (I_{GPI})	0.109	
A-WEAI score (0.9 x 5DE + 0.1 x GPI)	0.855	

Furthermore, the M0, which describes the women's disempowerment index can be calculated as follows: 53.4% x 28.2% = 0.150. Whereas, the 5DE for women in GB was found at 0.8493. Bangladeshi women had a slightly lower 5DE of 0.83. In order to have a direct comparison of the empowerment status of female and male primary decision-makers of the same household, the results obtained for the male sample are presented in the following. Among the male sample, 26.2% of men are not yet empowered and they show on average almost the same inadequacy score as women with a slightly higher 28.75%. Thus, the men's

disempowerment index (M0) is 0.075. The 5DE on the other side is 0.9245. The results of Bangladeshi men were almost identical, 27.2% of the sampled men were not yet empowered and they had a 5DE of 0.90, however, in the five domains they had overall a higher inadequacy that was identical with that of Bangladeshi women (37%).

The results of the GPI show that on average in 56% of all households (Table 4), women are at least as or more empowered than the male head of households. The remaining 44% of the households that have not achieved gender parity have an empowerment gap of 11% between primary female and male decision-makers. The overall GPI was thus to be found at 0.95. Comparatively, women in Bangladesh have achieved, with 63.7%, a slightly higher gender parity, which was only surpassed by the GPI of women in Uganda who exhibited almost 70% of gender parity with the primary male decision-makers in the household (Malapit et al., 2015). However, in both cases the empowerment gap was higher than in this case study with 20% and 25% respectively.

6.7.2 5DE – Decomposition according to indicator and dimension

The results of the 5DE calculation as demonstrated in Table (6), show that the domains contributing the most to female disempowerment in the sample areas in Gilgit-Baltistan are the lack of time, followed by a lack of control over resources and a lack of control over income (Figure 6). In comparison, men's main domains of disempowerment are lack of time, access to credit and group memberships (Figure 7).

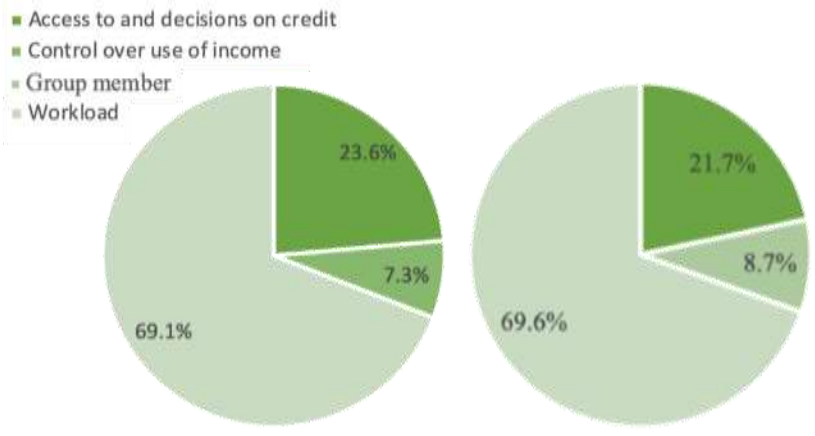

Figure 6a and b: Contribution of each domain to the disempowerment status of (a) women and (b) men

The domain concerning production decisions has no impact on the disempowerment status of women according to the sample area. This highlights the important role that women in GB

hold in the agricultural sector as well as their autonomy in many decisions along the production cycle. Regarding the headcount for each domain, the study found that about 52% of the women who are not yet empowered face a too high workload and 53.4% of women who are not yet empowered have a lack of access to - as well as difficulties making decisions on - credit. About 5.5% of women who are not yet empowered lack control over the use of income. These results highlight the strong occurrence of time poverty during harvest season that women face and the traditional distribution of income possession and larger financial decisions. Women in Bangladesh showed similar difficulties regarding workload and credit constraints, if however, to a lower extent (Malapit et al., 2015). Moreover, group membership, ownership of assets, as well as input in production decisions, showed no effect on the disempowerment status of women in GB. Indeed, most women were part of a religious group and oftentimes participated in charity, mutual help and/or saving groups. Particularly, merry-go-round saving schemes were popular in the region. These were done mostly within the larger family context. The findings on Bangladeshi women were strikingly different, here, group membership was with 48% the number one domain contributing to the disempowerment of women (2015).

