



Universiteit Utrecht

Faculty of Geosciences

Male migration and the feminisation of agriculture in Nepal: boon or bane?

*Exploring the relation between changing social dynamics and
agricultural practices from a gender perspective*



Research thesis

M.Sc. Sustainable Development

Utrecht, August 2019

August 7, 2019

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Cover photograph: A woman works in the fields in Argali village. Palpa, Nepal (author's own)

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Acknowledgements

Writing this M.Sc. thesis has been a challenging yet immensely rewarding experience throughout which many people have been invaluable. The first words of gratitude must go to the numerous Nepali women and men who kindly took time from their daily activities to help out with my field work, making this all possible. Special thanks to community gatekeepers and interview respondents in Argali, Chherlung, Lalyang and Dimeekt for sharing their time and personal experiences with me (and for endless cups of sweet *chiya*). Moreover, none of the interviews or conversations would have been possible without the help of my wonderful interpreter, Shreya Shrestha, who also provided valuable insight into Nepali culture. *Dhanyabad, bahini!*

Thank you to Dr. Prachanda Pradhan and the Farmer Managed Irrigation Systems Trust (FMIST) for the guidance during the planning phase of data collection and the instrumental logistics support offered throughout the field work.

Back in the Netherlands I would like to express my utmost gratitude to my supervisor, Dr. Janwillem Liebrand, for his support through the whole process, his vast knowledge on feminist theory, irrigation systems and Nepal, and for being refreshingly human within the frequently-rigid world of academia. It has been an absolute pleasure having you as a supervisor. Many thanks also to my second reader, Dr. Femke van Noorloos, for her valued feedback on my research proposal, which helped improve the outcome of my work.

Finally, a massive thank you to my family (including the Drift room 0.92 family!) for the unwavering support in this two-year Masters journey. Special thanks to Fran for her endless words of encouragement and the constant reminder to enjoy the ride.

Dhanyabad and Namasté!

Summary

Male labour migration is a socially-embedded phenomenon in Nepal, having diverse consequences for rural farming villages. Migration trends have resulted in changing social dynamics and increasing numbers of *de facto* female-headed households. The resulting phenomenon has come to be referred to as the *feminisation of agriculture* and has sparked debate among development professionals regarding associated impacts. Some argue women enjoy improved livelihoods and opportunities for empowerment, while others criticise the increased workload as women must now carry productive and reproductive burdens in the absence of men. From a gender perspective, impacts in rural Nepal as a result of male migration have yet to be comprehensively assessed. The objective of this research was to investigate the underlying gender dynamics between male migration and changing agricultural and irrigation practices in rural Nepal, and the implications of the so-called feminisation of agriculture on women's livelihoods.

Within agricultural practices, farmer-managed irrigation systems play a large role, and their management – particularly through Water Users associations (WUA) – have always been a male-dominated area. Villages within well-established irrigation systems were thus selected for the field work, as they provide good settings to look at changing participation and roles of women at both household and community level. The qualitative research entailed conducting in-depth interviews with *de facto* female heads of households with access to irrigated land, as well as a number WUA committee members.

The results showed migration is indeed still increasing and has become a normalised livelihood strategy for rural households in the hills of Nepal. Although changes to agriculture and irrigation practices are not yet significant, current trends point to bigger structural changes in the future. The resultant lack of male labour has indeed increased women's workload and responsibilities within agriculture and irrigation management at the household level. Although there is a degree of increased female authority and decision-making, the findings suggest this is circumstantial and ultimately limited by historical gender norms and cultural beliefs. This is further evidenced by current participation of women in WUA committees which is merely tokenistic, with the purpose of complying with existing regulations. Feminisation of agriculture is currently not resulting in a sustained increase in agency of women. Longitudinal studies are called for to evaluate all factors impacting women's capabilities in the face of migration if gender interventions and policies are to be successful.

Key words: Gender, labour migration, livelihoods, feminisation, FMIS, Nepal

Table of contents

Chapter 1 : Introduction	4
1.1 Problem definition and knowledge gap	7
Chapter 2 : Theory and conceptual framework.....	9
2.1 Theoretical framework.....	9
Feminist political ecology.....	9
Livelihood approach and livelihood strategies	10
Access theory, capabilities and agency.....	11
Farmer-managed irrigation systems (FMIS).....	12
2.2 Regional framework.....	14
Geographical context.....	14
Nepali social dynamics: caste, ethnicity, gender.....	16
2.3 Conceptual framework.....	19
Chapter 3 : Technical research design and methodology	20
3.1 Research objective and research questions.....	20
3.2 Methodology.....	21
Variables.....	21
3.3 Study areas.....	22
3.4 Data collection and selection of respondents	23
3.5 Data processing and analysis.....	29
3.6 Limitations and ethical considerations	30
Limitations.....	30
Ethical considerations	31
Chapter 4 : Research sites.....	33
4.1 Raj Kulo irrigation system – Argali village.....	33
History and characteristics of the irrigation system	34
Farming and irrigation practices.....	36
4.2 Thulo Kulo irrigation system – Chherlung village	39
History and characteristics of the irrigation system.....	40
Farming and irrigation practices.....	42

4.3 Andhi Kola irrigation system – Lalyang and Dimeekt villages.....	43
History and characteristics of the irrigation system	45
Farming and irrigation practices	46
Chapter 5 : Male migration practices and dynamics.....	48
5.1 Current migration practices	48
Destination, frequency, age.....	48
Motivation for migration.....	51
Migration, caste and gender	51
5.2 Changes in migration practices over time	53
5.3 Migration: women’s perceptions.....	54
5.4 Migration, agriculture and irrigation.....	55
Chapter 6 : Women’s livelihoods, participation and agency.....	58
6.1 Livelihoods	58
6.2 Processes of decision-making	60
6.3 Workload, social capital and agency.....	61
6.4 Female participation in irrigation and WUA committees.....	67
Participation in irrigation at the household level	67
Participation in WUA executive committees	70
Chapter 7 : Discussion	74
7.1 Migration: a normalised livelihood strategy	74
7.2 The complexities of ‘feminisation’	77
7.3 Relevance of the study	81
7.4 Recommendations for further research.....	82
Chapter 8 : Conclusion.....	84
Reference List.....	87
APPENDIX 1: Interview guide – Households (<i>de facto</i> female-headed).....	93
APPENDIX 2: Interview guide – WUA committee members.....	98
APPENDIX 3: Full list of interviewees	100
APPENDIX 4: 8 th International FMIST Seminar. Kathmandu, May 6 – 7, 2019.....	102

List of Tables

Table 1. Population-wise ranking of Nepali castes/ethnic groups (2011)	17
Table 2. Main variables investigated in the research project	22
Table 3. Summary of interviews conducted per research site	26
Table 4. Classification of households interviewed according to land ownership (in ropani).....	29
Table 5. Average size of land owned according to respondents by caste	29

List of Figures

Figure 1. Ecological regions of Nepal (CBS, 2013).....	15
Figure 2. Average monthly temperature and rainfall, Nepal, 1901-2015 (World Bank, 2015)..	16
Figure 3. Crop calendar for major food crops in Nepal, by region (Maharjan & Joshi, 2013).....	16
Figure 4. The Muluki Ain caste/ethnicity hierarchy from 1854 (World Bank & DFID, 2006).....	18
Figure 5. Conceptual framework of the research project.....	19
Figure 6. District Map of Nepal indicating the location of Palpa and Syangja Districts. The red dots indicate the location of the three study sites	23
Figure 7. Proportion of interviewees of different castes in the three research sites (de facto female household heads).....	27
Figure 8. Caste composition of interview respondents in Argali (left) compared to Argali VDC caste composition data (right)	27
Figure 9. Caste composition of interview respondents in Chherlung (left) compared to Boudhagumba VDC caste composition data (right).....	28
Figure 10. Caste composition of interview respondents in Lalyang and Dimeekt (left) compared to Tulsibhanjyang VDC caste composition data (right).....	28
Figure 11. Map showing the location of Argali.....	33
Figure 12. Map showing the location of Chherlung village.....	39
Figure 13. Map of the study area around the Andhi Khola irrigation system.....	44
Figure 14. Proportion of migrants per destination country in the three research sites.....	48
Figure 15. Length of time (years) respondents' husbands had been living abroad.....	49

Chapter 1: Introduction

The world is an increasingly dynamic system as a result of a myriad of interrelated socio-economic, political and environmental factors. Economic globalisation has resulted in structural adjustments with particularly stern impacts in the rural agricultural sector of the developing world (Leichenko & O'Brien, 2002; Tamang et al., 2014; Resurrección et al., 2019). Furthermore, climate change is expected to affect water availability and biodiversity, as well as food security. Although there is generally insufficient data to accurately assess the pressure constituted by changing climatic patterns, it is expected that it will considerably impact rural lives and livelihoods (Singh et al., 2011).

The Hindu Kush-Himalayas (HKH), providing livelihoods to around 210 million people, is receiving a lot of attention as a particularly sensitive region to rapid land use changes and population dynamics in combination with climate change (Singh et al., 2011; Gartaula et al., 2012a; Sunam & McCarthy, 2016; Resurrección et al., 2019). The HKH spans over 4 million km² covering eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. Among the phenomena related to the dynamic processes of global change, migration is particularly noteworthy. South Asia is said to be experiencing an unprecedented rate of population mobility, with the HKH region alone accounting for approximately 15% of the world's migration (Singh et al., 2011). Labour migration represents a big part of global mobility, with figures reporting a total of over 150 million migrant workers (ILO, 2015). It is important to point out that whereas globally there are more male than female migrants (55.7% vs. 44.3%) (ILO, 2015), the gender difference is considerably greater in South Asia: when looking at labour immigration into India from neighbouring HKH countries females only account for under 15% of migrant workers (IWMI, n.d.).

Nepal is one of the HKH countries that has increasingly become a labour exporting country, with the vast majority of migrants originating from hill and mountain villages (Gartaula et al., 2012b; Seddon et al., 2002). With around 90% of the migrant Nepali population being male, it is estimated that over 3 million Nepali men are working in foreign countries (CBS, 2004; Adhikari & Hobley, 2015). Although historically most of the Nepali migration has targeted India, from the 1990s onwards a new form of contract migration s began after the country adopted liberal economic policies. The reasons for the increase in foreign labour migration in Nepal cannot be explained from a single perspective. Studies in the past have focused mostly on linear “push and pull” factors of migration; however, researchers have recently acknowledged the dynamic nature of migration. They attempt to explain it from a

livelihoods approach and incorporating social, cultural, political and economic dimensions (Gartaula et al., 2012b; Adhikari & Hobley, 2015; Resurrección et al., 2019). This perspective considers the importance of assets and capabilities in combination with institutional factors, ultimately determining the strategies undertaken by households for their livelihoods. Aside from globalisation-fuelled aspirations of consumerism, and political and environmental pressures that result in unreliable rural outcomes, migration is also a socially-embedded phenomenon in Nepal (Gartaula et al., 2012a; Tamang et al., 2014; Resurrección et al., 2019). Nepali men of varying socio-economic and cultural groups have historically been under social pressure to migrate for work. Furthermore, as Sharma (2008) reports, migration is regarded by many as an objective or accomplishment in itself, and has been largely considered a symbol of transition from boyhood into manhood (*bhāgne*).

There are diverse consequences to the male migration trend in Nepal. Several studies have focused on the impact of migration on the country's economy through remittances, which is a major source of national income (Thieme & Wyss, 2005; Seddon et al., 2012; Sapkota, 2013). In 2018, for example, remittances contributed \$8.2 billion to Nepal, representing 30.2% of the country's GDP (World Bank, 2018). Remittances have also contributed significantly to poverty reduction rates in Nepal; available data indicate a reduction from 42% in 1995-96 to 25% in 2010-11 (CBS, 2012).

The macro-economic contributions resulting from migration, however, do not necessarily translate into all-positive impacts on those who remain in the rural villages, a group largely represented by women. Due mostly to male migration, the number of female-headed households¹ in Nepal has been constantly increasing, representing over 30% in 2016 compared to under 15% in 2001 (CBS, 2011; World Bank, 2016). These changes in demographic patterns and social dynamics in rural areas have come to be referred by some scholars to as the *feminisation of agriculture* (as well as and non-agricultural activities), a phenomenon that has sparked debate among development professionals regarding the associated positive and negative impacts. Even though some studies report a decrease in women's workload² and improved livelihoods a direct result of remittances, other studies report consequences such as having long periods without remittances while migrants

¹ This figure of female-headed households includes those as a result of being widowed or divorced (World Bank, 2016). In the case of the research, the term is used as a way to refer to households in which the default male head has temporarily or permanently emigrated.

² Workload can refer to particular tasks such as in agriculture as well as other household activities and responsibilities, which all make up hours of labour. Workload does not necessarily translate into burden, however.

struggle to find work or save up enough money to send back home. Moreover, there is usually a need to pay outstanding debts associated to migration, which can result in the women who remain in the villages to increase their amount of work through this period (Gartaula et al., 2012b; Adhikari & Wobley, 2015). There are several other studies focusing on the impacts on rural Nepali women that show that male migration has negatively affected their workload as they have to take on agricultural and irrigation activities that were previously carried out by men in addition to their usual work activities, including household duties (Lokshin & Glinska, 2009; Maharjan et al., 2012; Adhikari & Wobley, 2015). Additionally, Tamang et al. (2014), studying the life stories of “left-behind” women in households of the Terai region, propose that the feminisation of agriculture can actually be a cause of social exclusion and injustice due to the existing structural gender relations. They mention women sacrifice education or skill development opportunities and have the compounded burden of productive and reproductive work.

As with the impact on women’s workload, there is an ongoing debate regarding how male migration has an effect on the socio-economic and political empowerment of women, stemming from the argument that they now hold a larger participation in certain tasks and decision-making scenarios previously dominated by men, such as in irrigation system management. Even if this might be initially perceived as a move toward gender equality or empowerment, Adhikari & Hobley’s (2015) study on women in rural Nepali districts sheds a light on the complexity associated to this. It is important to mention that in many of these studies women are presented as “victims” who are being “left-behind” in these migration practices. Although this may be true in some cases, such a view can result on a somewhat one-dimensional view on dynamics of male migration and how it might affect agricultural productivity and the position of women.

There are many interrelated processes that need to be considered in order to adequately assess the changing social position of women, especially in the context of Nepal. One of the main setbacks is that most studies have largely failed to recognise that gender inequality cannot be assessed based on a single homogenous class or concept of “mountain women” (Resurrección et al., 2019). As proposed by Verma (2014), gender equality has often been reduced to women and to developing tools, bureaucratic targets and organisational exigencies. However, there are deeply-rooted relations of power and knowledge that disadvantage differently positioned women in rural or mountain contexts. Caste, class and age can all intersect with gender in different rural contexts, producing differential access to resources and different experiences in the face of the feminisation of agriculture (Resurrección et al., 2019). Effective assessment of the impacts of feminisation on rural

women's empowerment, agency and livelihoods therefore requires contextualised data and case studies that illustrate the dynamics behind gender and social exclusion.

1.1 Problem definition and knowledge gap

The dynamic relation between migration trends and rural livelihoods remains poorly understood. Firstly, it is unclear to what extent migration rates are still increasing in particular rural areas, whether the type of migration has changed, and if it is as widespread as before. Particularly from a gender perspective, impacts in rural Nepal as a result of male migration have yet to be thoroughly assessed, given that most studies have failed to address the intersectionality of gender with factors such as class, caste or age, which determine the historical structural power relations in place. Moreover, as mentioned previously, most studies tend to conceptualise women as victims, which is not helpful in developing an understanding of how women and men deal with the changing social context at hand. Regarding the women who stay in the villages and the idea of feminisation of agriculture, many studies have focused on tangible consequences, such as changes in numbers of women involved in activities previously carried out by men, as is the case of irrigation system management. However, there is still not a full understanding of the changes in other aspects of women's lives, such as their socio-political empowerment or agency (Adhikari & Hobley, 2015). As a result of the simplistic approach through which gender has commonly been assessed, interventions and policies in the HKH overlook women's multiple forms of marginalisation and exclusion, ultimately failing to support their roles, needs and agency (Resurrección et al., 2019). Tamang et al. (2014) argue that agricultural policies implemented in Nepal like the Agriculture Perspective Plan (1996-2015) and the Agriculture Development Strategy neglect to address the changing socioeconomic paradigm where women are bearing a larger burden than men.

It is important to mention that agriculture plays a central role in the livelihoods of the Nepali population, with close to 80% of the population dependent on this sector (ADB, 2013). Irrigation, in turn, constitutes a fundamental practice within Nepali agriculture, particularly in the hills area. Over the past decades, most Nepali villages have developed intricate organisations around bottom-up approaches to resource management and allocation, as is the case of farmer managed irrigation systems ("FMIS") (Martin & Yoder, 1988; Pradhan, 2000). Irrigation systems, historically "masculine" practices, are tightly linked to social dynamics in agricultural villages and therefore are vulnerable to any resultant effects of changes in these dynamics.

The objective of this research thesis is thus to generate knowledge that contributes to understanding the underlying dynamics at play in the relation between migration and agricultural (including irrigation) practices in Nepal, as well as the effects of this so-called feminisation of agriculture on women of varying backgrounds. The central research question has been defined as follows: *What is the relationship between male migration and changing agricultural practices in rural Nepal, and what are the implications for women's livelihoods?*

The host organisation that provided guidance for the present research is the Farmer Managed Irrigation Systems Trust (FMIST), under the support of the Trust's patron, Dr. Prachanda Pradhan. FMIST is a non-governmental entity established in 1998 with the aim of promoting and advocating farmer-managed irrigation systems in Nepal. The organisation seeks to build a knowledge base on these systems through the promotion and implementation of FMIS-related research. A focus of the research on irrigated agriculture and farmer-managed irrigation systems is particularly interesting and relevant because, as previously mentioned, it is a component of Nepali agriculture that is known to be "masculine" (Zwarteveen & Neupane, 1996; Liebrand, 2010). Hence, it is likely to be affected by male migration to some extent.

This thesis is divided into eight main chapters. The following chapter presents a theoretical discussion based on the literature review conducted and introduces the wider regional framework, subsequently followed by a detailed account of the methodological approach applied in the research project in Chapter 3. Chapter 4 then provides comprehensive background information and context of the three research sites visited based on empirical information gathered during the field work. The main research results are presented over Chapter 5 and Chapter 6, the former focusing on current migration practices and the latter on implications for women's livelihoods. The results are then critically discussed and related to the larger theoretical framework in Chapter 7, and concluding remarks are given in Chapter 8, in which the research is contextualised and a summary of the answers to the research questions is given.

Chapter 2: Theory and conceptual framework

In Chapter 2 the main theories upon which the research is built are presented, while contextualising their relevance to the specific objectives of the investigation. The relevant regional and socio-geographical context is then reviewed and, lastly, a summary of the conceptual framework is illustrated.

2.1 Theoretical framework

Feminist political ecology

Feminist political ecology (FPE) is an important theoretical framework that aligns with the research. FPE is a theory that arose at the end of the 1990s with the purpose of including the gender dimension into the already established Political Ecology approach to the relations between society and nature (Elmhirst, 2011). Drawing on different views of gender and environment Rocheleau et al. (1996) developed a conceptual framework that treats “*gender as a critical variable in shaping resource access and control, interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change, the struggle of men and women to sustain ecologically viable livelihoods, and the prospects of any community for “sustainable development”*” (Rocheleau et al. 1996, p.4). It is important here to mention that the concept of gender is to be understood not as a biological differentiation, but as the socially constructed characteristics of women and men, including norms, roles and relationships. Gender varies from society to society and includes five important elements: relational, hierarchical, historical, contextual and institutional (WHO, 2019).

The development of FPE shifted the approaches used in social sciences to analysing the gendered nature of knowledge, resource access and control and local struggles, and conceptualising gender-environment and gender-development relations as being embedded in dynamic social, cultural and political relations (Leach, 2007; Verma, 2014). Furthermore, it recognises the need for and importance of context-specific and bottom-up studies, rather than generalisations and universalisms about a homogenous and static category of women (Leach, 2007). As put forward by Resurrección et al. (2019), FPE is concerned with intersectional analyses whereby gender is actively considered in combination with social processes. Intersectionality has come to be a central tenet of feminist thinking as researchers recognised that investigations on gender must be understood in the context of power relations embedded in social identities (Shields, 2008).

The present research thus draws on the FPE theory to investigate how socio-cultural norms and the related power dynamics might lead to gendered outcomes in terms of participation in agricultural and irrigation management (see Adams et al., 2018).

Livelihood approach and livelihood strategies

The term *livelihood* relates to people and their capabilities, as well as their means of gaining a living. The concept includes both tangible and intangible types of capital such as income, resources, household assets, relationships, claims and access (Chambers and Conway, 1992). Furthermore, it provides a detailed picture of how households cope with and respond to a variety of shocks that affect them in meeting their personal basic needs. The livelihoods approach was popularised at the start of the 1990's. Based on the Livelihoods Framework (DFID, 1999), the term “livelihood pathways” was established years later to describe the patterns in livelihoods among particular social groups, or patterns of change in livelihood strategies (Pender et al., 2001; De Haan & Zoomers, 2005). This concept was originally developed with a focus on a sustainable agriculture investigation so as to be able to acknowledge different existing causes and consequences to livelihood decisions at both household and community levels. It considers specific contextual circumstances as well as power relations and institutional processes which ultimately affect decision-making. Subsequently, the concept of “livelihood trajectories” was put forward to define individual actors' life paths. Trajectories focus on issues concerning access to opportunities and also incorporate the aspect of power, providing an appropriate methodology for facilitating the analysis of pathways (De Haan & Zoomers, 2005). It is important to mention that, since the development of the livelihoods approach, many researchers have demonstrated that “the poor” cannot be regarded as one homogenous group and that livelihood strategies are diverse and dynamic (Zoomers & Otsuki, 2017). The agency of people and the diversity of livelihoods must not be overlooked; it is fundamental to understand that people have different priorities and livelihoods in order to descriptively (rather than prescriptively) grasp how people live their lives and what resources they are entitled to. Similar to gender and intersectionality, livelihood strategies and trajectories cannot be understood without considering the dynamics of the various potential networks people are involved in (Zoomers & Otsuki, 2017; Zoomers et al., 2018).

Access theory, capabilities and agency

As mentioned in the definition of livelihoods, *access* is considered a livelihood asset and it is particularly relevant in the context of the present research. Access can be defined as “*the ability to derive benefit from things*” (Ribot & Peluso, 2003) and is a concept that has most commonly been used with regards to property and natural resources. It includes a wider range of social relationships than when looking at property relations alone. The key difference between access and property, according to Ribot & Peluso (2003) lies in the difference between “ability” and “right”, where ability is analogous to power, which is in turn inherent in certain kinds of social relationships. Property, on the other hand, usually prescribes some type of socially acknowledged claims or rights (such as acknowledgement by law) and fail to completely portray all intertwining factors on resource access.

Access theory can therefore be applied to rural livelihoods and agricultural practices where formal property rights or ownership over land and other assets may not necessarily illustrate all the dynamics related to resource use, as can be the case in rural villages in the hills of Nepal. By focussing on ability rather than rights, the broader context of social relationships that restrict or facilitate people to benefit from resources becomes clear. Access is inherently regulated by gender and intersectionality, so certain opportunities may be available to Nepali men but not to Nepali women. In the context of the research, looking at women’s livelihoods and access can, to a certain extent, be equated to a kind of rights³, and can provide further insight into the process of feminisation of agriculture.

In relation to access theory and the ability of individuals to derive benefits from things, it is relevant to touch upon Amartya Sen’s capability approach (1991). The capability approach, originating from economic theory and developed initially as a moral framework, proposes that social arrangements and development should be primarily evaluated according to the extent of freedom individuals have to achieve *functionings* they value. Sen (1991) defines *functionings* as what people “do and are”, they are achievements of people that give value to life. *Capabilities*, on the other hand, are options to achieve personally valuable functionings, and thus reflect an individual’s freedom of choice and what they have *effective access* to. An example to illustrate this concept would be two people who are not eating. One is the victim of a famine, without access to food, the second person has made a conscious decision to forego food in protest to a particular cause. The difference between them is the availability

³ E.g. *de facto* rights, which are those that describe practices that exist in reality even if not officially recognized by law and are relevant in this context.

of an option, or a freedom to choose (thus attaining a functioning: nourishment). The second person there *has* this capability but can *decide not to use it*.

Finally, an important link to the capabilities approach is the concept of agency, which relates to what a person is free to do and achieve in pursuit of what they value and have reason to value (Sen, 1985). An agent is therefore someone who acts and brings about change, whose achievements can be judged in terms of their own values and objectives (Sen, 1999). It is important to understand, particularly in the context of this research, that agency depends on the ability to choose the functionings one values and this may not necessarily correlate with personal well-being. Agency refers to a person's role as a member of society and is crucial in assessing one's capabilities as well as any barriers to achieving functionings. Sen's capability approach was adapted and built upon by Martha Nussbaum (2000) to analyse gender justice, who urges the need to consider the distribution of resources and opportunities not in an aggregate way, but to each person as worthy of regard in their own right. Nussbaum subsequently also defined a list of central human capabilities in a more prescriptive way. However, this study uses Sen's original approach in descriptive terms for analytical purposes, which is considered more appropriate to gaining insight into how the women in the research sites try to obtain access to different things.

Farmer-managed irrigation systems (FMIS)

Agriculture plays a very big role in Nepali livelihoods, both for economic profit and for subsistence. Livelihoods in the hill areas are heavily dependent on farming, and hill agriculture has developed historically in accordance to the highly diverse and climatic niches of these regions, as well as resource availability. For example, farmers in the hills cultivate as many as eight to ten cultivars of rice in order to optimise climatic niches and soil conditions; local rice varieties are especially valued in areas where water and temperature are a limiting factor (Chhetri et al., 2012).

Nepali farmers have a long tradition of successfully organising themselves through a collaborative approach in terms of resource management (Martin & Yoder, 1988; Chhetri et al., 2012). Throughout the country, farmers organise their own agriculture and irrigation; they make terraces, dig canals, build intakes and divert water towards their fields. In the 1980s, these farmers' initiatives, or farmers' organisations, became known in research and policy circles as Farmer-Managed Irrigation Systems (FMIS), which constitute over 70% of the irrigated area in Nepal, playing a big role on national food security (Pradhan, 2000; Regmi, 2008). Various studies on performance of irrigation history and development in Nepal report that FMIS outperform so-called agency-managed irrigation systems (AMIS) in

most key parameters, including agricultural yield and cropping intensities (Ostrom et al., 1994; Bhatta et al., 2005; Regmi, 2008).

FMIS materialised a result of farmers' recognition of the importance of water resources and their own initiative to construct systems that would allow for an intensification of agriculture production. The fact that irrigation development in Nepal was in the hands of the people for so many decades resulted in the creation of particular rules, norms and management procedures (Pradhan, 2000). In these systems, farmers are responsible for all the management activities required, including those relating to water allocation and distribution, physical structures and general organisation of the system. In the context of the hills area, resource mobilisation for the maintenance of irrigation canals is the main factor behind the structure of many FMIS (Martin & Yoder, 1988).

Given that FMIS develop under different geographical, topographical, climatic and social characteristics of particular locations, organisational patterns, resource mobilisation and decision-making vary between irrigation systems. Nevertheless, Pradhan (2000) points to three basic characteristics that are found across FMIS: (1) water as a community property, which acts as a force to organise farmers in a system; (2) operation and maintenance costs of the systems are shared among users; and (3) establishment of an informal association, generally formalised nowadays as Water User Associations (WUAs) as an instrument for resource management. WUAs are led by an executive committee appointed by farmers themselves.

Irrigation studies in Nepal started as early as in the 1960s, with interest in FMIS research only appearing from the 1980s onwards. As Liebrand (2010) points out, FMIS research has mostly focused on understanding the management of common property resources in irrigation with the objective of extrapolating lessons for irrigation systems under management of the government. In doing so, the context-specific nature and the gender perspective aspects of FMIS has often been disregarded or simplified. Irrigation and agricultural management in Nepal have always been regarded as a "masculine" practice. It is men who act as irrigation managers and leaders of WUA executive committees, it is men who dominate the field of irrigation engineering and organise technology management and sales of produce (Liebrand, 2010). Considering the background of FMIS and WUAs, and the ongoing trend of male migration away from rural villages, it could be expected that any "negative" changes in agriculture – in terms of loss of productivity or less area irrigated, for example – would be visible in irrigated land. Therefore, it is particularly interesting to look at irrigation systems in the hills of Nepal as foretokens of larger changes that might happen in the future. Similarly, looking at current practices within irrigation governance in rural

villages – and particularly WUA committees – this research can provide insight into changes in female participation at different community levels, and to what extent these masculinities are still in place.

The main theories discussed in this section thus provide a framework for the concepts touched upon throughout the thesis research, which centres around livelihood pathways and strategies in rural villages with farmer-managed irrigation systems. The main focus is on women and their level of participation in household and irrigated agriculture management in the context of male migration, as well as any implications of these dynamics in terms of their capabilities or agency.

2.2 Regional framework

Geographical context

Nepal is a landlocked country in south Asia with a population of 29.3 million people and a GNI per capita of US\$ 800 (World Bank, 2017), making it a low-income country. Despite being one of the top-ten urbanising countries, the majority of the population still dwells in rural areas, with an urbanisation level of only 19.3% (Bakrania, 2015; World Bank, 2017). Nepal has a vast geographic diversity going from near sea-level elevation to peaks over 8,000 metres, including Mount Everest at 8,848 m. Across the elevation range eight different climate zones can be identified, ranging from tropical to perpetual snow (Barnekow et al., 2005). The country is formally divided into five physiographic regions; nevertheless, it is most common to refer to one of the three ecological zones: the Terai plains, the hills or the mountain region (**Figure 1**).

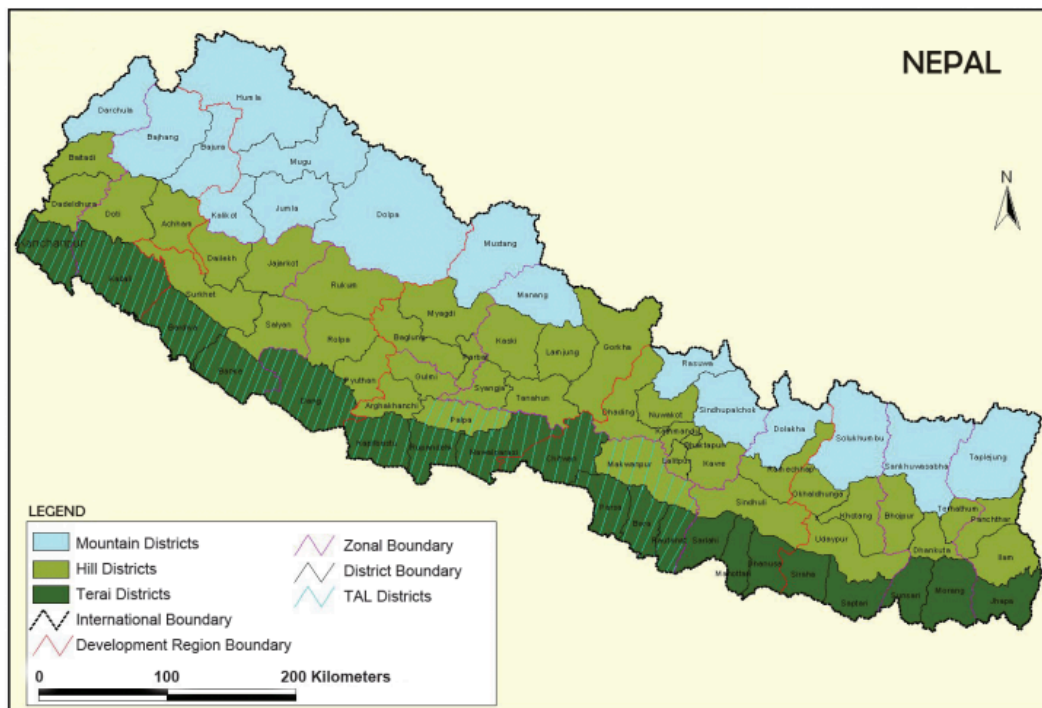


Figure 1. Ecological regions of Nepal (CBS, 2013)

In terms of economic activity, agriculture plays a prominent role in Nepal, with almost 80% of households reported to be involved in agriculture and over 65% actually dependent on it for their livelihoods (CBS, 2013). The geographic and climatic diversity of the country have played an important part on the development of agricultural and irrigation practices. There are distinct seasons throughout the year, with the monsoon months particularly dictating farming practices in the different regions. In this regard, **Figure 2** and **Figure 3** below illustrate the extent to which irrigation is a pre-requisite for (intensive) agricultural production in the dry season and how drastic changes in average rainfall can be between seasons. They also illustrate that crop production of major food crops (potato, maize, wheat, rice) varies throughout the year in response to dynamic ecological and geographical circumstances.

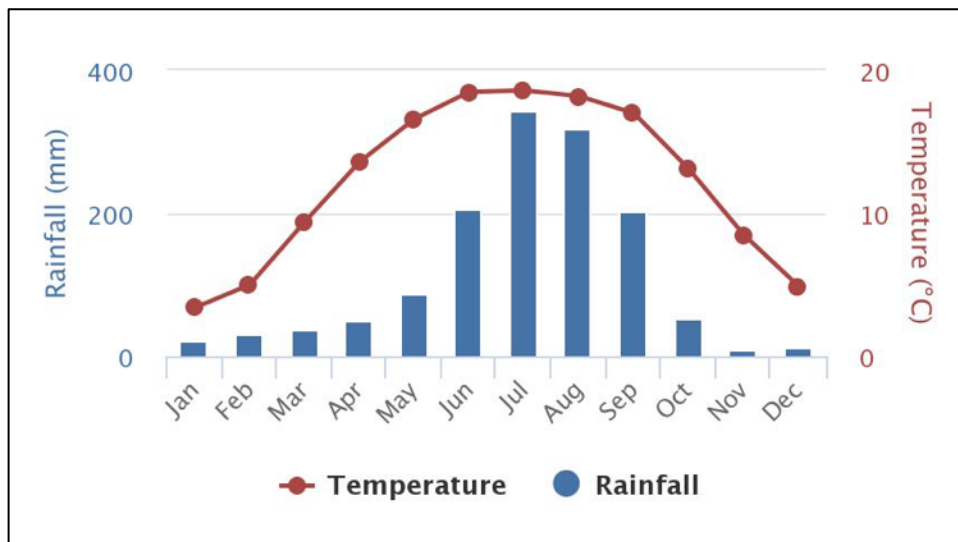


Figure 2. Average monthly temperature and rainfall, Nepal, 1901-2015 (World Bank, 2015)

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Season
Mountain (Rainfed)												
		Mai-P	Mai-P				Mai-H	Mai-H	Mai-H			Summer
			Mil-P	Mil-P					Mil-H	Mil-H		Summer
	Pot-P	Pot-P				Pot-H	Pot-H	Pot-H	Pot-H			Summer
				Whe-H	Whe-H					Whe-P	Whe-P	Winter
			Bar-H	Bar-H						Bar-P	Bar-P	Winter
Hills (Partial irrigation/Rainfed)												
				Pad-TP	Pad-TP			Pad-H	Pad-H			Summer
		Mai-P	Mai-P				Mai-H	Mai-H				Summer
					Mil-P	Mil-P			Mil-H	Mil-H		Summer
		Pot-P	Pot-P				Pot-H	Pot-H				Summer
				Whe-H	Whe-H	Whe-H				Whe-P	Whe-P	Winter
				Bar-H	Bar-H					Bar-P	Bar-P	Winter
Hill (Irrigated)												
		Pad-TP	Pad-TP			Pad-H	Pad-H					Spring
	Mai-P	Mai-P			Mai-H	Mai-H						Spring
			Whe-H	Whe-H	Whe-H				Whe-P	Whe-P	Whe-P	Winter
Tarai (Rainfed)												
					Pad-TP	Pad-TP		Pad-H	Pad-H	Pad-H		Summer
			Mai-P	Mai-P			Mai-H	Mai-H				Summer
			Whe-H	Whe-H					Whe-P	Whe-P		Winter
Tarai (Irrigated)												
						Pad-TP	Pad-TP			Pad-H	Pad-H	Late-summer
	Mai-P	Mai-P			Mai-H	Mai-H						Spring
		Pad-TP	Pad-TP			Pad-H	Pad-H					Spring
	Mai-H	Mai-H							Mai-P	Mai-P		Winter

Mai-Maize, Mil-Millet, Whe-Wheat, Bar-Barley, Pad-Paddy, P-Plantation, Tp-Transplantation, H-Harvesting

Plantation/transplantation
 Crop growing phase
 Harvesting

Figure 3. Crop calendar for major food crops in Nepal, by region (Maharjan & Joshi, 2013)

Nepali social dynamics: caste, ethnicity, gender

Nepal is a multicultural and multi-ethnic country, formed through the occupation of different small kingdoms in the 18th century. According to the most recent national census (CBS, 2011), there are 125 castes/ethnic groups, the most populated ones being the Chhetri and Hill-Brahmin, most commonly referred to as Bahun in Nepal (**Table 1**).

Table 1. Population-wise ranking of Nepali castes/ethnic groups (2011)

Rank	Caste/Ethnic group	Population	Percentage composition
1	Kshetri/Chhetri	4,398,053	16.60%
2	Hill Brahmin/Bahun	3,226,903	12.18%
3	Magar	1,887,733	7.12%
4	Tharu	1,737,470	6.56%
5	Tamang	1,539,830	5.81%
6	Newar	1,321,933	4.99%
7	Kami	1,258,554	4.75%
8	Musalman/Nepali Muslims	1,164,255	4.39%
9	Yadav	1,054,458	3.98%
10	Rai	620,004	2.34%
11	Gurung	522,641	1.97%
12	Others groups / undefined	7,362,498	29.31%

Source: CBS, 2011

In terms of religion, over 80% of the population of Nepal is Hindu; Buddhism is the second largest religion represented by 9%, followed by Islam with 4.4% (CBS, 2011). The dominance of the Hindu religion is manifest in Nepali social dynamics and politics: political-economic power in the country was consolidated by interlinking it with the Hindu caste system (World Bank & DFID, 2006). Under the Hindu system, the Brahmin (priests) were at the top, followed by Kshatriya (kings/warriors), the Vaishya (merchants) and the Sudra (peasants/laborers). Beneath were those considered “impure” working groups and the “untouchable” or *acchut*, who now call themselves *Dalit*. In the hills the top and lowest ranks were filled by in-migrating Hindus, while the middle rank was accorded to indigenous or ethnic groups (*Janajati*) generally of Mongoloid race. These indigenous groups were classified by Hindus as *Matwali* and they generally followed Buddhism or other animist religions. Nepal’s old civil code of 1854, the *Muluki Ain*, essentially institutionalised the caste system and accorded differential hierarchical privileges and obligations to the different castes (**Figure 4**), something that shapes social dynamics until today.

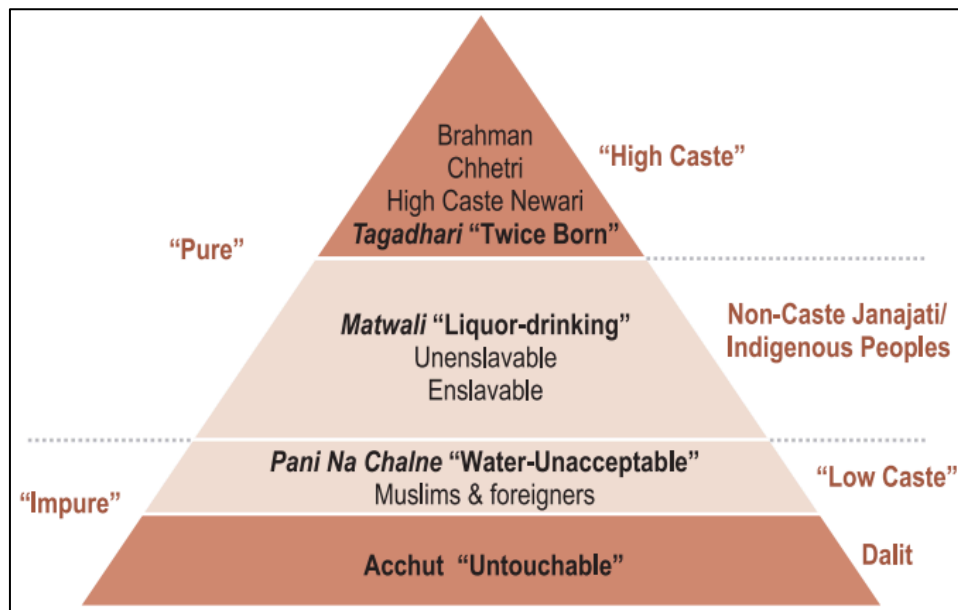


Figure 4. The Muluki Ain caste/ethnicity hierarchy from 1854 (World Bank & DFID, 2006)

Even though the *Muluki Ain* was rescinded in 1963, the prevalence of Hinduism remained a constitutional mainstay in Nepal (O'Neill, 1994). As the World Bank & DFID's report (2006) indicates, even after democracy was established in 1990, when all citizens were declared equal "*irrespective of religion, gender, caste, tribe or ideology*", Nepal was still declared a Hindu Kingdom, which helped perpetuate caste-based discrimination. Male Bahun (Brahman) and Chhetri generally remain the dominant group in the population, together with high-caste urban-based Newari (O'Neill, 1994). It is important to mention that the prevalence of Hinduism and its historical sovereignty in terms of establishing social orders is also linked to gender-based discrimination. Even after the establishment of democracy, for example, the 1990 constitution still denied women the right to pass their citizenship to their children, and protected "traditional practices" of Hinduism regarding gender (World Bank & DFID, 2006). Pokharel (2009) discusses that the long-established gender discriminatory practices are part of a cultural tradition linked to Hinduism, and discrimination and violence against women is still prevalent in Nepal. It should be noted, in relation to the research, that the caste system can be read as an intersection between class and caste, and it is the higher castes who are usually land owners and have better opportunities in migration as a result of skills and education.

2.3 Conceptual framework

As a summary, the conceptual framework shows the main elements involved in the thesis research (**Figure 5**). The framework illustrates potential processes linked to male migration incidence in Nepal and the dynamics between migration, agricultural practices and rural livelihoods. It presents the potential changes in women's participation at different levels (under the so-called feminisation of agriculture) and illustrates the intersectionality of gender as a factor at play in all these dynamic relations.

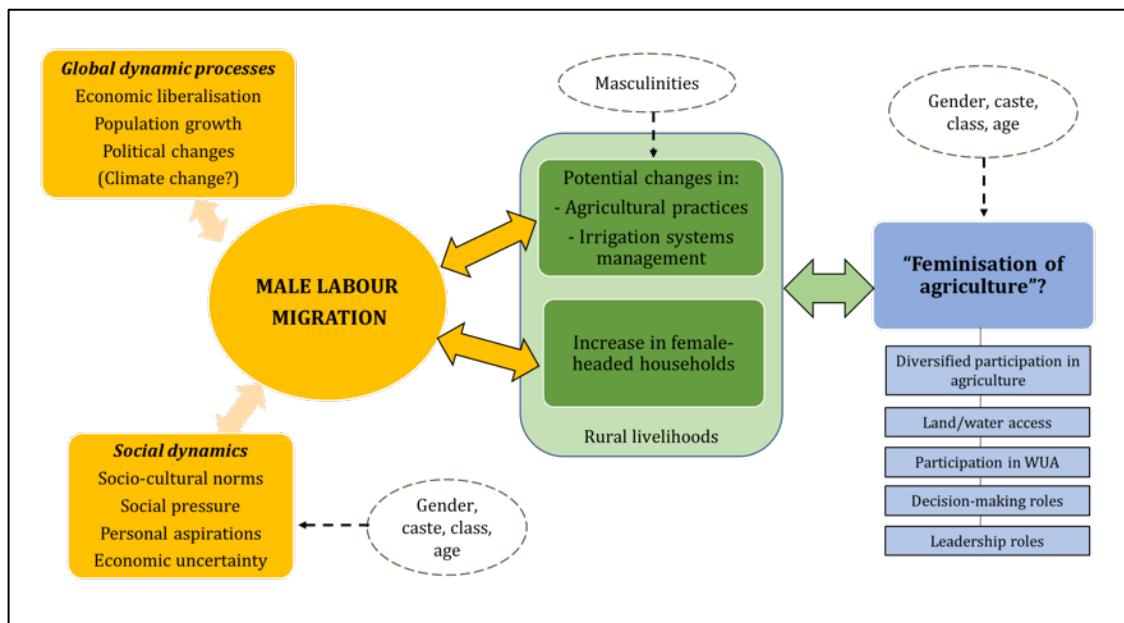


Figure 5. Conceptual framework of the research project

Chapter 3: Technical research design and methodology

The following chapter presents the research objectives, research question and sub-questions derived from the previously discussed knowledge gap as well as from the theoretical context of the research project. A detailed account on the field methodology and data analysis is given, followed by a brief description of the study area. Finally, potential limitations to the methodology and ethical considerations for the research are discussed.