Ownership of assets on the other side, was a topic that was not as easily distinguishable since ideas of ownership usually transcended *legality* and moved into the realms of *feelings* of ownership. Indeed, overarching qualitative research about the A-WEAI has revealed that ownership is understood in a myriad of ways across cultures and localities, and that researchers have to be cautious when analyzing ownership data (Meinzen-Dick et al., 2019). During this research, respondents usually stated that the majority of the things owned by a family are *jointly owned*, including land and houses, and they largely found it strange to be asked who the 'real legal' owner is. In several cases, men are declared to be the sole owner of the property, which in accordance with the legal system of Pakistan is the standard. Women on the other side, except for very few cases, predominantly declared that specifically larger properties, such as houses and land were *jointly owned* by the family. After specifically asking for the legal rights, most respondents, female and male, highlighted that even though the rights were with the male members of the household, the property was perceived to be *jointly owned* by the whole family. The only exceptions to this were usually made for cell phones, in which ownership was more clearly defined and, in a few cases, specific dowry gifts of women. That lack of time has been the number one factor contributing to disempowerment of both men and women, can be at least partly attributed to the timing of the interviews, which took place during the work heavy harvest season.

6.7.3 Logit Regression Model

The results of the logit, show that the variable 'Ismaili' was the only significant variable at a p-value of 0.05. The odds ratio of 17.65 indicates that women who are Ismaili are 17.65 more likely to be empowered than women who are not (Statistics Solutions, 2022).

Table 9: Decomposition of 5DE according to domain and indicator

Statistics	**Production**	**Resources**		**Income**	**Leadership**	**Time**
	Input in productive decisions	**Ownership of assets**	**Access to and decisions on credit**	**Control over use of income**	**Group member**	**Workload**
Indicator weight	0.20	0.13	0.07	0.20	0.20	0.20
Women						
Censored headcount	0	0	0.53	0.054	0	0.52
% Contribution	0	0	23.6	7.3	0	69.1
Contribution	0	0	0.04	0.01	0	0.1
% Contribution by dimension	0	23.6		7.3	0	69.1
Men						
Censored headcount	0	0	0.24	0	0.03	0.26
% Contribution	0	0	21.7	0	8.7	69.6
Contribution	0	0	0.02	0	0	0.05
% Contribution by dimension	0	21.7		0	8.7	69.6

The more pronounced female empowerment among Ismaili women may be explained through the lower forms of gender segregation (*pardah*) that allows Ismaili women certain amounts of 'freedom' (Sökefeld, 2014), in combination with decade long advocating for female empowerment through a multitude of different channels, by their spiritual leader the Aga Khan. Due to multicollinearity, which increases the variance of the parameter estimates (Midi, Sakar and Rana, 2010), the variables 'Shia' and 'Sunni' were removed from the logit model. The variable 'Ismaili' was chosen as it was most likely to influence female empowerment in a positive way. Moreover, the variable age with the category 55-64 years was significant at a p-value of 0.1. 89% of all women were found to be empowered, followed by 80% of women between 65-75. The age specific results have to be carefully interpreted, since the female respondents usually lied and/or were unaware of their birthdate, due to this, estimates had to be made in some cases. Nonetheless, it can be assumed that older women tend to be more empowered in comparison to younger ones, due to the traditional custom that elders hold more

authority. In study sites in Nepal and in Mali, similar findings have been made (Meinzen-Dick et al., 2019). In both cases women's empowerment was strongly related to their age, with women younger in age being less empowered than women further along in their life cycle, who gained their status through a life time of experience and heavy work. Lastly, due to high multicollinearity the variable including the different valleys was also removed from the model. None of the other variables was found significant.