3.1 Research objective and research questions

In light of the identified knowledge gaps discussed in the introduction the objective of the present research is to generate knowledge, from a gender perspective, about the dynamic relation between male migration and agricultural practices in rural Nepal, thus gaining insight into the processes and implications behind the feminisation of agriculture and women's livelihoods. It is important to highlight that irrigation organisation and management are included within the broader term of agricultural practices.

In order to achieve the research aim, the following central research question was defined:

What is the relationship between male migration and changing agricultural practices in rural Nepal, and what are the implications for women's livelihoods?

Subsequently, four sub-questions were formulated to guide the gathering of data that allows to comprehensively address the main research objective. These are the following:

- What are the current migration dynamics (rate, frequency, length, type) in rural Nepali hill villages?
- How are agriculture and irrigation practices organised and managed in these villages?
- What are the implications for women's livelihoods in the context of ongoing male migration practices?
- How do women currently participate in agriculture practices and irrigation management systems in the context of male migration practices?

3.2 Methodology

The main research strategy was the application of in-depth interviews carried out with the support of semi-structured interview guides (see Appendices 1 and 2). These were applied through purposeful sampling of respondents, as is detailed further in Section 3.4. As described by Hennink et al. (2010) this type of interviews is useful when investigating information about personal experiences such as roles in decision-making, beliefs and perceptions, motivation behind given behaviours and certain opinions or feelings. The information obtained through this qualitative method ultimately reflects the emic (or insider's) perspective, which suits the objectives of the research. All interviews were carried out with the help of a female interpreter so as to facilitate conversations with female respondents given the potential sensitive nature of some questions.

Additionally, the methodology of observation (participant and non-participant) was applied throughout the time spent in the field, which is useful in providing complementary data in combination with other qualitative methods (Verschuren & Doorewaard, 2010). It is often used within an ethnographic fieldwork approach and helps the researcher better understand and interpret cultural behaviour (Mulhall, 2003; Hennink et al., 2010), which was very relevant in the context of the field work. The method entails actively watching and noting down what people do and say in order to gain contextual understanding of the data gathered through other research methods. Moreover, and very importantly, it allows the researcher to discover silent or seemingly unapparent social values and norms.

Variables

As mentioned in the research objective, the study looked at the dynamic relations between male migration, agriculture and women's livelihoods and perceptions, as well as potential changes in female participation in varying processes under the umbrella term of "feminisation of agriculture".

For the purpose of this research, male migration is considered as mobility of men outside their household to a different country or city for labour purposes, for prolonged periods of time. *De facto* female-headed households are defined those in which the male head (the husband) has migrated long-term or permanently.

The main variables investigated in the research project are presented in **Table 2**. These variables were incorporated into questions in the semi-structured interview guides.

Table 2. Main variables investigated in the research project

Variables	Indicators/proxies
Migration practices	Incidence of male migration Length/nature of migration (intermittent vs. permanent) Country/city of migrant destination Frequency of visit to village and frequency of contact with household
Agricultural practices	Roles of household members in relation to agriculture Participation of migrant household members in agricultural practices Decision-making in relation to agriculture and associated income
Irrigation management practices	Membership to Water User Association or participation in WUA executive committees Role in irrigation management practices Decision-making in relation to water flows
Livelihoods	Income sources Income management Access (e.g. to agriculture and water)
Workload (women)	Responsibilities in household and agriculture work Time dedicated to work tasks Leisure time / activities Support system

3.3 Study areas

The research entailed gathering qualitative data from four rural villages located in what is considered the hills region of western Nepal. Argali and Chherlung villages belong to Palpa District, Province No. 5, whereas Lalyang and Dimeekt (Galyang Municipality) are in Syangja District, Gandaki Province (**Figure 6**). Throughout the study, results for Lalyang and Dimeekt villages are presented together as they are very small, close together and within the same irrigation system command area.

The study areas were selected with the guidance of Mr. Prachanda Pradhan, an experienced Nepali researcher at the forefront of research in farmer-managed irrigation systems and patron of the Farmer Managed Irrigation Systems Trust, based in Kathmandu. These villages were considered particularly suitable for the research as they all have well-established and well-functioning FMIS in place, known to be historically managed by men: the Raj Kulo, Thulo Kulo and Andhi Khola irrigation systems. The three irrigation systems are relatively comparable in terms of size, agriculture schemes and general geography/topography. Moreover, these are areas in which migration was expected to be a very common practice and thus potential changes in irrigated agriculture and in female participation at different levels would be evidenced. A detailed description and background information of the three research sites is presented in Chapter 4.

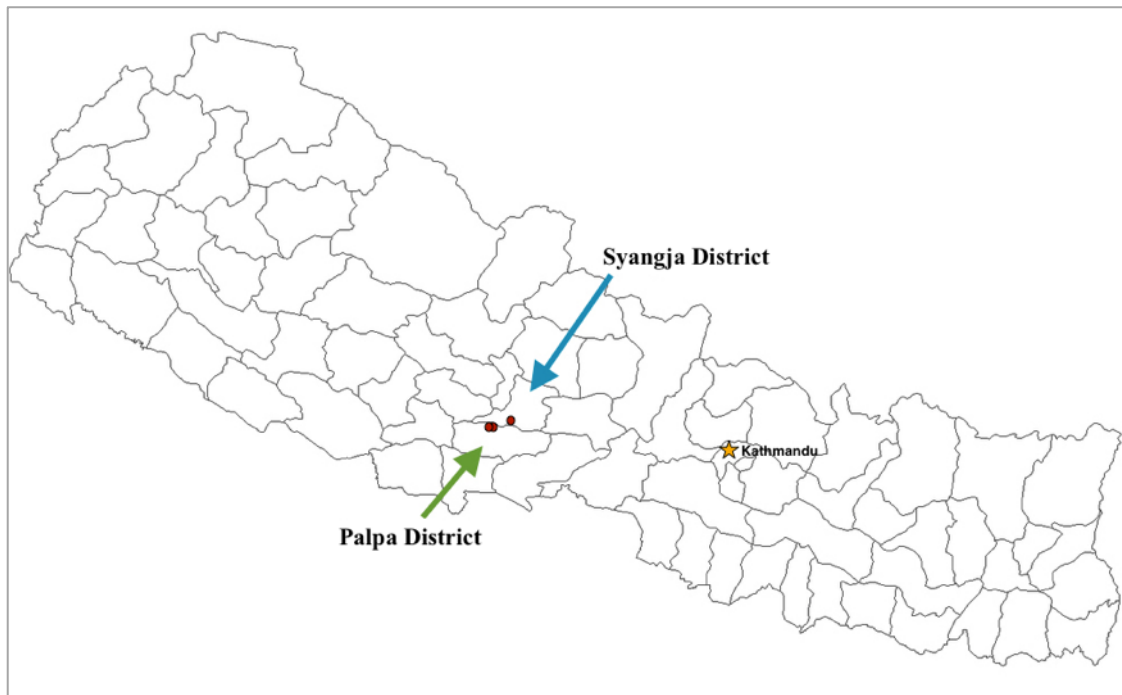


Figure 6. District Map of Nepal indicating the location of Palpa and Syangja Districts. The red dots indicate the location of the three study sites.

3.4 Data collection and selection of respondents

Primary qualitative data was collected in Nepal over a 12-week period between March and May 2019. The first weeks in Nepal were spent in Kathmandu organising logistics and holding meetings with the main research contact, Dr. Prachanda Pradhan (FMIST), as well as Dr. Arend van Riessen, an experienced researcher in agriculture and irrigation systems in Nepal who provided valuable insight in preparation for the field work. The in-depth interviews and observation were carried out in the three research sites between the end of March and start of May 2019. This period falls within the dry season (towards pre-monsoon period), which was convenient for the field work as the people in the farming villages were not as busy as they would be during monsoon season, and were thus more available for interviews. Dr. Pradhan provided contact persons at each of the research sites so as to be able to arrange lodging and help with reaching out to interview subjects.

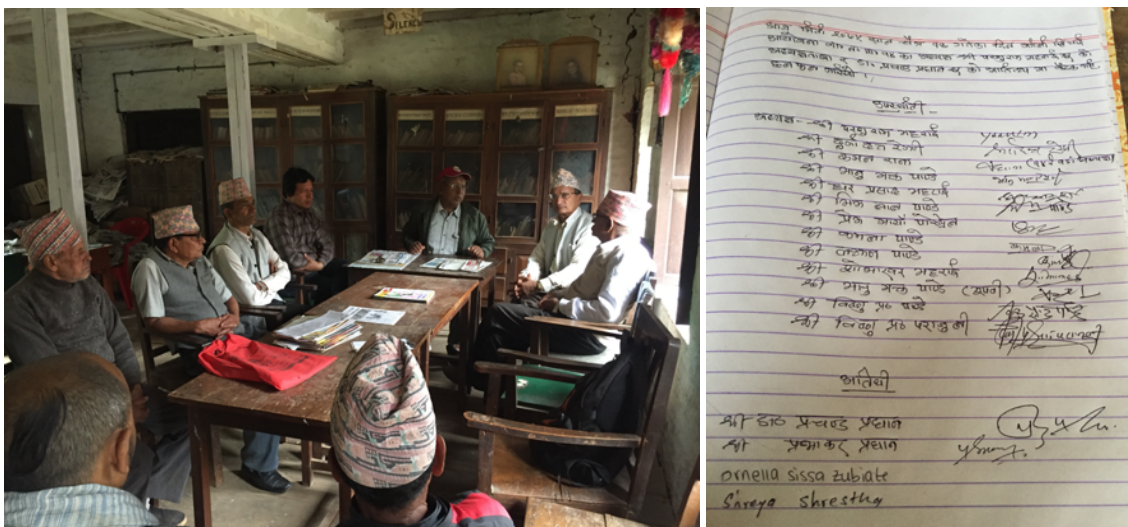
It is also worth mentioning that the 8th International Seminar organised by the Farmer Managed Irrigation Systems Trust was attended over the 6th and 7th of May in the Kathmandu valley. The theme for the conference was “Institutional Changes and Water Security in Irrigation Systems: Considerations from Climate Change and Population Dynamics”. With over 100 attendees and different plenary and parallel sessions covering

diverse aspects of irrigation systems in Nepal, it provided a very useful platform for learning, exchanging ideas and discussing preliminary field results with researchers with many years of experience in this area. Photographs of the program and seminar can be found in **Annex 4**.

Regarding selection of respondents for the in-depth interviews, given the main objective of the research, purposeful sampling was applied. This type of sampling, particularly through a criterion sampling strategy, is useful for the identification and selection of information-rich cases related to the particular research interest or topic (Palinkas et al., 2015). The main type of subject sought for the in-depth interviews were *de facto* female household heads, i.e. women acting as “household heads” as a result of their husbands having migrated for work permanently or for a prolonged period of time (> 2 years). Although strictly these would be represented by women in nuclear households, some women with migrated husbands living in joint households (with in-law family members) were interviewed as well, in order to investigate how their livelihoods and agency might differ when there are other potential household heads present. Nuclear households represented 70% of the households interviewed, joint households 30%. In general, all these interviews were carried out with the objective of understanding current migration practices as well as the dynamics between migration and rural livelihoods through a gender lens. The second subject type for the in-depth interviews were ‘key informants’, namely acting members or former members of WUA executive committees of the different irrigation systems. The objective of these interviews was to obtain information on general irrigation management and the current participation of women in the committees of these systems, as well as their decision-making power and if/how this has changed over time. 80% of the key informants were men, which illustrates the ‘masculinity’ of irrigation practices. Lastly, all conversations had with contact persons and community gatekeepers throughout the field work were also noted or recorded for later use in data analysis. An overview of interview respondents is presented in Table 3 further down.

The first village in which fieldwork was carried out was Argali, where the Raj Kulo irrigation system is found. During the 16-day homestay at the village, several interviews were carried out with both *de facto* female household heads and key informants from the Water Users Association committees. Additionally, participant observation was carried out at an official meeting organised in the village community building by Dr. Pradhan with several WUA committee members of the different sub-canal irrigation systems (**Photograph 1**). Staying

in a local woman's house for the duration of the fieldwork also allowed for insight and important observation of social dynamics throughout the time in the village. Participant recruitment for all the interviews was assisted by community gatekeepers (Hennink et al., 2010), including the Argali WUA chief and the host of the homestay, an elder Chhetri woman. Their knowledge of the community members and their level of influence aided the process of finding interviewees and helped easing participation in cases where there might have been initial hesitation.



Photograph 1. Meeting in Argali between Prachanda Pradhan and Raj Kulo WUA committee members

The fieldwork in the village of Chherlung was also carried out while staying in Argali, as the two villages are only a three-hour walk apart and organising a homestay in Chherlung proved to be somewhat more challenging. As in the case of Argali, interviewees were recruited with the help of community gatekeepers: a current WUA committee member, contacted through Dr. Pradhan, and the grandson of a former WUA chief, well-known in the village. Again, in-depth interviews were conducted with *de facto* female household heads and three standing members of the WUA executive committee.

Interviews in the two neighbouring small villages close to the main town of Galyang, in the Andhi Kola irrigation system command area, were carried out over a week-long period while staying in Galyang. The villages, Lalyang and Dimeekt, were less than an hour away by foot from the main town road. The contact provided by Dr. Pradhan in this case was a former WUA committee member and current higher education teacher who helped explain the history, extent and organisation of the irrigation system command area. He was able to

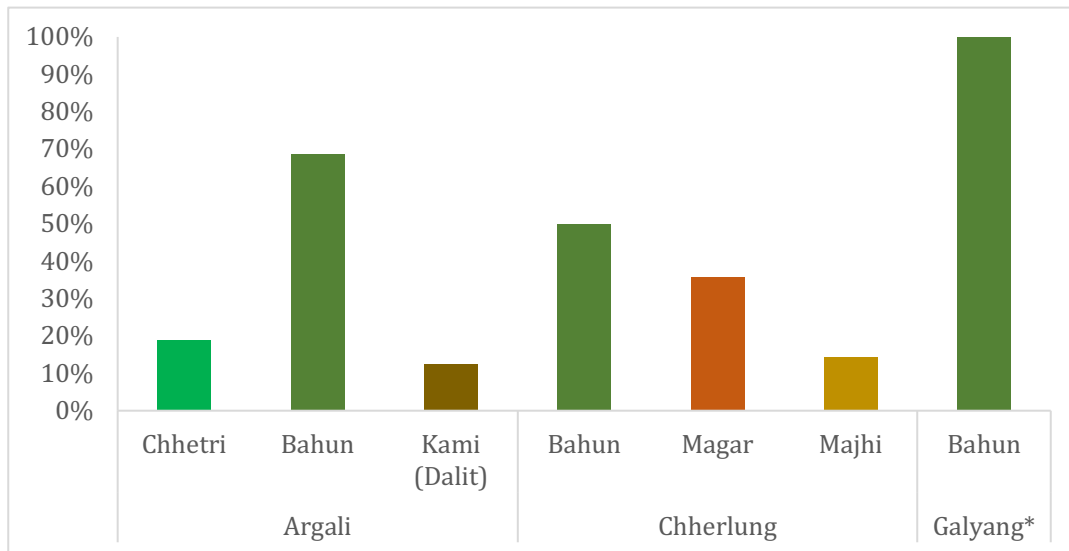
help in contacting a few interviewees and introduced us to a community gatekeeper – a current female WUA committee member – who helped throughout the fieldwork. Table 3 summarises the number of interviews conducted at each of the three research sites; the detailed list of respondents can be found in Annex 3.

Table 3. Summary of interviews conducted per research site

Research site	In-depth interviews conducted	Total respondents
Argali	15 FHH (F)	18
	3 WUA members (2M, 1F)	
Chherlung	14 FHH (F)	17
	3 WUA members (3M)	
Galyang (Lalyang & Dimeekt)	12 FHH (F)	16
	4 WUA members (3M, 1F)	
Total		51

FHH = *de facto* female-household heads; F = female; M = male

In terms of caste composition of respondents, *de facto* female household heads interviewed varied slightly among the three research sites. In the case of Argali, although most of the respondents belonged to the Bahun and Chhetri castes (high castes), two *Dalit* (Bishwokarma/Kami) women who owned and worked in irrigated land were also interviewed. The respondents in Chherlung belonged to three castes: Bahun, Magar (*Janajati*) and Bote-Majhi (*Janajati*). Finally, the participants interviewed in the Andhi Khola irrigation system study site all belonged to the Bahun caste. The composition is illustrated in **Figure 7**. It is important to note that all WUA committee members interviewed across the irrigation systems belonged to a high caste (nine Bahun and one high-caste Newari).



*Galyang = combined data for Lalyang and Dimeekt villages

Figure 7. Proportion of interviewees of different castes in the three research sites (de facto female household heads).

The caste composition of household interviewees can be compared to 2011 census data so as to gauge representativeness of the respondents and somewhat elucidate the inherent bias present when purposively sampling households that own irrigated lands (this limitation is discussed in Section 3.6 below). As there is no available data for caste composition at the village level, the data used for comparison correspond to the larger administrative division of Village Development Committees (VDC) where the three research sites are located (CBS, 2011). The comparisons are presented in **Figures 8, 9** and **10** below.

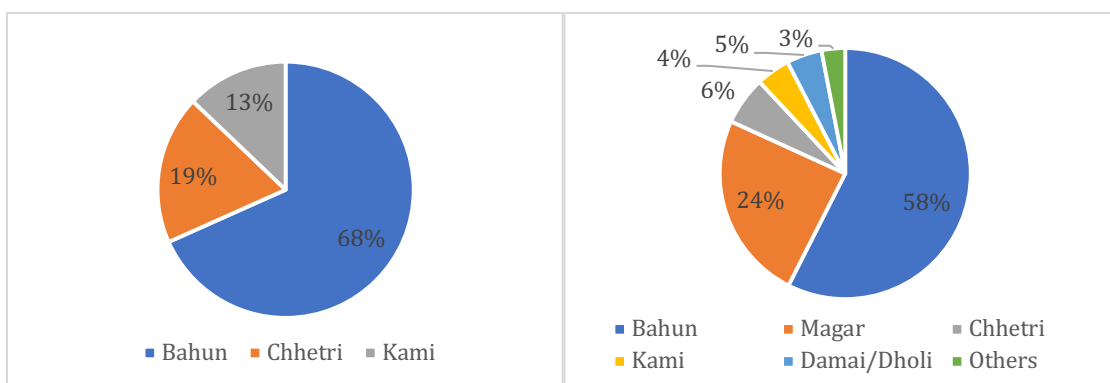


Figure 8. Caste composition of interview respondents in Argali (left) compared to Argali VDC caste composition data (right)

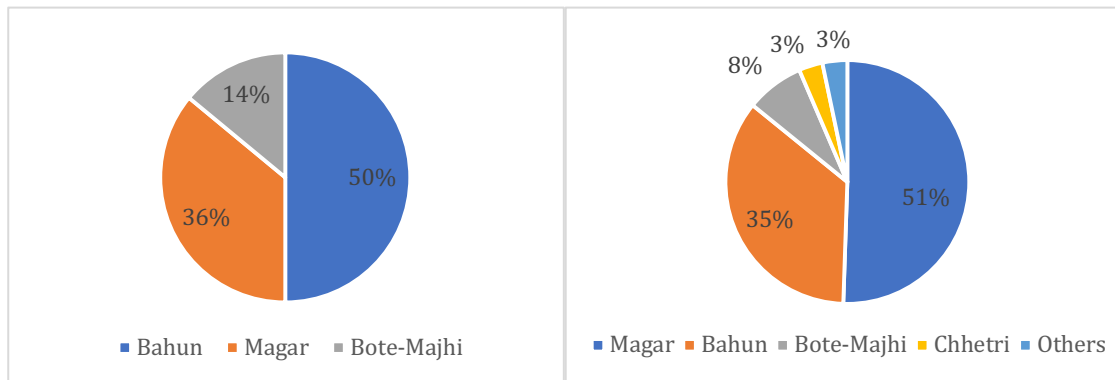


Figure 9. Caste composition of interview respondents in Chherlung (left) compared to Boudhagumba VDC caste composition data (right)

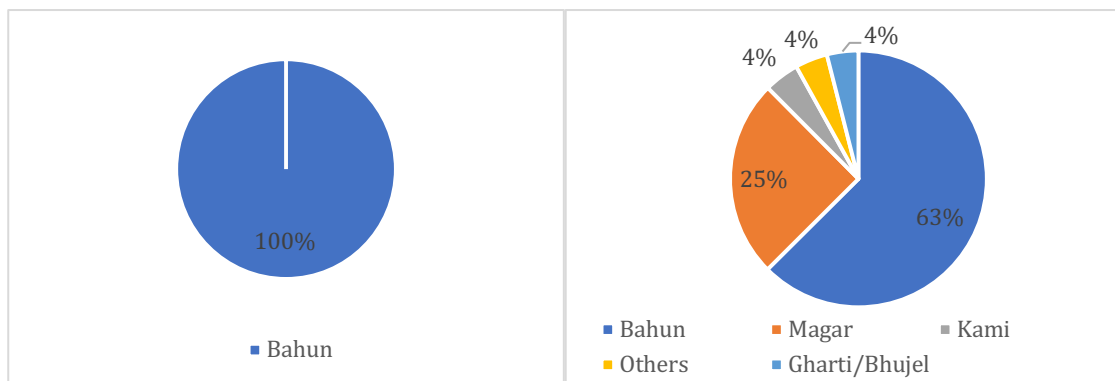


Figure 10. Caste composition of interview respondents in Lalyang and Dimeekt (left) compared to Tulsibhanjyang VDC caste composition data (right)

As can be observed, the VDC census data shows that Bahun and Magar tend to be the most numerous castes in these areas. Nevertheless, in Argali and Lalyang/Dimeekt none of the households interviewed were from the Magar caste. On the other hand, in the case of Chherlung, the three most numerous castes according to the census data were indeed represented in the respondent sample. It must be noted here that purposeful sampling is a nonprobability sampling technique and therefore not intended to be used for inferring on the general population in statistical terms.