Table 10: Results logit regression model

	(1)	**(2)**	**(3)**	**(4)**
VARIABLES	**Logit coefficients**	**SE**	***p*-Value**	**Odds ratio**
Female Empowerment Score				
0. Ismaili No	1 (base)			
1. Ismaili Yes	2.871	1.290	0.0260**	17.65**
				(22.77)
0. No Education	1 (base)			
1. Primary	0.540	1.333	0.686	1.715
				(2.287)
2. Secondary	-2.414	1.681	0.151	0.0895
				(0.150)
3. Intermediate	0.839	1.439	0.560	2.313
				(3.330)
4. High School	-2.272	2.197	0.301	0.103
				(0.227)
5. University	0.807	1.864	0.665	2.242
0.Training No	1 (base)			
1.Training Yes	-0.699	0.890	0.433	0.497
				(0.443)
Total HH Income	-7.83e-07	6.91e-07	0.258	1.000
				(6.91e-07)
1. Baltistan	1 (base)			
2. Gilgit	1.288	0.800	0.107	3.627
				(2.903)
1. Remote (close)	1 (base)			
2.Remote (medium)	-0.946	0.967	0.328	0.388
				(0.375)
3.Remote (far)	-0.127	0.808	0.876	0.881
				(0.712)
1.Age (20-24)	1 (base)			
2.Age (25-34)	1.646	2.249	0.464	5.187
				(11.67)
3. Age (35-44)	1.528	2.171	0.482	4.610

				(10.01)
4. Age (45-54)	1.053	2.219	0.635	2.866
				(6.360)
5. Age (55-64)	4.707	2.527	0.0625*	110.7*
				(279.6)
6. Age (65-75)	4.748	2.912	0.103	115.4
				(335.9)
Constant	-2.219	2.358	0.347	0.109
				(0.256)
Observations	73			73

*** p<0.01, ** p<0.05, * p<0.1

Moreover, the level of education, which is oftentimes seen as a key indicator for empowerment, has not been found to be significant. This is, however, little surprising since access to education for girls has only been a phenomenon of the past few decades and most heads of households belonged to the older generation and were therefore illiterate. The findings do show that only 60% of the women holding a university degree were, according to the A-WEAI findings, empowered. However, since only 5 women interviewed had a university degree the sample is too small to point towards a trend.

In regards to the empowerment distribution in valleys as found in the descriptive statistics Table (7) below, there were two that stood out. For one, Ishkoman in Gilgit where about 79% of all respondents were empowered and Ganache in Baltistan where none of the women were empowered. Ishkoman had the highest occurrence of Ismaili sampled women, which points towards their already-discussed pronounced empowerment, whereas Ganache is after Karmang the valley with the highest altitude, with the villages being located in between 2457m to 2916m. Both valleys also had the lowest educational ranking across the sample. However, since neither remoteness nor education were found as significant factors contributing to the empowerment of women. This finding points towards unobserved variables, as for example local customs and traditions, which may contribute to the empowerment status of women.

Table 11: Descriptive statistics of female empowerment distribution across indicators

FEMALE EMPOWERMENT SCORE	REGION*		TOTAL
	Baltistan	**Gilgit**	
0 *NOT EMPOWERED*	22 70.97	17 40.48	39
1 *EMPOWERED*	9 29.03	25 59.52	34

	VALLEY			
	Ishkoman (Gilgit)	**Nagar** (Gilgit)	**Bagrot** (Gilgit)	
0	3 21.43	7 50.00	7 50.00	17
1	11 78.57	7 50.00	7 50.00	25
	Skardu (Baltistan)	**Ganache** (Baltistan)	**Karmang** (Baltistan)	
0	6 60.00	8 100.00	8 61.54	22
1	4 40.00	0 0.00	5 38.46	9

	REMOTENESS			
	1 *close*	**2** *medium*	**3** *far*	
0	13 52.00	12 54.55	14 53.85	39
1	12 48.00	10 45.45	12 46.15	34

	AGE			
	20 - 24	**25-34**	**35-44**	
0	1 50.00	8 66.67	12 60.00	21

1	1 50.00	4 33.33	8 40.00	13
	45-54	**55-64**	**65-75**	
0	16 64.00	1 11.11	1 20.00	18
1	9 36.00	8 88.89	4 80.00	21

	EDUCATION LEVEL			
	0 *No education*	**1** *Primary*	**2** *Secondary*	
0	27 57.45	3 50.00	3 60.00	33
1	20 42.55	3 50.00	2 40.00	25
	3 *Intermediate*	**4** *High School*	**5** *University*	
0	3 37.50	1 50.00	2 40.00	6
1	5 62.50	1 50.00	3 60.00	9