For illustrative purposes, the households with which interviews were conducted were classified as “poor”, “middle” or “better off” based on the number of *ropani*⁴ of irrigated land they reported to own. Based on classifications by Zwarteveen & Neupane (1996) and van Etten et al. (2002), households were considered “poor” if they owned up to 6 *ropani* (0 – 0.3

⁴ Ropani = unit of area used in the hills of Nepal, equivalent to approximately 0.05 hectares

ha), “middle” if they owned between 6 and 16 *ropani* (0.3 – 0.8 ha) and “rich” if they had more than 16 *ropani* (>0.8 ha). The information is summarised for each research site in Table 7, where the average *ropani* per household is also indicated, along with the range given by interviewees.

Table 4. Classification of households interviewed according to land ownership (in *ropani*)

Research site	Household classification	Number of households	Average <i>ropani</i> per HH; (min – max values)
Argali*	Poor	15	3.24 (1 – 6)
	Middle	-	
	Better off	-	
Chherlung*	Poor	10	3.46 (0 – 7)
	Middle	2	
	Better off	-	
Galyang (Lalyang/Dimeekt)	Poor	7	8.2 (5 – 30)
	Middle	4	
	Better off	1	

*One household in Argali and two in Chherlung are not included as they were not able to indicate the exact number of *ropani* owned by the family

Keeping in mind the limitations discussed regarding caste representation and land ownership (Section 3.6), Table 8 indicates the average amount of land owned by interviewees of the different castes over the three research sites visited.

Table 5. Average size of land owned according to respondents by caste

Caste	Average land ownership (<i>ropani</i>)
Bahun/Chhetri (high caste)	5.3
Magar/Bote-Majhi (<i>Janajati</i>)	3.5
Kami (<i>Dalit</i>)	2.7

3.5 Data processing and analysis

The data analysis approach largely focused on the triangulation of data collected in the field through the different interview subjects and observation. All the interviews and meetings were recorded, including the more informal conversations with community gatekeepers when walking through the villages in search of respondents. All of the recordings were

subsequently transcribed, as having verbatim transcriptions helps better grasp the emic perspective given the views of the participants are expressed in their own words (albeit translated). The specialised qualitative data analysis software *NVivo* was used as it allows for structuring and organisation of text-rich, unstructured data. All transcripts were coded under relevant themes, allowing for different concepts to be organised and classified for better interpretation and consequent analysis. Findings stemming from the field work were finally contrasted and related to available literature as well as the initial conceptual model in order to allow for a solid discussion.

3.6 Limitations and ethical considerations

Limitations

One important limitation in the research conducted was the inherent caste bias of respondents associated to purposeful sampling. Given the selection criteria for interviewees targeted households with access to irrigated land, this resulted in having an inevitably high proportion of high-caste (particularly Bahun) and, to a certain extent, “higher” class households. This selection bias is a result of how land ownership was historically distributed by the King in Nepal and subsequent patrilineal inheritance practices. It is not very common for *Dalit* to own or have the possibility to rent irrigated land, thus somewhat affecting the ability to address intersectionality thoroughly. Nevertheless, as was indicated in Section 3.4 above, a few *Janajati* and *Dalit* households were interviewed in Argali and Chherlung villages.

It is also important to mention the possibility of a bias in the key informant interviews, specifically with the male members of the different WUA executive committees. Some of the members could have given a partial view on the topic of women’s participation in irrigation practices and WUA committees in order to portray their organisation as being more inclusive than they are in reality. In certain cases, the interviews yielded contradicting information regarding female involvement and participation in decision-making.

Establishing rapport with the female interviewees, particularly through an interpreter, proved to be challenging. Nepali women are not accustomed to readily voice strong opinions and perceptions, or to answer questions that might be of a more personal nature. In some cases, women would limit their answers to one-word replies or a timid “I don’t know”. Conducting serial interviews with some of the women would have been beneficial to overcome this limitation, however, time and resource constraints unfortunately did not allow for repeat visits. On this regard, Bennett (1983) expresses in her book “Dangerous

Wives and Sacred Sisters” that only after six months actually living in a Brahmin-Chhetri community in Nepal she felt she was able to establish more intimate relationships with the families she was researching.

Moreover, even though the objective was always to conduct the interviews with the female respondent alone, sometimes it was not possible as they had to be interviewed while doing household or agricultural work. This meant there was usually a relative around who would try to weigh in on some answers, in addition to the community gatekeeper. In a couple of cases a male relative was present and even the interpreter at times would be reluctant to ask them to give us some privacy. The presence of men notoriously altered the demeanour and openness to answer of the women respondents.

Another limitation encountered during field work was that conditions to apply participatory appraisal tools were unfortunately not favourable. It proved to be difficult to ask female interviewees for more time than what they already provided for interviews. This could also be explained by the possibility of some degree of research fatigue in the area, since the three irrigation systems in which the present research took place have been subject of studies for quite some time. In terms of participatory tools, land use maps might have aided in reflecting different perceptions on how physical space and resources are distributed in the village, as well as identifying potential points of conflict between village groups (men, women, castes). Decision-making matrices could have helped gauge the level participation of women in different tasks at the household and community level.

Finally, it is worth noting the limitations associated with translation when working with a foreign language. Although the interpreter had an acceptable level of English there were situations in which difficulties arose, and there is always the risk of pieces of information or perceptions and sentiments getting lost in translation.

Ethical considerations

Careful consideration was given to the ethical dimension of the research. All interviews and participatory observation conducted considered the guidelines outlined by Hennink et al. (2011) regarding factors of beneficence, justice, participant recruitment and anonymity.

The research was non-exploitative nor did it involve deception of the study population in any way. With regards to ethic concerns around the process of participant recruitment, it was first important to seek adequate permission from relevant authorities or stakeholders. This was done through the host organisation, FMIST, which in turn provided all necessary information to appropriate contact people and community gatekeepers in the three research sites. Moreover, even though community gatekeepers were used for recruitment

of interviewees, informed consent from each of them was still required to ensure there was no underlying power relationship or subtle coercion between the gatekeeper and participants.

All interviewees were given comprehensive information regarding what the research entailed, the objectives of it and how the information would be handled, at all times making it clear that participation was voluntary. Similarly, they were informed that all of the data collected, as well as the analysis and reporting of the findings would remain completely anonymous. Although their names and some demographic information was collected during interviews, this was purely for the purpose of the research database, and names were not linked to any of the findings presented in the final document. Consent was also suitably obtained for the recording of each interview.

When interviewing particularly female respondents there was always an intention to minimise harm in the form of embarrassment or shame when it became apparent that it was difficult for them to express opinions in front of men. The research also aimed to be inclusive of different castes and class in the villages as much as possible, considering the limitations discussed in the previous subsection.

Finally, although it is difficult to fully assure that expectations were not raised, everything possible was done to handle expectations carefully from the beginning.

Chapter 4: Research sites

In this chapter, a detailed description of the three research sites is given, with particular emphasis on their irrigation systems, how they were established and how these are managed and organised. These descriptions aid in getting a basic understanding of the historic role of men and women in irrigation system management. Descriptions on general livelihoods in the village are also touched upon, particularly regarding agricultural practices. The information is mainly empirical, obtained during the field research through interviews and observation, and supported with available literature references.

4.1 Raj Kulo irrigation system – Argali village

The village of Argali is located in the northern border of Palpa District, approximately 30 km northwest from the district's capital of Tansen and 5 km east from Ridi Bazaar (**Figure 8**). It is a characteristic farming village of the hills of Nepal, at an elevation of approximately 650 metres above sea level.

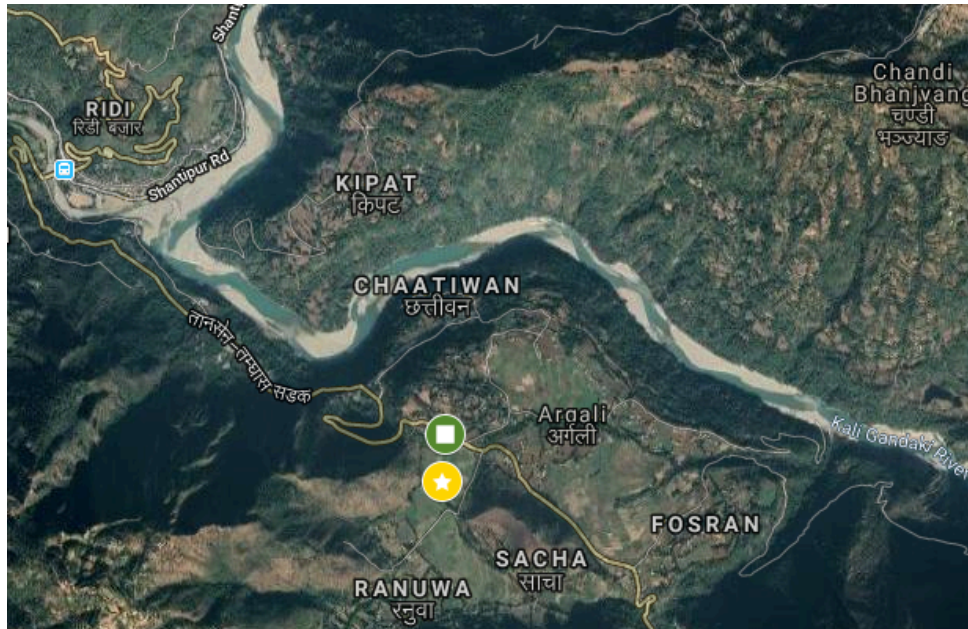


Figure 11. Map showing the location of Argali.

The green icon shows the centre of Argali, the yellow icon marks the area where most household interviews took place

During the 2011 Nepal Census, when Argali still had the denomination of Village Development Committee (this administrative denomination was only used until mid-2017)

and thus included several wards, the population was reported at 3,393 people living in 819 individual households. The present research, however, focused in the smaller Argali village itself and within a section of the command area of the Raj Kulo (“*Royal Canal*”) irrigation system. The centre of Argali is crossed by one main road that comes from Tansen and goes towards Ridi Bazaar. Most of the houses, however, are scattered around the agricultural fields towards either side of the road. (**Photograph 2**). It was interesting to recognise, while walking through the command area under the guidance of the community gatekeeper, that households appear to be somewhat segregated according to caste.

According to Mr. Parsuram Bhattarai, current WUA committee chief, the command area of the Raj Kulo extends over 225 hectares and provides irrigation for around 500 households. This indicates it has expanded considerably since the 1980’s, when Martin & Yoder (1989) reported the system having a hydraulic command area of 105 hectares. The command area is further divided into four smaller areas, each irrigated by a particular sub-canal. Most of the interviews conducted during the field work involved households in the command area of the sub-canal known as *Jethi kulo*.



Photograph 2. Views of Argali: main road (left) and view of a sector of the Raj Kulo command area with scattered houses (right)

History and characteristics of the irrigation system

The Raj Kulo is a gravity irrigation system on river terraces 100 to 200 metres above the Kali Gandaki River. It has an intake on the Kurung Khola stream and a main canal which is

3 km long delivering water to the command area in Argali (Martin & Yoder, 1989; Benjamin et al., 1991). According to oral tradition in the area, this irrigation system was established during the rule of King Mani Mukunda Sen, between 300 and 400 years ago. It was originally built to irrigate land set aside for the King's temple on the bank of the Kali Gandaki river, in Ridi:

"The main canal was constructed by King Mani Mukunda Sen for the worship of the Rishikesh temple in Ridi, and around 52 people helped construct that canal. Especially that irrigation system was for the land nearby the temple, the rice from that land only used to be for worship in that temple. After time he left, and people started using the canal and extended it." (Male WUA committee member, age 68, Argali)

Although there is no information available about the construction period itself it is known that most considerable improvements to the system were made from the 1960s onwards, particularly after the passage of the Land Reform Acts in 1957 and 1964, when villagers became land owners and no longer tenants (Martin & Yoder, 1989). The water is distributed through weirs called *saachos* (keys) which allow control of the passage of water through openings between canals, sub-canals and the farmers' fields. Although originally wooden, it was mentioned during the attended WUA meeting in the village that the wood had been replaced by cement as it was easier to maintain and protect. Similarly, throughout the years, the canals and sub-canals have been progressively lined with cement, which considerably reduces the need for maintenance and repair, particularly during monsoon season when landslides would be more common (**Photograph 3**). According to interviews with the WUA members, the main canal (Raj Kulo) is divided into four sub-canals, each delivering water to its own command area and managed by separate committees. The four sub-canals are known as the *Jethi*, *Maili*, *Saili* and *Kanchi* kulos, names that literally mean first, second, third and last. As mentioned previously, most of the interviews in argali were conducted with users of the Jethi kulo, which irrigates around 290 households, representing more than half of users of the entire irrigation system.



Photograph 3. Canal lined with cement. Jethi Kulo, Argali, Palpa

Farming and irrigation practices

The crop calendar in Argali resembles that presented for hill irrigated fields in **Figure 3** (Chapter 2). All women interviewed in the village explained they grow three main crops in the year: wheat, maize and rice, with most households also growing different vegetables in the different seasons, intercropped with the main crop. It's important to mention that this remains the same as what was described by Martin & Yoder (1989) who indicated that maize is the pre-monsoon crop, while wheat is cropped in the winter and rice throughout the monsoon season, which starts in July. During the fieldwork in this village, which took place at the end of March and first half of April, most *khet* (flat, banded and levelled fields for irrigating rice) land was visibly planted with wheat, as well as smaller quantities of other vegetables, particularly potatoes and cabbage (**Photograph 4**). The fields had been started to be harvested, after which maize would be planted intercropped with *dal* (lentils) or similar crops. Interviewees who owned *bari* (sloping, hill land) outside of the irrigation area also indicated they would have different crops there that had lower requirements of water, such as a particular variety of maize and different vegetables.



Photograph 4. Patches of cabbage and other vegetable intercropped with winter wheat in khet land. Argali, Palpa

In terms of irrigation, the Raj Kulo system has become more efficient with water distribution over time with improvements made to the canal structures and management. As Martin & Yoder (1989) mention, before the 1960s people would have to closely guard the weirs when water was being distributed to their fields because theft of water between local users was common. Currently, during the monsoon season and some other periods water flow is usually sufficient to maintain all fields continuously irrigated, which considerably reduces dissatisfaction and problems between the water users. In other times of the year in which water supply is not enough to continuously irrigate the command area at once, the Water Users Association (WUA) committee starts a timed rotation system of distribution. It is important to note that each of the four sub-canals has its own WUA committee. The order in which turns are assigned, according to interviewees, only depends on the order in which users request a turn when their fields will be ready for irrigation. Interestingly, one of the WUA committee members indicated that it is customary to give preference to *de facto* women household heads if they request a turn at the same time as a man ('women first').

All households that use the Raj Kulo irrigation system are responsible for contributing to canal cleaning activities in their respective sub-canal. This resource mobilisation is organised and led by the WUA committee and households are required to contribute labour in proportion to their water allocation, i.e. their land size. Canal cleaning happens at least once a year, to prepare for the monsoon season, but resources may also need to be mobilised in case of emergencies such as landslides and blocking of the canals. If members fail to

contribute the required amount of work, cash fines are levied by the WUA committee. As Martin & Yoder (1989) reported, the fine is still set to approximately the local daily wage rate for a man. On this matter Mr. Parsuram Bhattarai, chief of the Raj Kulo and chief of the Jethi kulo WUA committee, mentioned that in the past, if women had migrated husbands and children under the age of 16 they were exonerated from paying the fine if they did not mobilise resource for maintenance. Nowadays, however, because “*it’s about equality and treating everyone equally, if you’re not able to go then you need to pay or send someone. All castes and genders now are treated the same.*”

With regards to obtaining access to water for irrigation, a person needs to be able to buy irrigated land within the command area of the system or inherit *khet* land. This was the majority of the cases with the women interviewed; the land they worked was inherited from their husband’s family. As expressed by Martin & Yoder (1989) this makes it very hard to access irrigated land for particularly people in low castes, as buying land is expensive and historically most of the land ownership was distributed among the Bahun and Chhetri castes. They reported that at that time one Damai (low caste) had been able to purchase a small parcel of *khet* with earnings from work in India. During the field work, however, it appeared that this has increased and more *Dalit* have been able to gain access irrigated land (two *Dalit* households were interviewed).

Moreover, Mr. Bhattarai indicated that committee members of the Jethi kulo (the largest sub-canal and in which all household interviews were conducted) now comprise all of the castes represented in the command area, thus including Magar and Kami committee members. On the subject of WUA committee composition, he also said there are a total of 13 members, out of which 3 are women. One of them has the role of treasurer, as is the usual case with female members. The other two don’t have particular roles and just attend the meetings. Within the 13 members there are five who are considered “active” members, including the *Mukhiya* (irrigation leader) and *baidar* (second to the leader), and who are in charge of the daily activities on-the-ground activities. None of the “active” members are women. For comparison, when talking to a female WUA committee member of the smaller Maili kulo sub-canal, she mentioned the committee had 7 people, with only two active members (*mukhiya* and *baidar*). Out of the 7 members only 2 were women: herself, who acted as treasurer, and another woman with no specific roles. In this case, all the people in the committee were Bahun. The participation of women in WUA committees is further discussed in Chapter 6.

Finally, it's important to note that the Argali Raj Kulo has received recognition and awards over the past few years. According to chief P. Bhattarai, the previous year he received an award for the best irrigation committee from the Irrigation and Agriculture Minister. Additionally, during the FMIST seminar attended in Kathmandu in May, he was also presented with an award by Dr. Prachanda Pradhan, recognising the Raj Kulo as one of the best managed FMIS in Nepal.

4.2 Thulo Kulo irrigation system – Chherlung village

The village of Chherlung is also located in the district of Palpa, between Argali and Khanigaum, 20 km northwest from the district's capital, Tansen (**Figure 12**). The village is elevated around 200 m above the Kali Gandaki River and overlooking the river bend where the famous Rani Mahal (Ranighat Palace) is, a Rana construction dating from 1893.

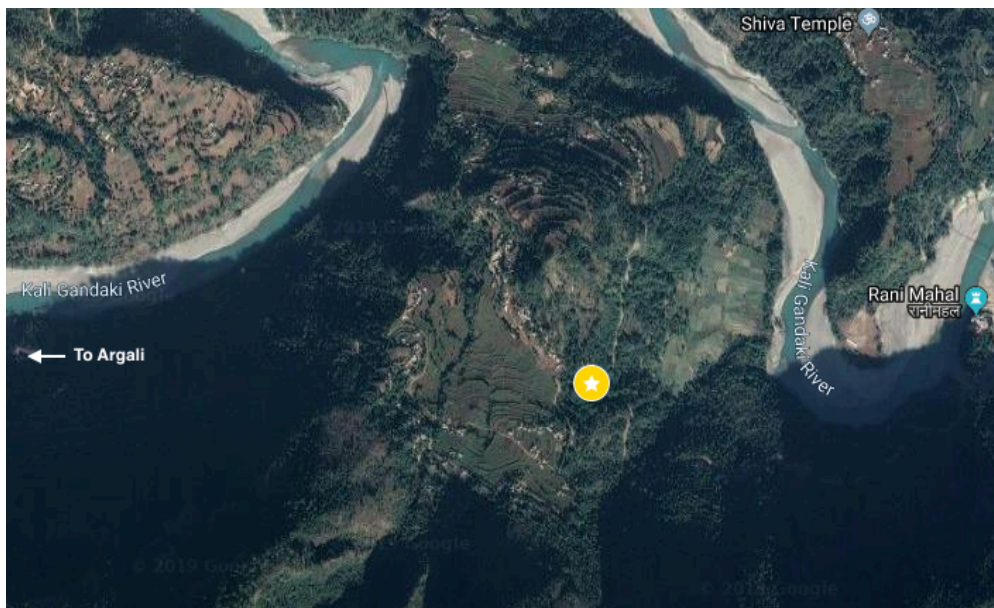


Figure 12. Map showing the location of Chherlung village.
The yellow icon indicates the area around which most household interviews took place

When Village Development Committees (VDC) were used as the smaller administrative division Chherlung belonged to Boudhagumba, a VDC with a population of 2,155 people distributed in 531 individual households (CBS, 2011). The present research focused in Chherlung village itself and particularly households within the command area of the Thulo Kulo irrigation system (**Photograph 5**). The command areas of the Raj Kulo and the Thulo Kulo are about a three-hour walk distance from each other.



Photograph 5. A view of the command area of the Thulo Kulo irrigation system in Chherlung, Palpa

History and characteristics of the irrigation system

Similar to the Raj Kulo, the Thulo Kulo is a gravity irrigation system on river terraces, located 650 m above sea level. The system has an intake on the Brangdhi Khola river and a 6.5 km long canal which delivers water to the command area in Chherlung. A lot more is known about the history and construction of the Thulo Kulo as it is a much younger system than the one in Argali, being only under 100 years old. As the different interviewees described in their accounts, construction of the Thulo Kulo was the result of an initiative by Chherlung locals themselves, particularly two men who organised and contributed the entire initial investment to start digging the canal. According to one of the community gatekeepers who helped with the research and interviews, it was his great grandfather and a retired captain of the Indian Army who invested 5,000 Rs.⁵, saying this would equate to 5 *karod*⁶ today. It is indicated in the literature (Martin & Yoder, 1989; Benjamin et al., 1991) that a contract of 5,000 Rs. and ten *maato muri* (approximately 0.12 hectares) of *khet* land was given to four experienced canal builders (called *agris*) from a village in Gulmi District. Construction started in the year 1928 and took about four years until water first flowed through the command area in 1932. According to interviewees in the area, when construction of the Thulo Kulo was finalised, villagers who lived in an elevated part of the

⁵ Nepali Rupee

⁶ 1 *kārod* = 10,000,000 Rs.

village asked to be included in the scheme, however, they were told it would be too problematic later on. As a result, construction of a second canal from the same source, named the *Sano Kulo*, was carried out. These two canal systems have the same form of organisation, water allocation and resource mobilisation, in many ways working as one bigger scheme (including when dealing with budget requests from government bodies). The *Sano Kulo*, also delivering water to a few houses in the nearby village of Artunga, serves approximately 100 households. The *Thulo Kulo* has a command area of 35 hectares, serving approximately 150 households. Although interviewees referred to them separately, it appears that in many cases when people talk about the *Chherlung* or *Thulo Kulo* irrigation systems, they are talking about the two collectively. In the case of the present research, interviews were carried out in households and with WUA committee members of both the *Sano* and *Thulo Kulo*.

Through time, the irrigation system has been improved structurally and has been made more efficient, delivering a higher discharge of water. From the late 1960s onwards, the canals started to be lined with cement and this practice has now been extended to the greater part of the main canal and sub-canals (**Photograph 6**). The WUA committee members interviewed indicated the command area served by the irrigation system has also increased in time due to improved infrastructure and maintenance.



Photograph 6. View of Thulo kulo canal lined with cement. The building to the left is the community water mill

In terms of water allocation, when construction of the *Thulo Kulo* was finalised, the 5,000 Rs. initial investment was divided into 50 shares of 100 Rs. each. These were then

distributed among the 27 households who ended up contributing labour during construction according to the investment each had made. Ownership of one share thus gave a member access to 1/50 of the discharge of water in the system. This arrangement of transferable shares among the land owners in the command area continues to be the method of water allocation in the irrigation system. The phenomenon of establishing and maintaining rights to use an irrigation system through investments of labour, materials or capital during construction and maintenance has been termed “hydraulic property” (Coward, 1986). Through his observations, Coward helped see how the creation of material property also creates social property relationships, and drew attention to the relevance of culturally existing and embedded norms and principles as determinants of water control (Roth et al., 2015).

Regarding water distribution to fields *saachos* are used only to distribute from the main to secondary canals; after that, farmers are responsible of adequate distribution themselves through adjusting the size in the opening in the earth bund and using rocks to control the water flow (Martin & Yoder, 1989). As mentioned before, this form of water allocation was also followed by the Sano Kulo. The price of shares is calculated by the WUA committee and regardless of the current price of shares, one share is referred to as Rs. 100 of water.

Farming and irrigation practices

Agricultural practices in Chherlung are very much like what was described for Argali, with the main crops reported being winter wheat, pre-monsoon maize and monsoon rice in the *khet* fields. Most households plant potatoes and other vegetables for household consumption in combination with the main crops, and many households also have *bari* which fall outside of the irrigated area, and where they plant a different variety of maize, among other crops.

Regarding irrigation, as with Argali and the case of any FMIS, managing the operation and maintenance of the system is under the responsibility of the WUA committee. There are presently 250 households in the command areas of the Sano and Thulo Kulo, compared to 105 reported by Martin & Yoder (1989) in the early 1980s. In a similar way to the practices in the Raj Kulo, in Chherlung during the monsoon season the farmers will get the water from the sub-gates (*saacho*) and during the dry season the *mukhiya* will be in charge of distributing water in turns according to the number of shares each household owns.

Resource mobilisation for canal cleaning and maintenance is also contributed by households in proportion to the benefits they get, i.e. the number of shares. For example, owning one share (equivalent to Rs. 100) means that a household needs to provide a

labourer for a full day; owning half a share equates to half a day of one person's labour. WUA committee members divide responsibilities so that each is in charge of one day of the week, and that day they have to organise canal cleaning in a given section of the system. Absent household members on their given required days of contribution are noted by the responsible committee member. They will later go by the absentees' households to collect a service fee equivalent to one day of labour. Canal cleaning is usually conducted four times a year and is particularly important in the pre-monsoon period, to prepare the structures for the heavy rains that will follow.

In terms of gaining access to irrigation, Martin & Yoder (1989) described this was much easier in Chherlung than in Argali, reporting the Thulo Kulo had 20% of members belonging to low caste households in the 1980s. They indicated low caste were able to purchase only a fraction of a share and with that gradually convert *bari* to *khet* land, without the need of buying expensive irrigated land. With regards to this, when discussing the composition of the WUA committee members, a member from the Sano Kulo indicated they had both Bahun and Magars (*Janajati*), while the Thulo Kulo had both Bahun and Bote-Majhi (*Janajati*). According to the WUA committee members interviewed, the Thulo Kulo has 11 members that include 5 women, while the Sano Kulo has seven members, three of which are women.

4.3 Andhi Kola irrigation system – Lalyang and Dimeekt villages

The third and final research site is located in the surroundings of the Municipality of Galyang Bazaar on the southernmost part of Syangja district, bordering Palpa. This area is approximately 80 km southwest of the city of Pokhara. The Andhi Khola irrigation system, which is part of a hydroelectric project, serves a total of five small farming villages: Lalyang, Aserdi (located in neighbouring Palpa District), Balpur, Dimeekt and Gimba. The interviews were conducted in the villages of Lalyang and Dimeekt (**Figure 13**).

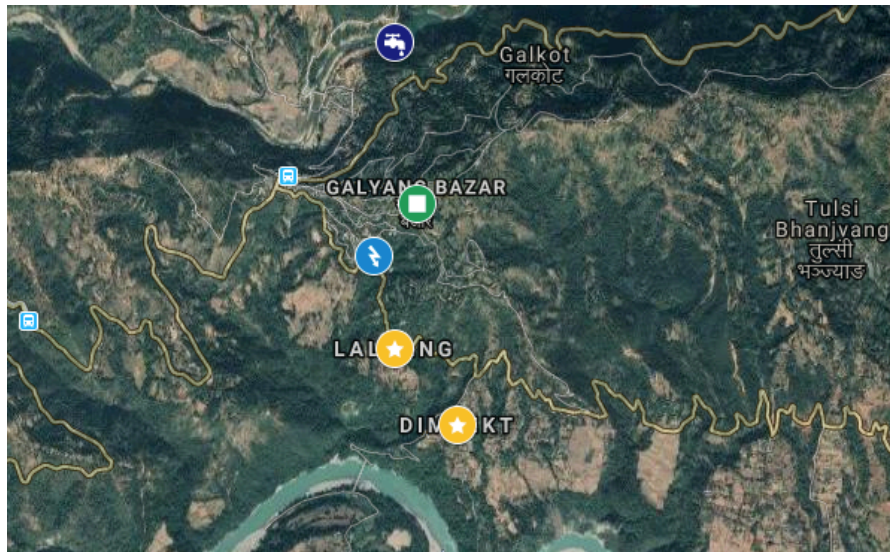


Figure 13. Map of the study area around the Andhi Khola irrigation system.

The green icon shows the location of Galyang (main town); the yellow icons show the location of the Lalyang and Dimeekt. The blue icon marks the Andhi Khola dam.

Population density in the Syangja District is as high as 370 people per km² (van Etten et al., 2002). The villages of Lalyang and Dimeekt belong to the former Village Development Committee of Tulsibhanjyang, with the latest available census (CBS, 2011) reporting a total population of 8,700 people in 2,050 individual households in the entire VDC. The area of the irrigation system is a low ridge located between the Andhi Khola river in the north and the Kali Gandaki river in the south, with many terraced fields on the hill slopes (**Photograph 7**). The altitude of the command area ranges between 380 and 625 metres above sea level (van Etten et al., 2002).



Photograph 7. View overlooking part of the command area of the Andhi Khola irrigation system in Syangja District

History and characteristics of the irrigation system

The Andhi Khola irrigation system was established as part of a bigger Integrated Rural Development Project initiated in the early 1980s by the United Mission to Nepal (UMN) in collaboration with the Department of Irrigation of His Majesty's Government of Nepal. The initial focus of the project was on the hydropower development and a rural electrification program with smaller activities in topics such as drinking water and sanitation. In 1982, the Government of Nepal and UMN agreed on the construction of a 5 MW power plant which was funded by the Norwegian Agency for Development Co-operation (NORAD). At the same time, the UMN started the irrigation development project after proposing to a group of community members the objectives and project methodology. The basis for the project was the principle of equitable benefits and the Chherlung irrigation system was actually used as an example of this practice. The People's Irrigation Committee was thus formed and a distributive land reform policy was implemented in the command area, where large farmers had to sell part of their excess land to the landless. The water allocation system was then established, in which everyone could access tradable water shares through participation in the construction works. In 1989 construction of the system started near the village of Lalyang and the scheme was finalised in 1996. The final number of shares distributed among users at completion was 25,000. In 1997 the project was officially handed over the Andhi Khola Water Users Association (AKWUA), which had replaced the People's Irrigation Committee and had the function to coordinate between the UMN and the users in the irrigation system (van Etten et al., 2002). It was registered in the Chief District Office in Syangja in 1984, becoming the first registered local WUA in Nepal.

The Andhi Khola river, fed by melted water and rain, is the main water source for the irrigation scheme. From the headwork, water is diverted to the surge tank on a power plant of the Butwal Power Company (BPC) (Figure 10, blue icon) and the irrigation system. Van Etten et al. (2002) reported the canal splits into the main eastern and western canals. The eastern canal is 5.1 km long and has eight secondary canals, while the western canal is 1.5 km long with two sub-canals. However, when discussing the current dimensions of the system with a WUA committee member, she indicated there is also a third main canal, which serves the village of Gimba. Moreover, van Etten et al. (2002) indicate the project area covered initially eight Village Development Committees (VDC) but throughout the construction this was reduced to 400 hectares and, later on, to 282 hectares, covering only three VDCs. One of the AKWUA committee members interviewed for the system reported the area had grown and currently serves closer to 500 hectares.

Farming and irrigation practices

As described for the villages of Argali and Chherlung, the agricultural calendar around the area of the Andhi Khola irrigation system command area focuses on the three main crops of winter wheat, pre-monsoon maize and monsoon rice.

During the field work, which was carried out during dry season months, it was nevertheless possible to see a few houses planting rice (**Photograph 8**). This is also described by Martin & Yoder (1989) for the Raj and Thulo Kulos, indicating that certain households who can afford it will plant a of rice that requires less water in pre-monsoon months, instead of planting maize.



Photograph 8. View of rice paddies in Lalyang village, Andhi Khola irrigation system

Irrigation is managed by AKWUA and, as in the case of Chherlung, water is allocated in relation to the water shares owned by each household. According to an interview conducted with AKWUA members water shortage in the Andhi Khola irrigation system is rarely a problem as the water it uses comes from the hydropower project and dam, which is more easily regulated and a regular flow of water can be guaranteed. In case there is any problem of low water supply to a section of the command area, they explain that this can be solved easily just discussing between the different villages.

Resources are mobilised according to water share ownership and households are thus expected to participate in canal cleaning or maintenance proportionately. If a household member is unable to go, they have to send someone in their place or pay the sum equivalent to labour wage.

All water requirements for the agricultural year are usually presented by the household members to AKWUA in the annual seminar organised, and any problems or complaints are

also handled through AKWUA village representatives. The AKWUA executive committee has a total of 13 members, 4 of which are currently women. The committee members interviewed indicated that other than the Bahun caste, they have Magar and Gharti (*Janajati*) representatives in the committee.

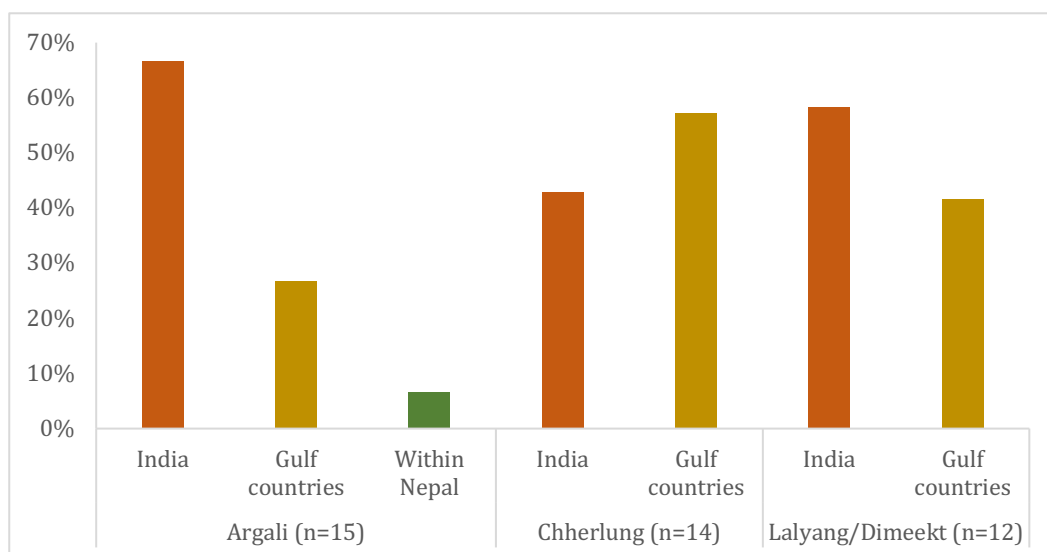
This chapter has provided a detailed background on how farming and irrigation systems are organised in the different research sites. The development and organisation of FMIS have evidenced to be a historically masculine domain in which cultural gender norms play a significant role. With this context now thoroughly presented, the following chapter assesses current migration practices and dynamics, and the extent to which these have altered the organisation of agriculture and FMIS.

Chapter 5: Male migration practices and dynamics

5.1 Current migration practices

Destination, frequency, age

Labour migration has been historically a common practice in Nepal, and this was supported by the interviews conducted in the three research sites visited. All interviewees talked about migration as a natural and virtually inevitable aspect of their livelihoods. India has been traditionally the most common destination for labour migration, given both the proximity and the simplicity of what moving there implies. Nepali citizens don't need to have a visa or any kind of permit to enter India and work in the country, making it a very convenient option and a much cheaper one relative to other countries. Not surprisingly, therefore, more than 50% of the women interviewed over the three irrigation systems reported their husbands were currently working somewhere in India. Overall, data on migrant destination varied a little between the villages, with Argali reporting the highest incidence of migration to India (**Figure 14**). In the case of Chherlung, on the other hand, close to 60% of the households interviewed actually reported male migration to the Gulf countries, while the rest were working India. The interviewees did not report any other migration destination countries apart from these. With regards to the Gulf states, United Arab Emirates (Dubai, in particular) and Qatar were the most common destinations for male labour currently.



Note: "n" indicates the total number of respondents per research site

Figure 14. Proportion of migrants per destination country in the three research sites

One important aspect to note is that none of the household women interviewed reported the husband having migrated only temporarily or seasonally; all were long-term or permanent migrants. The majority of the husbands had been living away for at least 10 years and close to 25% of the women interviewed actually reported their husbands had migrated more than 25 years ago (**Figure 15**). One of the *Dalit* women interviewed in Argali even stated her husband had been working in India for at least the past 48 years.

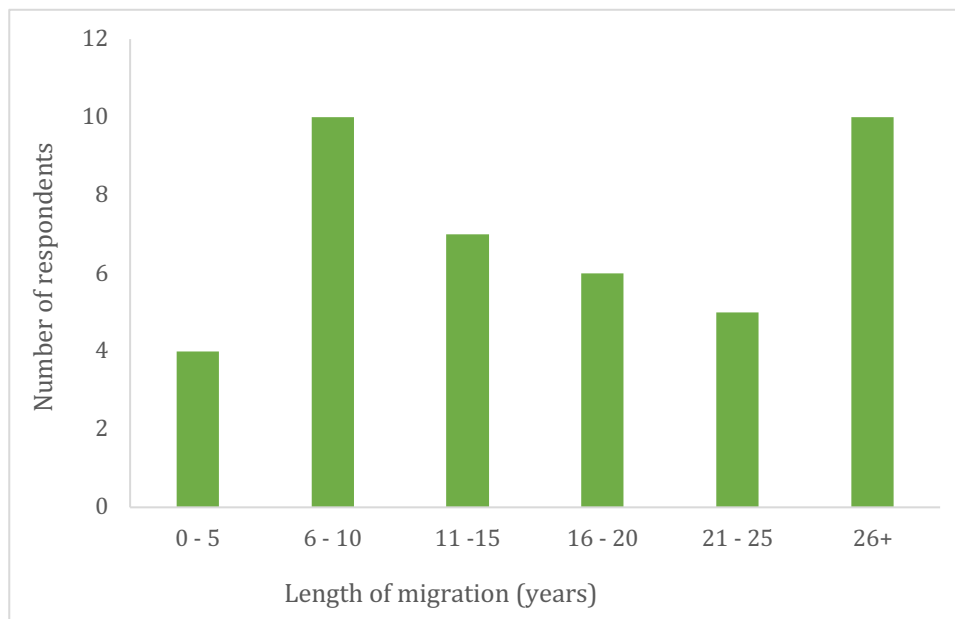


Figure 15. Length of time (years) respondents' husbands had been living abroad

When discussing the approximate age at which men migrate from the village, most interviewees replied that this usually happens when they are around 20 years old, after they have finished high school. This, however, appears to be more of a contemporary practice, since many of the women interviewed reported their husbands having left the country when they were younger than 20; in a few of cases even younger than 15 or 10. This is particularly the case for older migrants who went to India, which can again be linked back to the relative ease with which Nepali men can cross the international border. In the cases where they moved from the country at a very young age, it was usually accompanied by an older male family member, such as an older brother or cousin. Furthermore, most women indicated their husbands had already migrated before their marriage. Regarding this information, it is important to note that essentially all of these households are made up of arranged marriages. This means that the man would come back to the village just to meet his bride, go through the customary wedding ceremonies and rituals and afterwards return to the

country where he is living and working. In the case of the bride, she travels from wherever her natal place is for the same purpose and moves immediately in to her husband's home, whether it be with her in-law family or a nuclear household.

Interviewees reported talking to their migrant husbands usually once a day. However, in terms of the frequency with which migrated husbands would travel back to the village to visit their family, this varied between every six months to every two years, the most common being traveling back once a year. A couple of women even reported their husbands only came back after three or three and a half years after the first time they migrated, after which the frequency increased. When visiting, the husbands usually stay in the village for about a month, during which the women reported they did feel the difference in the amount of – particularly agricultural – work they had to carry out. Although it could be helpful to the women for their husbands to visit the village in particular times of year in which agricultural tasks are more demanding, such as rice cropping, only one woman reported her husband planning his visits around this time of year. Most said that their husbands are constrained by official holiday time they get off work and also by the investment that traveling to their village represents. The men living in India have the opportunity to visit more frequently, with a few women stating their husbands would sometimes be able to visit every three months and could also manage traveling back if an emergency arose. In the case of migrants in the Gulf countries, on the other hand, all of the interviewees said the frequency of visits home was either every 18 months or 2 years. This is illustrated by the following quote:

“When he (his boss in Dubai) will be coming back to Nepal he will bring my husband with him. Then he doesn't need to pay for anything. If there is any emergency then he has to come paying everything himself. So, his coming back depends on how often Mr. Chauderi visits Nepal.” (Bahun woman, age 35, Lalyang village)

It was not common for the women to have a precise idea on when their husbands would be returning to Nepal to live permanently. Most replied that it wasn't something fixed or defined yet; several just said their husbands would have to continue to work abroad at least until all of their kids had finished their education and also gotten married, as they would have to cover all the costs involved. This practice is reflected in the quote below:

“...in Nepal there are no good opportunities to get nice jobs and to earn good money – we have to feed and educate our three children so he may take 10 or 12 years or more to move back home.”
(Bahun woman, age 35, Lalyang village)

Motivation for migration

The reasons given by interviewees behind the decision to migrate by the husband revolved around job opportunities and earning more money. All the women interviewed cited poor economic conditions, insufficient income to support the household and lack of proper job opportunities in the village or the country as the central reason for labour migration. This was expressed both for the current situation as for historical practices. It is interesting to note that the women did not expressly refer to the decision to migrate from the point of view of a cultural convention or almost as right-of-passage for village men, which is thoroughly discussed by Sharma (2008), although his study focuses mostly on low-caste people. However, as mentioned earlier, quite a few women whose husbands belong to an older generation (aged 45+) did say that the husbands had migrated to India when they were quite young, which can be associated to what Sharma (2008) describes. One of the women interviewed talked about her husband running away in the middle of working the fields when he was a kid:

“He was working at the fields and the mud was hurting him, that’s why he ran away to India in the middle of working in the fields. He went there when he was in 9th grade in school and he completed his year 12 in India himself”. (Bahun woman, age 45, Argali)

Migration for the purpose of education was mostly mentioned in terms of a national-level migration, i.e. high-school graduates going to bigger cities such as Butwal or Kathmandu to pursue a higher education degree. This was the case of a few of the households interviewed when asked about their children. Some of the interviewees explained that, generally speaking, families with a given economic condition and in which family members had received a better education would perhaps have children going to work in countries like Japan, Korea or the United States, instead of the Gulf countries, but this was not the case of any of the households interviewed. One of the women in Lalyang, however, did mention her niece had won a direct visa lottery for the U.S. and was planning to move there.

Migration, caste and gender

As mentioned in Section 3.6 there was an inherent bias in interviewing households with access to irrigation land, as most would belong to the high castes – Bahun and Chhetri.

Nevertheless, it was discussed with the interviewees if they considered it was harder for males of lower castes to migrate because of a lack of resources. None thought it was more likely for men of particular castes to migrate, it was reported as a common practice for all castes. The interviewees indicated that there would certainly be constraints in terms of financial resources but that this happens across all castes, suggesting more an issue of class and not caste. However, it is important to mention that caste and socioeconomic class are commonly linked.

It was interesting to see the difference in perceptions when discussing migration of women with the interviewees. Most stated simply that it was not common at all; it was actually “very rare” to see females migrating. Many women, when asked about why male migration is so common and female is not, argued that there was no reason for them to go abroad if men are already doing it and they will earn the necessary money. They stated that it was the women’s role to stay home and look after the household and the children or extended family. Moreover, as the quote below shows, they expressed that normally women’s parents (and family-in-law) will not allow them to migrate.