	SHIA (NO)	SHIA (YES)	
0	8 34.78	31 62.00	39
1	15 65.22	19 38.00	34

	ISMAILI (NO)	ISMAILI (YES)	
0	36 65.45	3 16.67	39
1	19 34.55	15 83.33	34

	SUNNI (NO)	SUNNI (YES)

0	34 50.00	5 100.00	39
1	34 50.00	0 0.00	34

	TRAINING (NO)	TRAINING (YES)	
0	27 55.10	12 50.00	39
1	22 44.90	12 50.00	34

7. CONCLUSIONS

Concluding this research, it can be said that GB is a very unique area that has witnessed high levels of human development in the last decades due to the dedication of developmental organizations on-site. Particularly, women sampled in Ismaili dominant areas were found to be the main recipients. The high scores of Ismaeli women across all domains highlights the success of female empowerment focused attention over the decades.

The results of the A-WEAI have shown that 46.6% of all women in the sample were empowered compared to 73.7% of the men. The decomposition of the scores from the 5DE shows that for both women and men; a lack of time, followed by a low level of control over resources were the main contributors to their disempowerment status. Particularly, for women a too high work burden and the resulting lack of time, little decision-making power over resources and low control over use of income, in addition to a high participation in community-based services, are common features among women in strongly traditional, patriarchal rural societies. However, ownership of assets as well as women's input in productive decisions shows the high involvement and agency that women in GB have in agriculture, particularly in apricot production. Nonetheless, income decision about food crops were predominantly a male domain. Moreover, ownership of assets is a very complex topic, in which even though legal rights towards larger assets, such as houses and land rights, belong traditionally to men, the perceived and felt ownership was predominantly described across the majority of participants as *jointly owned.*

GB is currently standing at a major crossroad of a rapidly changing social and environmental landscape. The high rural exodus has shifted a lot of the agricultural work burden onto women who are struggling to make do with their rising duties as unpaid family workers (Batool, 2019). In the apricot sector, old processing methods of sun drying apricots without proper processing equipment, leads to unhygienic products, which are sold to a minimum price. The low-price incentives in combination with a decreased work force results increasingly in spoiled, unused fruits as well as unmaintained irrigation systems. Additionally, climate change is posing a severe threat to the region and its unique biodiversity (Ullah et al., 2014).

During our research we have found GB to be a region that is full of untapped potential, especially within the apricot sector. Fortunately, developmental organizations have realized the same and have been investing into the development of apricot related extension services across northern Pakistan. Particularly, the in-2019 newly established farmer's societies bring major development opportunities to rural farmers. Indeed, educating and training farmers with improved drying, processing and storing techniques in combination with marketing skills and better price incentives can bring about a major transformational process in GBs society. A transformation that is decisive in order to bring along those parts of society that would otherwise be left behind in the ever changing and expanding non-agrarian Pakistani landscape.

Nonetheless, inadequate and at times non-existent infrastructure remains not only a persistent hurdle in allowing people across different landscapes to have access to economic development opportunities (Hussain, 2019), but also in bringing about the necessary social changes that are particularly important for uplifting women in rural settings. This research was able to capture a fragment of the female empowerment status of women and their opportunities for sustainable economic and social growth as given through developmental organizations on-site. However, the scope and particularly the sample size are too limited to infer a wider resemblance of female empowerment of women across differing socio-economic and cultural scales within the study area. They provide nonetheless a good indicator of the limiting factors to empowerment and particularly a good representation of present developmental organizations. What is necessary for the future is to examine how, particularly, farmer societies are developing and how these can be used to further promote rural economic development of farmers. Moreover, the future will show in which way the construction of CPEC will affect the socioeconomic integration of GB into the national and international market economy and what

obstacles have to be tackled to not further disintegrate remote rural households from national developments.

To sum up, the female empowerment of women in the study region varied significantly across socio-economic, cultural and religious affiliations. Whereas female empowerment focused work has in particular positively affected women from the Ismailiyah community, women from other backgrounds showed in the investigated areas a much lower empowerment status. Nonetheless, the focused attention on extension services and female education of AKDN has served as a role model for communities across the northern region. It is now decisive to continuously invest, assess and re-develop the existence of effective female empowerment tools. In order to bring about a wide-ranging, inclusive development for women across all of Gilgit-Baltistan instead of losing large parts of rural societies along the path of change.

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