“Women are getting married, so they have to maintain the household. We have to go to our husband’s home and maintain the house. So, women don’t really get a chance to migrate”. (Bahun woman, age 30, Lalyang)

Another important barrier to women migrating is the perception that something bad will happen because going abroad generally is not safe and they need to be looked after. Some of the interviewees also mentioned that women who go abroad will not be well regarded in their home town:

“In our culture, if a daughter is migrated, then they will become worse, corrupted, and the people will start talking badly about them. (Interpreter intervenes: In Nepal we are not allowed to have sex before marriage or even have boyfriends. So, if you migrate, the culture abroad is different, you can get drunk, have boyfriends, have sex. So that’s what they mean by worse).” (Bahun woman, age 38, Chherlung)

It was reported however, particularly in the Andhi Khola irrigation system area, that female migration has become a bit more common in the past three or four years mainly for the purpose of studying, and in many cases in-country migration.

5.2 Changes in migration practices over time

When talking about general changes in patterns of labour migration, all of the women interviewed manifested that migration had been constantly increasing over the time they had lived in the village. They reported that in these villages it was more common for men to migrate than to stay and work at home, indicating it was probably more than 70% of the young male population which decided to go abroad for work. Moreover, as was mentioned before, the destination for labour migrants had apparently shifted with time, from India being the most common destination to the Gulf countries nowadays. In relation to this, a pattern could be observed with regards to the age of the migrant and the destination country. It became apparent during interviews that, when talking to older women, whose husbands would be aged 40 years and older, it was more common to hear they were in India. The younger marriages, on the other hand, more commonly reported the Gulf countries as a migration destination for their husbands:

“Before people used to go mainly to India, otherwise stay at home and do agriculture and farm animals, buffalos... nowadays the trend of migrating has increased, everyone is migrating (...) Dubai, Saudi Arabia, Qatar. The new generation are going to Gulf countries but the older people are in India.” (Bahun woman, age 43, Argali)

This reflects a change in migration trends that can be associated to two different factors. Firstly, it was commented by interview respondents a few times that migration to the Gulf states was usually a destination that required skilled migrant labourers. This means that it has become more common for men to migrate after completing a certain level of education or with a particular skill and job organised in advance. Secondly, the shift from India towards the Gulf countries suggests there is a higher potential for investment in migration in these villages compared to the past. Migrating overseas requires paying for visas, work permits, airplane tickets and, in many cases, a “middle-man” who helps arrange the move. Families therefore have to have a certain amount of financial resources available or have to be willing to take out a loan in order to cover all the expenses involved in labour migration. Several of the female household heads interviewed reported having taken out a loan that they had managed to pay back within a year or two of their husbands migrating. It is worth mentioning on this matter that it was pointed out by women that sometimes the first year or two of their husband’s migration was difficult, as most of the money would have to go to repaying loans and debts, increasing the pressure on them to sustain the household.

It is interesting to note that in the Andhi Khola irrigation system area specifically, a few women mentioned Japan and Korea as common migration destinations nowadays in a shift from the Gulf countries. They attributed this to men migrating with higher education levels and skills. It is important to note that Galyang is a considerably bigger town than the villages of Argali and Chherlung, having more developed infrastructure, education centres and its own higher education institution. This means that the surrounding villages like Lalyang and Dimeekt have easier access to this and, at the same time, are better connected (through paved roads and highways) to bigger cities such as Pokhara, Butwal and even Kathmandu. All these can be contributing factors to facilitating access to better education options, and hence, opportunities for skilled migration.

5.3 Migration: women's perceptions

During the interviews women's opinions on migration were discussed and they were asked to think about positive and negative aspects they could relate to this common practice. The immediate and pervasive reply regarding the positive side was that the husbands could have a much better income and send money back to them:

"When he was here it was hard to get good income, when he migrated we were able to get more money and afford good education for the children. I don't see any negative effects of migration."

(Bahun woman, age 28, Dimeekt)

No other perceptions on potential positive effects of migration were given other than remittances, with the exception of one woman who said her husband had been able to learn how to drive as part of his job Dubai. Being able to receive remittances represents a very big benefit to them as the money is predominantly used to provide an education to their children, which appeared to be the top priority in all households interviewed.

As in the example quote given above, when asked about perceived negative aspects of migration and everything this entails, many women replied they could not think of anything negative to say. However, many women did relate negative aspects of migration to their role in agricultural work. They particularly argued that it was very hard to get male labour at certain times of year when it was in high demand due to the high rates of male migration in the village. They also expressed that not having the help of their husband for certain agricultural tasks made things more difficult to handle for them:

“(...) it is very hard to manage the irrigation system and agriculture alone, that’s the negative effect [of migration]. In agriculture I will be having problems with ploughing field, managing irrigation and when the crops, especially rice, is ready, it’s hard to harvest and bring home”. (Bahun woman, age 35, Argali)

Moreover, it was manifested by women interviewed that a negative aspect of migration was not having their husbands with them if an emergency situation arises, such as dealing with an illness or if something unexpectedly goes wrong with their crops. Only a couple of the women actually touched upon more personal negative consequences of migration, expressing they would prefer it if the whole family could live together or if at least the husband could visit the village more often.

5.4 Migration, agriculture and irrigation

Interestingly, agricultural practices as such have not changed significantly as a direct result of male labour migration. Agriculture is still widespread in all three research sites and largely carried out for subsistence, with reliance on the three main crops (wheat, maize, rice) unchanged. Women have always been involved in the larger part of agricultural tasks as well as being in charge of water use for the purpose of irrigation. In the context of male migration, women now basically need to manage more agriculture-related responsibilities or tasks. One impact that was mentioned pervasively at the household level is the absence of male labour – their husbands – for specific agriculture tasks and events. It should be noted on this subject that agriculture has traditionally been carried out with firm gender divisions of labour. Certain activities, like ploughing (*jotnu*) or making and strengthening the mud barriers (*ali*) between fields for monsoon season, have always been carried out by men. Interestingly, despite the pervasive trend in male migration and subsequent shortage of male labour, women are still somewhat reluctant to participate in tasks such as these. The common coping strategy is hiring more outside male labour, which remittances allow for, but migration trends are reportedly making it increasingly harder with decreasing numbers of young men in the village. This is illustrated with the quote below:

“Yes, it’s hard to plough the land, because I’m woman I can’t plough the field, I have to hire someone but it’s hard to find labour”. (Bahun woman, age 43, Argali)

According to the respondents, there is a need to hire labour usually eight or nine times per year: four times during rice season (planting, weeding, cutting and harvesting); twice for

wheat (planting and harvesting), and three times for maize (planting, digging to allow for roots to expand and harvesting). This can vary, however, depending on the composition of the household. In joint households with a higher number of family members (including other older male members) available to help, the need for hiring labour might only be reduced to 5 or 6 times a year. Regarding the hiring of labourers, it is worth mentioning that male labour is considered inherently more valuable than female labour. One female respondent in Lalyang village specified that 6 hours of work of a female labourer costs Rs. 300, whereas the same number of hours of work by a male labourer can cost up to Rs. 600. The difference relates back to the cultural gender division of labour and perceptions; she indicated that male labour is usually “*more difficult, more physically demanding.*” The greater value attached to male or heavy work is also discussed by Zwarteveen and Neupane (1996).

Another common strategy to compensate for decrease in male labour is participating in what is known in Nepal as the *parma* system, a social practice by which people exchange labour reciprocally within the community in times of need (**Photograph 9**). Many of the women interviewed reported working in *parma* groups. Interestingly, according to some interviewees and observations in the field, labour sharing is usually only organised between members of the same caste. This could result in low-caste women, who are not as numerous in agricultural work, to have a harder time in coping with decreased labour availability or having to resort to different strategies.



Photograph 9. Women sharing wheat harvesting labour in the fields. Argali, Palpa

Lastly, with regards to irrigation practices, the field work didn't reveal any significant changes in the established systems *per se* as a direct result of male migration. Again, as in the case of agriculture, it has become common for women to take on certain irrigation-related tasks that used to be generally handled by men, such as attending the WUA annual seminar or approaching committee members themselves in case of requests or complaints. Other than that, irrigation systems are essentially functioning in the same fashion, including in terms of the composition of and governance over WUA executive committees. These committees, in all three research sites visited, are still led by high-caste (Bahun or Chhetri) older men. Although the executive committees include women among the members, this is usually in more a symbolic than a practical way, so as to comply with particular irrigation policies that were introduced at the end of the 1990s. Women participation in WUA executive committees is discussed in further detail in Chapter 6 (Section 6.3).

This chapter has focused on current male migration practices and how these have been evolving throughout time, demonstrating that it is very much a widespread livelihood strategy in rural Nepali villages. Although no significant structural changes in agriculture or irrigation system management are evident thus far, there are visible consequences to the decreased availability of male labour in these villages and the increasing role to be played by women. The following chapter will delve into the numerous implications and differential experiences of women regarding the so-called feminisation of agriculture.

Chapter 6: Women's livelihoods, participation and agency

6.1 Livelihoods

The households visited across the three research sites all relied on two main activities for their livelihoods: agriculture and migration (i.e. the remittances sent home by the migrated members). It was not common for households to have an additional source of income other than these, with only a couple of exceptions. One example is the case of a woman in Chherlung village who indicated the family owned a jeep (which functions as a taxi between villages) and they earned money from this as well. However, this particular case concerned a joint household and this was an income-generating activity conducted by the woman's brother-in-law, thus contributing to the joint household's income. When talking to female household heads in nuclear households, in one occasion a woman mentioned the family had a small shop but it was very difficult to run on her own while at the same time managing everything else. Similarly, one of the interviewees in Dimeekt village said she had a small tailor shop, but she was only able to work there when she found a few hours of free time from her other agricultural and housework responsibilities. In these cases, therefore, these activities did not provide a fixed or reliable income for the household.

Similarly, agriculture did not represent a source of monetary income *per se* for many of the households interviewed. Most of the women indicated that what they farmed was for household consumption only, and a few even said that their agricultural production was not enough to meet the household's food requirements for the year. The households with the capacity – in terms of land and labour – to produce more than enough for their own consumption throughout the year would sell the extra produce locally, within the village. However, people in Chherlung in particular mentioned that selling vegetables in their village was really difficult as there was no market for this and, if they wanted to sell their produce outside they had to use a sort of “broker” or middle man, which ended up not being very profitable. One of the community gatekeepers who helped with the research mentioned he was able to go to Butwal to sell radishes he had cropped, but only because he had his own vehicle. Therefore, as in the case of the additional sources of income mentioned above, agriculture was generally not reported as a fixed contribution to the total monetary income of the family. The interviewees who did usually have some produce to sell said that the earnings from this would mostly be used for household expenditures, such as spices, agriculture inputs or other supplies for cooking or cleaning.

Despite the fact that agriculture is carried out chiefly for subsistence purposes, when asked how much their work and remittances contributed to the household proportionately, most of the women argued the contribution would amount to about 50%-50% or 40%-60%. The main reason they gave for this was that they basically did not have to spend any money for food during the year for any of the household family members.

According to interview respondents, remittances are most commonly spent in the education of children. It was also common to hear that remittance money was used (or would be used) for the weddings of their children and, as discussed before, in many instances the children's education and marriages were the events dictating when the husband would no longer need to work abroad and thus be able to return to live in the village:

"I have no idea when he will come back, it's not fixed yet because still we have to educate our children and arrange their marriage expenses" (Bahun woman, age 49, Dimeekt)

On the subject of remittances, it is important to point out that it is not always the case that they are a steady or reliable monetary source from the beginning. A few women reported that, especially the first year can be challenging as it takes some time for the migrants to get established and be able to have a steady flow of income. This is particularly common for men who migrate in search of a job without having an opportunity already lined up and thus might take longer to secure something. Similarly, when families take out a loan to be able to afford the costs associated with migrating overseas (visas, work permits, airplane tickets), the remittances over the first couple of years might be used almost entirely to repay the loan. These situations, as the women reported, can increase the pressure and put a temporary burden on them.

Given most of the migrants had been abroad for long periods of time, it was discussed with interviewees whether there had been a change on the amount of remittances sent by their husbands over time. A few of the women replied the amount remained the same, especially those whose husbands had not been gone more than a few years, but more than half of interviewees reported remittances had indeed increased in time. However, when asked if an increase in remittances translated into a lower workload for them and consequently less pressure or more leisure time, almost all the women replied negatively. Remittances would then be used for other priorities such as renovating or improving their house, re-building or putting the money in a savings account.

6.2 Processes of decision-making

A substantial number of women interviewed indicated that financial decisions in the household were made in mutual accordance with the husbands. A large group, however, also said it was solely the husband who would decide how the remittances are spent, with one even saying the following:

“If I make decisions on my own, then he will not send money. The decision-making has to be in mutual understanding.” (Chhetri woman, age 49, Argali)

Additionally, there was a marked difference regarding financial decision-making when talking to women living in nuclear vs. joint households. In the cases in which the woman was living with the in-law family, she would not be the one managing the household finances. The first option was always the father-in-law. If he was no longer alive or did not live in the house but there was another older male present (such as a brother-in-law), it would be him in charge of handling money. Otherwise, if the older woman in the house was the mother-in-law, she would be managing the household expenses. In these cases, the husband would usually send the remittances directly to his family members, thus limiting his wife’s autonomy in managing the household and making financial decisions on her own. These practices clearly reflect the patrilineal structure of families in Nepali culture (see Bennett, 1983; Adhikari & Hobley, 2015).

Even in cases in which the woman reported that financial decisions were made in mutual understanding with the husband, when discussing the mechanism by which they organised and received remittances, quite a few indicated that they weren’t really in control of when their husbands would send the money or how much they would send. A couple of women stated that their husbands would just send money whenever they could and as much as they could, while others said the husband would actually calculate himself what was needed in terms of household expenses and would send that exact amount:

“He doesn’t send money every month, he will send money every two or three months and he will send money only for exactly how much they need for their expenses. He will calculate the expenses for education. Other money he will manage and save in the bank.” (Bahun woman, age 41, Chherlung)

Nevertheless, it’s important to highlight that the women who did manage to earn some money through selling agriculture products indicated that they had total control about how

that money was spent and did not have to talk about it with their husbands. This allowed some of the women to have a certain degree of financial independence.

On the subject of decision-making it is also worth mentioning that, although women regard migration as necessary and overall positive, they don't necessarily participate of the decision for the husband to migrate. In most cases, the women interviewed got married when their husbands had already migrated abroad. In other cases, a couple of women did express not wanting their husbands to go at certain points but not being able to prevent it:

“When he was going for the first time I didn't really agree with the decision because I was pregnant and had two small kids at home. His nephew was in Dubai and he had sent the visa and arranged, so he had to go.” (Bahun woman, age 35, Lalyang)

6.3 Workload, social capital and agency

In general, the women interviewed described the same types of activities in terms of the responsibilities they needed to cover throughout the day across the three research sites. A normal day for them begins quite early, with most interview respondents stating they wake up between 4 a.m. and 5 a.m. During the morning they have to start cooking early as meal preparations can take a long time; they also go out to collect grass or fodder for their animals and, if needed, they collect wood for cooking. If they have children in school, depending on their ages, they might need to help them get ready and take them to school. Cleaning the house and the animal pens are also daily morning activities, while the majority of the afternoon is spent in the fields in agriculture related-tasks as well as cooking the second big daily meal. As described by Bennett (1983), cooking can take up a big part of a woman's day, with each meal – between preparation serving and cleaning up – taking up to three hours. The existence of cultural gender division roles plays a significant role in the regular workload of women in these villages, something also described by Zwarteveen and Neupane (1996). As mentioned in the previous chapter activities like ploughing, building the *ali* (mud barriers), etc. are regarded as customarily male tasks. However, observations during the field work evidenced that these labour divisions are mostly culturally engrained and a matter of historical perceptions on what is “difficult” work. In practice, women carry out many tasks throughout the day that would be as physically demanding as “masculine” tasks (**Photograph 10**).



Photograph 10. Examples of physically demanding tasks performed by women

Nevertheless, it appears women themselves reinforce these norms; during interviews some agreed that there were in fact tasks that were too physically demanding for them:

“Women don’t plough the fields not only because of the culture, it’s also because of the ability. Women are not as strong as men. That’s why we are not able to plough. We also tried the tractor but it’s hard to handle so it’s a physical thing and not only the culture.” (Female WUA member, Argali)

In terms of perceptions or personal opinions on their workloads, answers varied between households. Although the majority of women manifested they were sufficiently able to manage the workload without any problems, a considerable number did express a dissatisfaction with the amount of work they had to do and specified how this was alleviated when their husbands visited the village. This is illustrated by the following interview quotes:

“It’s difficult to manage everything alone myself instead of him, so many problems will come and I have to manage myself, I have to handle every economical transaction, everything. I have to look after my children...” (Chhetri woman, age 49, Argali)

“It feels different when he visits here, he does help in agriculture work and household work. And when he goes back I feel like the work of two people I have to do myself. So, for household work my daughter will be helping and agriculture I need to hire labour.”
(Bahun woman, age 46, Argali)

It is worth illustrating at this point how perceptions between men and women are regarding workload. The following quote is from an interview with an elderly man, member of the Jethi Kulo WUA committee, and contradicted many of the sentiments expressed by female respondents:

“Before they used to have lots of animals now they don’t. Now they don’t have to plough fields with ox, they can hire tractors. And they don’t have to carry large baskets of vegetables because the road is here. Also, most people don’t work so hard if their husband has migrated because they will send money and they don’t have to work a lot. And if they need any labourers, they can hire them. It’s easier these days.” (Male WUA committee member, age 68, Argali)

There are several factors that affect the women’s opinions on workload and “burden” of certain responsibilities. Again, there was a marked difference in nuclear and joint households. In the case of agricultural work, as previously mentioned, interviewees explained that the need to hire labour in certain occasions throughout the year would be less, as they would be able to cover required labour with family members. This relieves the women of actual transactions of hiring labour as well as cooking, given they are required to provide meals for the labourers. Similarly, regarding household work, sisters and parents-in-law can help to a certain extent with cleaning, and also with looking after the children (**Photograph 11**). In the case of nuclear households, the number of children and their age were important factors. Naturally, looking after a larger number of children requires more time and effort; however, after a certain age they are able to help their mother with household work. From what interviewees shared, it is most common for daughters to be the ones who help with cooking and cleaning activities.



Photograph 11. Grandmother helping look after kids during meal time. Dimeekt, Syangja District.

When talking to the respondents about their time of leisure or any type of hobbies they enjoyed outside of their responsibilities it was interesting to find that the vast majority of women had difficulties coming up with an answer. They did not really consider the idea of leisure; one of the interviewees even laughed saying there was no such thing as free time for them. None of them seemed to have any clear preferred activities outside from agriculture and housework. Understandably, a few said that if they had some free time they would spend it resting or spend time with the kids; a couple of women said they would just enjoy time on their phones. Similarly, none of the women demonstrated an inclination or aspiration regarding higher education. They were asked during the interviews if they wished they had been able to study further, as the vast majority had not even finished high school, or if there was something in particular that interested them and would have liked to pursue a higher education in, but most responded passively. Some of them said they would not have been able to study anything anyway because they were not educated, others gave a plain “no” as an answer. This illustrates women’s differential capabilities and access to education, stemming from cultural norms that prioritises women’s involvement in household support as opposed to development of skills.

It is important at this point to provide relevant context for women’s livelihoods in terms of social interactions, social capital and agency.

As mentioned in the previous chapter, most of the marriages in Nepal – and particularly rural Nepal – are arranged. Furthermore, the women interviewed were usually from outside the village, sometimes from villages located quite far. As a result of Nepali patrilineal and patrilocal customs, once a woman is engaged to marry she must leave her natal village or town and move to a new place, thus no longer having the social network or support they had had up to that point:

“My father used to work in India, that’s why we were there. Before three months of the wedding, my mom, siblings and I moved back to Nepal. I moved to the village because I got married.”
(Bahun woman, age 35, Lalyang)

These women move in to a new house, in many cases shared with her new husband’s family, and are immediately expected to look after this house, take on all the associated responsibilities and, if applicable, tend to her in-law family. In the cases in which the husband was already a migrant before the marriage there is the added factor that, after a short time, he will be gone again as well. When talking to the interviewees about the

frequency with which they visited their hometowns and direct family, most said it would be only once a year.

In addition to what moving to a new village involves for women, it is important to consider that Nepali/Hindu cultural norms also dictate that women should have generally submissive demeanour, especially in the presence of men. Women are not well-regarded by others if they are perceived to be “loud”, outspoken or are seen talking or laughing vividly with others. Talking with men that are outside of their own family is particularly problematic as they would immediately be regarded as unfaithful to their husbands and would be badly talked about around the village. This is illustrated by the quote below – and resonates with examples given in the comprehensive work of Bennett (1983):

“(...) if you are a woman alone and not strong or well informed, then some men will dominate you. If you talk with any guy, then they will start making rumours about you.” (Bahun woman, age 45, Argali)

During interviews these underlying cultural norms became evident in the difference in demeanour of women when there happened to be a man present or close to where the interview took place. One particular example was when interviewing a 27-year old Magar woman in Chherlung, whose husband happened to be home on holidays from his work in Dubai. The husband sat outside while the interview was carried out and was within hearing distance. The woman was visibly apprehensive about her husband listening to her answers, constantly looking at him before replying to questions and laughing nervously throughout. She was reluctant to answer most questions and, when she did, she would do so very bluntly, many times with a plain “I don’t know”. Her husband even interrupted the interview when she was asked about the allocation of remittances saying she would spend all the money buying credit for her phone to make unnecessary phone calls within the village.

Women are therefore somewhat restricted in terms of social capital and face constraints regarding the possibility of certain social relationships within the village; most of their social interactions are with members of their own households. It was observed during the field work, however, that there are a few ways in which women are able compensate for these “restrictions”. Labour exchange between women is one of the most common ways in which women interact with each other and get a chance to talk and spend time. Some of the respondents reported that on occasions they also get together to work outside of the field, and while working in the villages I indeed came across instances of women sharing tasks – usually in their courtyards – for things such as threshing, separating rice, shucking corn or

making *tapari* (plates made of *saal* leaves commonly used in important ceremonies or rituals) (**Photograph 12**).



Photograph 12. Examples of village women working together on different activities

Another important platform for social interaction of women is village women's groups. Most of the women interviewed in Lalyang and Dimeekt, for example, said they were members of the "mother's group". They explained the members meet usually once a month and they manage a shared fund to help each other out in times of need, as well as having other things like chairs, cups, plates they each can borrow when they have events. Nevertheless, it's important to note that in the Andhi Khola irrigation system all the women interviewed were Bahun and they confirmed that the mother's group was made up of only Bahun women. Similarly, when asking a woman about *parma* in the village of Argali, she mentioned that no low-caste women were part of her labour exchange group. This illustrates that access to social capital might therefore differ between high-caste and low-caste women.

6.4 Female participation in irrigation and WUA committees

Participation in irrigation at the household level

Women have always played a big role in agriculture and they continue to do so. In terms of irrigation practices in particular, as previously mentioned, men have traditionally been regarded as water *managers* whereas women have the role of water *users*. Over the past few decades, as a result of the widespread migration of men out of rural villages, women's responsibilities in these practices have undoubtedly increased. They are now taking on different roles in water irrigation management at the household level, having to deal directly with the different rules and regulations regarding the water allocation and distribution systems in place in their villages. Consequently, it has become increasingly common, for example, for women to be the ones representing their household in attending the WUA annual seminars organised in the Argali and Chherlung irrigation systems. These meetings are usually held during the first month of the Nepali calendar and it is the occasion in which water users are informed about any problems or plans with the canals, when elections for WUA committee members take place or where different administrative matters are discussed. Moreover, many *de facto* women household heads now have to be responsible for approaching WUA committee members for any requests regarding their water allocation, water turns or if they have any complaints related to irrigation practices. Although this might not seem like a significant change, it must be understood within the context of expected female social behaviours discussed previously – it is not customary for women to talk to men outside their household, negotiate or deal with transactions.

Although participation of women in household irrigation management has increased in certain aspects, the long-standing gendered norms and division of labour are still manifest when observing the social dynamics of irrigation. Practices in resource mobilisation exemplify this. As was mentioned in Chapter 2, resource mobilisation is central to the functioning of FMIS. With the historical masculinities ascribed to these systems, canal maintenance or cleaning have always been purely a male-organised and executed task; women were not originally allowed to be a part of these. However, WUA committee members interviewed indicated that increased male migration has resulted in women being allowed to participate and contribute their corresponding share of labour over recent years, given otherwise they were forced to pay someone else to go in their place. Nonetheless, their participation can be conditioned or restricted in certain ways. In the Raj Kulo irrigation system, for example, women who are on their period are forbidden from going to the main canal because of an ancient belief:

“One time one lady who had her period went on the canal on the second day of her period and the water supply stopped, water disappeared. People say that this water started to flow because in ancient times the queen cut her finger and bled into the canal, and after that the water came out in the river. So, when the water disappeared, everyone was worried and they decided they would give the blood of a female goat to the canal. And they did, and water came again, so we still do it every year.” (Bahun woman, age 49, Argali)

Interestingly, women themselves agree with this restriction and make the conscious decision to not go to the canal when on their period, as they believe the water flow could disappear. In this case, they will actually spend money to hire someone to go on their behalf. It should be mentioned that this example of course touches upon larger social norms and cultural beliefs of Hinduism regarding the concepts of purity and pollution, as well as associated social taboos surrounding menstruation.

In the irrigation system in Chherlung there are also constraints in place regarding participation of women in canal cleaning. According to the WUA committee members interviewed, which were all male, women are only allowed on certain sections of the canals as other parts are considered too dangerous for them and they can't be held responsible for potential accidents (**Photograph 13**). As with the case of ploughing in agriculture, reference was made to the perceived physical abilities of women. Moreover, one of them indicated that women are only allowed in canal cleaning activities of the bigger canal (Thulo kulo) but not the smaller (Sano Kulo) due to participation of Magar men (*Janajati* caste):

“...in the Thulo kulo, the bigger canal, they have the same caste of people using the irrigation system so they don't have problems. But in our canal, there are two castes, there is a high number of Magar people so we don't take women in canal cleaning because anything can happen with them during that time. Also, the way to the canal is too dangerous for women. That's why we don't take them.” (Male WUA committee member, age 73, Chherlung)

Although no further explanation was given on this statement at the time of the interview, the Nepali interpreter later explained that the Magars are regarded as the more “aggressive” caste and this would be the reason the WUA committee leaders consider it dangerous for women to work alongside them, thus prohibiting them from participating. None of the women interviewed reported to challenging this restriction.



Photograph 13. Pre-monsoon canal maintenance activities in a section of the Sano Kulo, Chherlung – no women were seen participating

Although several of the women interviewed reported not having much problem with the added responsibilities in household irrigation management, one particular activity was a common cause for complaint among female interviewees across the three research sites: night shifts (also reported in Zwarteveen & Neupane, 1996). During times of year in which water distribution is organised by the WUA committee in a system of timed shifts according to each household's water allocation, some households inevitably get shifts during the night. For *de facto* women household heads with no additional help, this involves having to go out alone in the dark for prolonged periods of time, and in some cases the fields are not so close to their home. All of them reported this was the main irrigation activity in which the absence of their husband was problematic for them. The following quotes illustrate the discomfort manifested regarding this task:

“The main problem I am facing here being a woman is that my land is quite far and I will sometimes be getting my irrigation turn in the midnight or 1am and I have to go there. So, when I’ll be walking there will be drunk men along the way which is scary for me.”
(Bahun woman, age 35, Lalyang)

“If my husband was at home with me I wouldn’t have to go alone to night shift, he would go with me.” (Bahun woman, age 39, Argali)

Again, as in the case of easing the workload described before, women in joint households were less likely to report irrigation night shifts as being an inconvenience. In houses in which a brother-in-law or father-in-law was present, they would be the ones managing irrigation-related activities. One of the women interviewed in a joint household in Chherlung detailed that if they got a turn during the day she would be the one irrigating the fields, but night shifts would be handled by her parents-in-law.

Participation in WUA executive committees

Participation of women in WUA committees was first formally required in Nepal's legislation as a result of the 1997-2002 Five-Year Plan. Regulatory policies formulated for irrigation mandated that 20% participation of women was required in committees. In 2000 the Irrigation Regulation instructed that there had to be at least 20% participation of women and, in 2002, this was amended to "encourage thirty-three percent participation of women in committees" (Udas, 2006).

The requirement of 33% participation of women is still valid today. WUA committee members interviewed indicated that if committees do not observe this, they risk not being granted financial support from governmental bodies when requested. From the interviews held in the field it appears that this policy has thus far resulted in the symbolic or tokenistic inclusion of women; the committees are only looking to comply. When a couple of male WUA members of the Thulo Kulo irrigation system were asked if women were included just for this reason, they responded affirmatively. Moreover, there were cases of conflicting information when talking to male WUA committee members. For example, in Argali village, the Jethi Kulo chief had indicated that the committee treasurer was a woman. However, when interviewing another WUA member and asking about his role, he replied he was the committee's treasurer. Apparently, a practice that is quite common – and one that was discussed in one of the presentations at the FMIST Seminar in Kathmandu (Shrestha & Clement, 2018) – is that male members put down their wives' names as committee members but they are the ones who actually carry out the role. Other instances of conflicting information when talking to WUA members related to the restrictions to women's participation in canal cleaning.

Although it was manifested to community gatekeepers that there was a particular interest in interviewing female WUA committee members, only two of the WUA members interviewed across the three research sites were women. One was in Argali, a female committee member of the Maili Kulo WUA, and one in Dimeekt, a committee member of the

Andhi Khola WUA. As one might expect, in all the research sites, upon arriving to meet the contact people and explain the research project and interests in WUA committees, the first contact would be with men (**Photograph 14**).



Photograph 14. Group of WUA committee members in introductory meeting upon arrival in Chherlung village, Palpa

The female WUA member interviewed in Argali had the role of treasurer, whereas the one in the Andhi Khola irrigation system was a regular member (no defined role). They had both been elected into their respective committees a couple of years before, although one of them had not volunteered herself, she was just proposed by the other members. Although they were satisfied with being committee members, they did acknowledge that their participation was largely due to the policy requirements: both committees had just the number of women needed to comply. When discussing the importance and current status of female participation in irrigation governance they manifested it was not enough, but it was hard to improve on this because women don't usually have the interest or the time to become more involved. Additionally, they discussed it would be very difficult for a woman to actually hold one of the high posts of the committee and evidenced the still present masculinities in the field of irrigation:

"The higher posts are Brahmin. So, there is chair (chief), vice chair, secretary and treasurer, and then the members – 9 members that are just regular members. The secretary is a woman. Basically, one of the "higher" posts has to be a woman, so most of the time this will be secretary. But chief and vice chief are always male and high caste." (Female WUA committee member, Andhi Khola irrigation system)

When talking to household women in the villages the main barrier reported to higher participation of women in committees was a lack of time. Although most acknowledged it should be improved and that they would indeed like to be committee members, they manifested they would not be able to carry out their roles appropriately because they already had too much work in the households and with agriculture. The female WUA member in Argali also said this was a reason preventing her from trying to attain a higher post:

I wanted to be a chairperson (chief or vice-chief) but I'm the only woman at home and I have to maintain my household so I might be unable to work when needed, that's why I couldn't do it.
(Female WUA committee member, Argali)

Another barrier to increased female participation appeared to be the lack of information women have on how WUA committees work and what the different roles entail, which results in women thinking being a committee member requires a much bigger time investment than it actually does. For example, the Maili Kulo WUA treasurer indicated her role required her only to attend a meeting once every three or four months and then be available if any emergency arose, and considered that many women would be able to handle that if they had more information about the requirements. This is illustrated by a quote from one of the women interviewed in Argali village:

"I wish I could participate but there is a lack of time and lack of support; nobody is motivating women to participate. And also, there is lack of information about what WUA does." (Bahun woman, age 45, Argali)

Another woman interviewed in Argali reported she had actually been the first female member of the Raj Kulo WUA and she described not really knowing how the system worked or even what her tasks were as a member, resulting in her feeling like she could participate properly or contribute to any decision-making.

Finally, it was evident from the interviews that, regardless of the current attempts to increase female participation through policies, there are underlying cultural barriers preventing this from happening successfully. For example, both men and women interviewed tended to justify the lack of time women could invest in WUA committees by saying naturally they "*had to*" look after the house, the children and work in the fields – these were just assumed unquestionably as roles of females, which again goes back to historical gendered divisions of labour. Similarly, a few of the men and women interviewed mentioned the higher posts were not for women because in many cases they involved

traveling for work and thus staying away from home for periods of days. Sleeping in a different place or having to travel and talk to men, of course, is not regarded as “acceptable” behaviours of women, and their reputations would be affected:

“...the barrier for them is they have to travel a lot for official AKWUA work and sometimes stay away from home for long days. So, our culture is that way and that represents a barrier for them.” (Male Andhi Khola WUA member, Lalyang)

Chapter 7: Discussion

The previous results chapters covered the empirical observations and analysis of the social dynamics at play across the research sites by looking at current migration, agricultural and irrigation practices, and exploring the livelihoods of women in these hill villages of Nepal. The present chapter aims to discuss the principal findings that emerged and the relationship between them, while contextualising them in the wider theoretical framework and analysing the broader implications of the so-called feminisation of agriculture. Subsequently, the relevance of the investigation is examined before finally presenting recommendations for further research.

7.1 Migration: a normalised livelihood strategy

Interview respondents across the different research sites evidenced that labour migration continues to indeed be a long-standing customary practice for young men in rural Nepal. Although it has been historically common, it was agreed by all interviewees that it has been steadily increasing over the past couple of decades, which is in accordance to trends reported by the Government of Nepal (2014). Like Adhikari and Hobley (2015) mention, it is very common to discuss migration in terms of push and pull factors – as a matter of fact, all women interviewed tended to automatically reply from this perspective, citing the lack of job opportunities (and associated poverty) as the one defining push factor behind migration. However, there is undoubtedly a more complex combination of factors and circumstances that shape the dynamics of male labour migration and contribute to changing migration patterns. These include policy changes, globalisation, investment and credit potential, migration networks, and socio-cultural norms (see Sharma, 2008). Social norms have usually played a big role as men are expected to provide an adequate livelihood for their family – therefore, not migrating and failing to do this would affect their masculinity. Thus, instead of focusing merely on push and pull factors, migration is better observed through the lens of the livelihoods approach (DFID, 1999) and as a set of decisions that minimize risks for a household's livelihood.

The choice to migrate for labour is part of a conscious livelihood diversification strategy with the objective of sending back remittances, thus reducing the risks and vulnerability of the household (Ellis, 2003). The shift in migration destination from India to Malaysia and the Gulf countries illustrates a higher willingness and potential to invest in migration matters and therefore more thought-out and planned decisions regarding livelihood

strategies that will yield greater returns. As mentioned in the results chapter, migrating to countries other than India requires expenses such as visas, work permits and airplane tickets, for which many households even take out loans. Also related to the shift in destination country is the fact that men are more likely now to migrate for skilled work with set contracts, which means they are migrating after completing a certain level of education in Nepal. This is in contrast with previous generations, in which migration to India would occur even before finalising high school and men would seek out any unskilled job available as long as they could earn some money. Moreover, in many cases, interview respondents commented that the migration destination of their husband was related to other family members already working there, which gives the migrant a bigger sense of security and can also ease the process of seeking out opportunities. This resonates to that proposed by Zoomers and Van Westen (2011) regarding the importance of considering the existence of translocal relations and development corridors in the discussion of livelihoods opportunities, access, and outcomes in local development. Current migration practices surely have been shaped by migration history in each village and, to a certain extent, a self-feeding loop in which previous generations of migrants broaden opportunities for the next generation – e.g. an unskilled migrant to India who, through remittances, allows for his children to have a better education and acquire skills, who can in turn then migrate to a Gulf country on a skilled job with higher remittances.

In general, migration has come to be the mainstay of most livelihoods in these rural hill villages, with remittances being the only reliable financial source to successfully support the household. Remittances are mostly spent on education of the children, which proved to be the biggest priority across all households interviewed, followed by expenses for marriages of the children. Only some of the money would be used in smaller household needs, celebrations or renovations and, those who were able to, would save up some money. In this sense, it is important to note that barely any remittances were spent in agriculture, which shows it is not considered a profitable livelihood. As also observed by Zwarteveen and Neupane (1996), rather than aiming to produce agricultural surpluses for selling, there is an increased reliance on off-farm income accompanied by a shift from labour to capital as the organising principle of household internal relations. It is important, however, to recognise that these changing dynamics are structured by existing gender norms, resulting in men necessarily being the ones in charge of diversifying livelihoods while women only increase their responsibilities in subsistence agriculture, irrigation and household work. The fact that most respondents considered female migration as a rare or unnecessary, or attached negative connotations to the idea of a woman leaving the country, shows how

access in many cases is regulated by gender and intersectionality (Ribot & Peluso, 2003). Nepali men, through having differential access to migration and to acquiring and developing skills, translates into them having more human capital and greater capabilities when compared to Nepali women. This is an example of gender inequalities that are sometimes overlooked as they get lost in customs and socially embedded norms.

Although the study results do not illustrate significant structural changes in agriculture and irrigation practices as a result of male migration, current trends are bound to translate into more drastic changes in the future. The increasing difficulty in finding male labour for agriculture will continue to add responsibilities to *de facto* women household heads (Massey et al., 2010; Gentle & Maraseni, 2012; Jaquet et al., 2015). The lack of availability of male labour for canal maintenance and cleaning, for example, might cause a shift from labour mobilisation to cash mobilisation for irrigation scheme maintenance, as has been suggested by Zwarteveen and Neupane (1996) and evidenced to a certain extent by the field work. Moreover, the fact that agriculture and irrigation continue to become increasingly managed by women at the household level could lead to female participation in WUAs progressing from the current state of being mostly symbolic and tokenistic. In this regard, the same study by Zwarteveen and Neupane (1996), conducted in the Chhattis Mauja irrigation system in the *terai* plains of Nepal, suggested that when eventually *de facto* female-headed farms became the majority, it would be necessary to involve women in the irrigation organisation for it to continue effectively enforcing rules and regulations regarding water allocation and resource mobilisation. In the research sites visited *de facto* female-headed households have become already the norm and thus this could be an impending change. It is important to note that these continuing changes will affect women differently. For example, the field work findings showed to a certain extent that low-caste women don't necessarily have the same access to coping strategies regarding decreased labour. Many of the *parma* groups are caste-specific, and low-caste farmers are already a minority. Moreover, it was evident that *Dalit* who had gained access to land had considerably less land than others, making their livelihoods more vulnerable to shocks. Regarding social capital there could also be differences that could affect them further, for example, the women interviewed in Dimeekt village indicated their mother's group was again restricted to only Bahun. It is important to therefore consider the intersectionality of gender when evaluating future social changes.

Finally, the increasing reliance on migration for income and the strong support for children's education could lead to agriculture considered secondary or expendable, and later generations might abandon agriculture altogether as they are able to find off-farm jobs

that pay well due to their skills. This would certainly have bigger implications on rural hill and mountain villages in the future in many different aspects ranging from food security to land use changes and local development (Sanders & McKay, 2014; Tamang et al., 2014).

7.2 The complexities of ‘feminisation’

The empirical analysis shows that male labour migration practices have implications for women’s livelihoods on different levels (both positive and negative), and that the so-called feminisation of agriculture is a complex concept.

Although women regard migration as a standard livelihood strategy there are implications to consider, firstly, at the marriage level. All female interviewees reported their husband’s migration was long-term and they were uncertain as to when they would return to the village permanently. Most of these migrations would thus span for 20 years onwards, throughout which husband and wife might only see each other once every year, and sometimes even less frequently. Nepal is largely an arranged marriage society and studies have been conducted on Nepali marital quality based on different factors (Allendorf & Ghimire, 2013); however, these studies have not specifically considered migration and frequency of visits. Respondents generally avoided talking about personal feelings but there are undoubtedly consequences for women emotionally and psychologically as a result of this. For example, Adhikari and Hobley (2015) found women admitted feeling very stressed upon the return of their husbands to the village; some women manifested even fearing the period of readjustment every time the husband returned as they were unsure of what he would say to them or how their routines would change. Furthermore, a couple of the interviewees evidenced there is a level of psycho-social stress attached to the idea of the husband being unfaithful, as the following quote illustrates:

“When he’s away he will be having extra marital affairs where he is living, or he will be getting married to someone else, staying there with another woman and not coming home or sending remittances back, so that can make it really hard for the women who stay”

(Bahun woman, age 35, Dimeekt village)

On this same topic, the in-depth interviews revealed women also experience constant stress about potential backbiting and gossip in the village for their behaviour in the absence of their husbands. Adhikari and Hobley (2015) reported this too for women in Khotang district and found that the level of external scrutiny they faced forced them to adopt self-censorship

in their relations, particularly with other men. The fact that women are constrained in their ability to relate to other village members means they are limited in their social capital, which is a vital aspect of a livelihood (Chambers & Conway, 1992), and they face a disadvantage when compared to men in this regard. During field work observations it was evident men had many more spaces and opportunities to socialise, whereas women were rarely seen in groups outside of working in the fields. Previous studies have argued that social capital can exacerbate women's disadvantages when it exists within a context of gender inequality as they are kept outside of important networks of influence and trust (Silvey & Elmhirst, 2003; Shrestha & Clement, 2018). This restricted social capital can have further consequences for women's overall well-being, for example when in need of emotional support or in the event of an emergency, the latter being mentioned repeatedly by interview respondents. This is particularly problematic for women with not many family members around or close neighbours. Bennett (1983) also reported that being forced to move away from their *maita* (natal home and consanguineal relatives) brought contradictory feelings and a certain level of stress and resentment to women.

Despite the associated social stresses mentioned above, women recognise migration as being necessary to serve the purpose of adequate household support and maintenance. Although a lot of women did not participate in the husband's decision to migrate, given it happened before marriage, they consider it is a positive livelihood strategy. It is important to mention at this point that, although women acknowledged remittances benefit the household as a whole, they do not directly *individually* benefit from them. With only a couple of exceptions, women interviewed manifested that even though remittances had increased over the years, this did not translate into them having a decreased workload or any alleviation of their responsibilities. In other words, improving their financial capital as a household does not necessarily mean an improved livelihood for women in every sense. This resonates with that stated by Zoomers and Otsuki (2017) that what benefits the individual does not necessarily benefit the family, and vice versa. Within a household, access to assets can be highly unequal and, *whether people suffer (or benefit) from resources very much depends on their access to power and ability to derive benefits from things* (Ribot & Peluso, 2003: 153).

This observation on access relates to the findings about the role of women in decision-making processes, especially when looking at remittances and type of household. The empirical analysis demonstrated that women rarely had single or majority decision-making power. In nuclear households the husbands usually retained control over remittance

spending; however, it was more common to see an increased autonomy and decision-making participation in nuclear households, which has been reported for other studies (Desai & Banerji, 2008). In the cases of joint households with other male relatives available, remittances would be sent to them and they would handle financial decisions. This results in limited agency for women and demonstrates that what some scholars might perceive as increased potential for women empowerment is really only circumstantial and not a sustained change that would continue beyond the time when husbands return (Kaspar, 2005; Adhikari & Hobley, 2015). Interview respondents indicated that when their husbands were home visiting they would resume their usual tasks – which illustrates why the term *de facto* household head is accurate. This is not to be assumed entirely as a detriment to women's involvement and empowerment, as there were cases in which they manifested they would rather have someone else make financial decisions.

It is important to point out, however, that the majority of women asserted that any profits coming from their agriculture fields or other secondary jobs (e.g. tailoring) were entirely theirs to manage and spend. This highlights the importance of developing opportunities for livelihoods diversification not only for migrants but also the women who remain in the villages in order to promote and harbour their capabilities and agency (Gartaula et al., 2010).

The historical gendered division of labour has shown to shape the social changes associated to male labour migration and the feminisation of agricultural practices. Different studies argue that migration leads to changes in gendered labour, which in turn leads to an increase in women's mobility and empowerment by opening access to opportunities, skill and decision-making powers (Bever, 2002; Chant & Craske, 2003). However, the findings of the present research argue that currently any potential changes in the gender division of labour are eventually overpowered by long-standing, embedded gendered social norms. Women are indeed taking over some tasks previously handled by men; nevertheless, there are many activities, attitudes and roles that women avoid to assume based solely on tradition and expected female behaviours. This is illustrated, for example, by the still-prevalent perception (by both men and women) that ploughing is too physically demanding for women. Cultural expectations regarding behaviour ultimately hinder women's access and capabilities in the current social dynamics. Women are faced with contradictions in the sense that they are expected to take over responsibilities, like the hiring of labour, while at the same time historical cultural norms dictate they shouldn't be the ones negotiating

transactions with men as they might be perceived as being unfaithful to their husband. This is also discussed by Adhikari and Hobley (2015), who indicate that even though there is a potential to increase female empowerment, women's morality then comes to be questioned, which ends up actually restricting their mobility. It will be interesting to see if the increased participation of women in handling transactions like hiring labour, or other activities previously carried out by men will contribute to slowly ease or reduce taboos related to women associating with men outside their family. Moreover, perhaps the gender division of labour will become increasingly blurry through time as it becomes more normalised, as has started to happen for example with the previous restriction of women in canal cleaning within irrigation systems.

Finally, the link between feminisation and participation in irrigation at the level of WUA committees must be discussed. As the results of the field work show, male migration has indeed increased participation of women in irrigation management at the household level. However, it was evident that participation at the organisation or community level as members of WUA executive committees was limited to the aim of complying with the policy that mandates 33% participation of women, which has also been demonstrated by Shrestha & Clement (2018) for irrigation systems in other Nepali districts. Furthermore, the fact that WUA committee chiefs and vice chiefs are still always older, high-caste men, shows that the long-standing masculinities of irrigation are still prevalent (Liebrand, 2010). The belief of women themselves that these high posts are better handled by men as they are more capable and have more time and skills for it, again links to deeply-embedded customary notions of gender that are very difficult to break from. In the domain of irrigation women are thus also restricted by their culturally defined – and personally reinforced – roles in how much access they have. Formal participation of women in WUAs therefore needs to be encouraged in an effective way that stems, in the first place, from fostering their self-confidence, capacity and empowerment. Moreover, mandating a quota of participation cannot promote their interest if they have not been trained and properly informed on the different roles and functions of committee members, as well as how the systems work. One of the most important aspects to work on, however, is masculinities. If equal gender participation is sought then initiatives, interventions and policies need to include men in the process so as to get them on board, otherwise any significant change will be very difficult to attain.

7.3 Relevance of the study

The research has generated findings that contribute to academic knowledge about current male labour migration practices as well as their relation to changing social dynamics in farming villages in the hills of Nepal. The results particularly contribute to the theoretical discussion on the concept of the feminisation of natural resource use and management, and the implications this phenomenon has on women's livelihoods. Moreover, the study further highlights the need for contextualised data in order to effectively assess gender inequalities and gender relations, as opposed to equating all women (or all "mountain women") within a homogenous group. The need for incorporating intersectionality in all gender research becomes evident as the empirical analysis shows that women positioned differently in society (in terms of household type and caste, for example) have different levels of access and agency potential within rural contexts.

Importantly, the research findings contribute in terms of insights for gender-oriented policy development and implementation. As the field work showed, the current irrigation policy requiring 33% participation of women in Water Users Association executive committees has not succeeded in fostering change in terms of genuine female involvement or decision-making power at a community level, and it largely fails to stimulate women's interest in irrigation management. It is mostly seen as a bureaucratic target or exigency that can be easily complied with without going through too much effort. In order to develop policy that translates successfully on the ground, understands women's needs and facilitates their agency and capacity-development, the underlying social dynamics that shape different forms of gendered marginalisation or exclusion have to be considered. The interviews with village women show their disinterest to engage in WUA committee activities and particularly illustrate how they perceive time as the main constraint for their participation. Furthermore, it becomes clear that deeply-rooted social norms regarding behaviour prevent them from aspiring to be in chief roles. This calls for interventions that focus more towards developing women's knowledge about natural resource management as well as their capabilities – including realisation of their own potential. Similarly, it evidences the need of policies that recognise and address the increasing workload women bear and can thus incorporate facilitating tools and technology that can free up time for them to invest in other endeavours. On this subject, Tamang et al. (2014) also discuss the failure of Nepali agriculture policies to adequately consider the changing socioeconomic paradigm.

7.4 Recommendations for further research

Various recommendations regarding future research have arisen over the course of the field work and data analysis, especially taking into consideration the different limitations encountered and acknowledged. The most pressing issue would be to attempt to address intersectionality more directly and thoroughly, as emphasised through the framework of feminist political ecology. Again, this was unfortunately limited through bias in respondent selection due to the particular focus of the research on households with access to irrigated land. Although some inferences on intersectionality could be made in this case, studies should comprehensively cover a representative sample of castes and classes noting the particular role women play within each household depending on the composition. It would be interesting to investigate if and how labour migration affects different castes and if livelihood diversification or coping strategies vary between these, as well as differential changes in female roles and agency. Adhikari and Hobley (2015), for example, showed that in a particular Nepali village male migration had improved the well-being of *Dalit* families the most when receiving over a certain amount of remittances.

Furthermore, an important consideration for future research is the implementation of a longitudinal study. The scope of the thesis of course only allowed for a cross-sectional study; however, given the dynamic nature of male migration and resulting changes in rural villages, repeated observations over time would yield solid results that would give a full picture of the implications for women's livelihoods (and rural livelihoods in general). Additionally, a longitudinal study would better show changes in agricultural and migration practices. This would be particularly interesting to investigate over the next generation, given so much emphasis is being given to education of children and the pursuit of off-farm employment as agriculture is increasingly considered non-profitable or secondary. Changing participation of women in formal organisations such as WUAs would also become more obvious as time passes and are perhaps regarded as necessary.

Another important aspect of gender norms and social relations to consider in forthcoming studies is the differential experiences between sons and daughters in these farming households. The socially embedded gender division of labour is apparent from a very young age and it is daughters who have the responsibility to help out their mothers mostly with work, particularly household tasks like cooking and cleaning. Zwartveen and Neupane (1996) for example, indicated that the priority of a good education would go to sons, as it was assumed that daughters would eventually just get married and move into their in-law family. Respondents in the villages, however, didn't differentiate between sons and

daughters when talking about their desire to provide their children with a good education. It would be important to understand if there has been a change as there is decreased reliance on agriculture and possibly less need for daughters to help out in the household. Otherwise, it would be further evidence of the level to which gender and intersectionality regulate access and capabilities of Nepalis from early on. These dynamics are also of paramount importance for the elaboration of adequate development interventions.

Finally, it would be recommendable to investigate further the relationship between social capital and capabilities or agency of women, as has also been touched upon by Shrestha and Clement (2018). This includes the potential positive and negative impacts of living in joint households or the role that community groups, such as the mother's group or *parma* groups, hold in terms of providing different kinds of support and encouragement to women on different aspects of their lives.

Chapter 8: Conclusion

This thesis aimed to investigate the relation between male labour migration out of Nepali hill villages and changing social dynamics in the context of irrigated agriculture, from a gender perspective. The point of departure of the thesis was the increasing reference to the so-called feminisation of agriculture in Nepal and the unclear understanding as to what the implications for women's livelihoods are as a result of this process. The research was guided by a theoretical framework that highlights the importance of the intersectionality of gender and the concepts of access and capabilities within a livelihoods approach. This concluding chapter will summarise the main findings in relation to the sub-questions developed and that ultimately build up to answer the central research question.

The findings evidenced that male labour migration is still a very common practice and continues to increase in the hill villages visited. Men typically migrate around the age of 20 and the usual destination has shifted from India to mostly the Gulf countries. All the women interviewed reported their husband's migration was long-term or permanent, and the average frequency with which they would visit the village was once a year. Although migration has been historically a cultural practice in rural Nepal, the field work showed that it is progressively a conscious livelihood diversification strategy in which households increasingly invest in to yield greater returns.

Migration is perceived by women as positive and even necessary to secure the livelihood of their household and, particularly, to be able to provide a good education to their children, which is their top priority. The increase in male migration has not yet significantly impacted the structure of agriculture and irrigation practices in the villages studied. Agriculture is still carried out mainly for subsistence purposes and focuses on the usual crops. Farmer-managed irrigation systems continue to use the established practices of water allocation, distribution and labour mobilisation, and WUA committees are still largely presided by high-caste men. One of the main impacts of male migration on these practices is the decreasing availability of male labour, which is regarded as necessary for particular tasks mostly as a result of long-standing cultural gendered division of labour. Women, however, have coping strategies for this, such as increased financial capital for hiring labour or through the *parma* system of labour exchange. Importantly, coping strategies seemed to be more easily accessible to high-caste households as a result of access to financial and human capital. Although structural changes in agriculture are not evident as of yet, the current

trends of increased reliance on migration remittances for livelihoods, and the heavy focus on children's education are likely to trigger more significant changes in the future.

Regarding women's livelihoods and the feminisation of agriculture, the study has clearly shown that male labour migration has numerous implications, with both positive and negative consequences. Whether a woman lives in a joint or nuclear household proved to be very significant in determining their experience of what the so-called feminisation of agriculture implies. On one hand, living in a joint household improves women's social capital and alleviates workload for them as they can rely on other household members to help with agriculture and irrigation management, as well as housework. On the other hand, it further limited their agency and participation in decision-making processes, as most household and financial management would be handled by another male relative or the mother-in-law. In general, however, there has certainly been an increase in women's workload and public roles as they have to take over previously male-dominated tasks within farm and non-farm work. Although some scholars have proposed this as an opportunity for empowerment, autonomy and acquisition of skills, the research findings indicate there is a degree of psycho-social stress related to these changes in social dynamics. Deeply-rooted gender norms and cultural beliefs restrict women from certain behaviours and attitudes, particularly from interacting with men outside of their family, which ultimately results in them avoiding situations that would expose them to potential backbiting.

Although male migration has to a certain extent resulted in increased participation of women in agriculture and irrigation management at the household level, the study revealed this has not been the case at more of a community or institutional level when looking at WUA executive committees. Female participation is limited to complying with the regulation that requires there to be 33% participation of women in WUAs. Their inclusion in the committees is largely tokenistic and they are usually involved without the required capabilities to influence decision-making. The high posts are still always occupied by high-caste men, which is further evidence of the still prevalent long-standing masculinities of irrigation, as well as cultural gender norms. Moreover, women themselves tend to reinforce these gender norms, considering they would not be capable of handling these traditionally male tasks.

Ultimately, this thesis has shown that increasing male labour migration trends are changing the social dynamics of Nepali hill villages, with various implications for rural livelihoods and

particularly female roles and participation, both within and outside of the household. Women are indeed faced with a partial increase in authority and decision-making, however, it appears to be circumstantial and generally overpowered by deeply rooted cultural gender norms observed by men and women equally. Although women cannot be solely regarded as victims “left-behind” in this whole process, as they do actively support and reap benefits from a livelihood largely based on remittances, the findings illustrate that the so-called *feminisation of agriculture* does not currently equate to sustained female empowerment or increased capabilities or agency within their livelihoods. Moreover, migration can have differential impact on women of varying social standings, which is why a focus on intersectionality is of paramount importance when investigating underlying cultural contexts and factors impacting women’s capabilities. If interventions or policies on gender equality are to be successfully developed and implemented in Nepal, these need to first acknowledge that there are structural gender norms, power relations and cultural beliefs that need to be set aside.

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APPENDIX 1: Interview guide – Households (*de facto* female-headed)

INTERVIEW GUIDE – Households (women)

Research sites: Palpa District (Argeli and Chherlung villages); Syangja District (Lalyang and Dimeekt villages)

Interview subjects: Women household heads (de facto FHH = Household in which the head is a female as a result of her husband migrating)

Introduction

Explanation of research topic and team, obtaining consent

- [Introduction by Shreya]
- My name is Ornella. I'm studying in the Netherlands, doing a Masters in Sustainable Development. We are here doing research on the changing social dynamics in rural villages as a result of male migration. The focus of the research is particularly on the changing participation and involvement on women in agricultural and irrigation practices and the overall impact on their livelihoods.
- We are particularly interested in talking to women who are "household heads" as a result of their husband migrating outside of the country for work.

Interview details and asking for consent

- The interview will take no longer than 45 minutes. All the answers are completely anonymous and if there are any questions that are complicated to understand or you don't wish to answer, please just say so, there is no problem. You can also ask us questions at any point during the conversation.
- Would it be ok if we record the interview, so I can listen to the translation afterwards carefully? [Explain language difficulties and how this makes it easier for me to understand later on and not miss any bits of the answers. Thank the interviewee for consent].
- Do you have any questions before we start?

Interview questions

A. Introductory questions

1. What is your name and age?
 - *Note down caste [Shreya gets this from full name]*
2. How many people live in this household currently?
Probes: number of members and those migrated, relationships (joint vs. nuclear).
3. **If the person has kids** – How old are your children? How many of them live at home?
 1. Probes: Education status, marriage.
4. How long have you lived in the village?
 2. Probes: Moved for marriage (arranged)

5. Have you always lived in this house?
3. Probes: Living arrangement with husband's family when married, how long to separate and move to own house (if applicable)

B. Key questions

Migration

6. Where did your husband migrate to?
7. How long ago did your husband migrate? (if other migrants too, e.g. child, ask about them)
Probes: Age at migration, before/after marriage, past work/activities before migration, education level
8. What was the main reason for migrating?
9. Did he face any barriers to migration or have any difficulties?
Probes: Resources (money), permits/visa.
10. How often do you talk to your husband?
11. How often does he come back to the village?
Probes: Periodic migration, seasonal, long-term, short-term.
12. Has his frequency of his visits to the village changed over time? Why?
4. Probes: Resources, commitments to work, establishing work overseas
13. Does your husband schedule his visits for particular seasons or times of the year to contribute to certain agricultural activities?
14. How often do you talk to your husband?
15. (if applicable) Was the decision of migration a household or joint decision? What was your involvement during the process leading up to the migration?
16. Is there a plan for your husband to move back permanently in the near future?
17. In your opinion, in the length of time you've lived in the village, how has male migration changed over time?
Probes: Increased, common, no change
18. How long has migration of men been going on? Would you say it's more common for men to migrate than to stay in the village? What's the difference between the two groups?
19. What would you say is the most common destination for male migrants currently, and how does this compare to past times?
20. At what age do men usually migrate?
21. What are the main difficulties or barriers faced when looking to migrate?
Probes: resources, support
22. Did the family have to take out a loan for your husband's migration? How long has it taken/will it take to pay this back?
Probes: use of remittances initially to pay for loan
23. How common is it for females to migrate? Why do you think this is?
Probes: Class/age/caste
24. What positive and/or negative aspects do you relate to the large migration of males outside of the village?

5. Probes: Money, time, support.
25. If you had the opportunity, would you have liked to migrate with your husband? Would you like to migrate with your family?
6. Probes: Opportunities, ties, distance.

Household livelihood and access

26. What is the main livelihood of the household?
27. Can you tell us about the crops you farm throughout the year?
28. Are there other sources of income for the household?
Probes: remittances, alternatives, support from other family members.
29. **if remittances received** How much do remittances contribute to the household income?
Probes: Contribution to household
30. Has the contribution of your husband to the household (remittances) changed over time?
7. Probes: Increase/decrease in remittances, security over time, other kind of support
31. How is the household income distributed? (i.e. what is it spent on)
32. Who makes decisions about how the income is spent? (remittances vs. agriculture income)
8. Probes: Ask about decision-making over spending and income allocation
33. What are your daily work tasks i.e. a typical day of work?
Probes: think about household work and other work.
34. How has your “workload” changed since the migrant left? (if migration occurred after marriage or if living conditions have changed)
35. How do you feel about the amount of work you have to give time to?
36. Which particular activities do you most enjoy?
 - a. Are there any activities that you usually do in group?
 - b. Who do you usually share time with while working?
37. Is there anything you particularly enjoy to do during leisure time?
38. Are you close friends with other people from the village or do you mostly interact with family members?
39. Are you a member of any cooperative or group in the village? If so, please explain.
Probes: objective of group, member composition, time invested

Involvement in agriculture, irrigation / WUA committee

40. How much irrigated land does the household own?
Probes: formal ownership, “property rights”, formal ownership of house
41. Under whose name is the land? Does this represent a problem at all? (“Formal” rights to land and irrigation)
42. Which members of the household contribute to agriculture and irrigation labour?
43. How has your role and involvement in agriculture and irrigation activities changed since the migrant left?
Probes: different tasks carried out by whom, proportion of time dedicated to agricultural activities and household in comparison to before

44. How do you feel about being in charge of this?
45. Which particular activities do you hire labour for?
46. How many times a year do you need to hire labour and how much does a day of labour usually cost?
47. Have you ever had trouble hiring labour (availability or resources) and, if so, how did you manage?
48. Do you participate in any labour exchange? How does this work?
 - a. Are these labour exchange groups restricted to members of the same caste?
49. Which canal do you get your water from?
50. Do you participate in WUA meetings?
9. Probes: frequency, reasons if not, usefulness
51. Can you explain how the process of elections of committee members works? Do you participate in this/ would you like to participate more?
- 52.
53. Do you participate in activities in the canal, such as canal cleaning and canal maintenance?
54. Are there any activities in which women are not allowed to participate? If so – what are your opinions about this matter?
10. Probes:
55. Do you pay a fee for canal maintenance/repairs? (if yes, how much?)
56. How does access to water differ between seasons of the year?

Probes: Monsoon, dry season, rotation
57. Do you face any social or other problems relating to agriculture and irrigation as a result of the male household head not being present?

Probes: e.g. not being allowed in the kulo when menstruating.
58. What is your opinion about the WUA committee's performance in managing irrigation for the users?
59. Do you know the members of the WUA committee? Can you tell us about the composition? (how many, women and men, castes)
60. What are the roles of the different members of the committee?
61. Do the committee members receive a compensation or salary because of their work?
62. How do committee elections work? Do you think you have enough participation in this process?
63. How much time do you think would be required to have the post of chairman in a committee?
64. What is your opinion about the participation of women in irrigation and WUA committees?
11. Probes: opinion on if things are better/worse and how they should be.
65. To your knowledge, is there any national legislation that establishes there has to be a minimum given percentage of participation of women in committees? What do you think of this?
66. If given the chance, would you like participate or take on a role as a WUA committee member? Why/Why not?
 - a. Ask about how much ADDITIONAL time they think they would need to participate?

C. Closing questions

67. Are there any aspects in which you would like to have bigger decision-making power or more participation in order to improve your livelihood?
68. If you had the chance to do something else as a living, what would you like to do? What would you have liked to study if given another chance?
69. How do you think migration patterns will behave in the future?
70. (If applicable) Do you think your children will migrate? What is the prospect of each child in your opinion?

NB: Make note of education level and composition of members of household (joint vs. nuclear, older males/females).

Concluding remarks

Thank you very much for your time and participation, we really appreciate that you made some time to talk to us.

Do you have any questions for us before we finish?

APPENDIX 2: Interview guide – WUA committee members

INTERVIEW GUIDE – Water Users Association (WUA) committee member

Research sites: Palpa District (Argeli and Chherlung villages); Syangja District (Lalyang and Dimeekt villages)

Interview subjects: Member of the Water Users Association Executive Committee

I. Introduction

Explanation of research topic and team, obtaining consent

- [Introduction by Shreya, explanation of the work we are doing and her helping with field work and interpreting].
- My name is Ornella. I'm studying in the Netherlands, I am doing a Masters in Sustainable Development. We are here doing research on the changing social dynamics in rural villages as a result of male migration. The focus of the research is particularly on the changing participation and involvement on women in agricultural and irrigation practices and the overall impact on their livelihoods.

Interview details and asking for consent

- The interview will take no longer than 40 minutes. if there are any questions that you don't wish to answer, please just say so, there is no problem. You can also ask us questions at any point during the conversation.
- Would it be ok if we record the interview, so I can listen to the translation afterwards carefully? [Shreya - Explain language difficulties and how this makes it easier for me to understand later on and not miss any bits of the answers. Thank the interviewee for consent].
- Do you have any questions before we start?

II. Interview questions

D. Introductory questions

1. What is your name and age?
2. What is your role in the WUA committee?
3. How long have you been part of the WUA Committee?
4. What is the size of the irrigation system (hectares of irrigated land)?
5. How many households are in the command area of this system?
6. How long ago was the system constructed/by whom?
7. Is the WUA registered in the Department of Irrigation or any other government body?
8. Does the WUA get an annual budget from the municipality or other governmental bodies? How much is this and what is it spent on?
9. How is water allocated/distributed within the system? (Who has "water rights"?)
10. How do households contribute to resource mobilization when needed?

11. How does the Executive Committee function?
 - a. Who are the members? Composition noting caste/class/ethnicity and gender.
 - b. What is the role of the female member(s)? (if applicable)
 - c. How are committee members elected?
 - d. How often do members change?
 - e. How often are meetings held?
 - f. Is participation in meetings mandatory? (by committee/users)
 - g. Do WUA committee members get paid?
12. How has the participation of women changed over time?
 - a. Participation in canal cleaning and maintenance?
 - b. Participation in meetings?
13. If a woman has not been formally transferred land/water “rights”, can she have access irrigation normally?
14. Can you talk about certain agriculture and irrigation tasks that are currently carried out by women that were mostly carried out by men in the past?
12. Probes: ploughing, land preparation (tractor), barriers.
15. Do FHH get equal consideration during the application of a rotation system in irrigation?

III. Concluding remarks

Thank you very much for your time and participation, we really appreciate the time you have given us. Do you have any questions for us before we finish?

APPENDIX 3: Full list of interviewees

No.	Location (village)	Irrigation System	Name	Caste	Subject type	HH type
1	Argali	Raj Kulo - Jethi Kulo	Bhoja Thapa	Chhetri	FHH	Nuclear
2	Argali	Raj Kulo - Jethi Kulo	Durga Devi Regmi	Chhetri	FHH	Joint
3	Argali	Raj Kulo - Jethi Kulo	Kumari Thapa	Chhetri	FHH	Nuclear
4	Argali	Raj Kulo - Jethi Kulo	Laxmi Pandey	Bahun	FHH	Nuclear
5	Argali	Raj Kulo - Jethi Kulo	Jayanti Neupane	Bahun	FHH	Nuclear
6	Argali	Raj Kulo - Jethi Kulo	Tulasha Neupane	Bahun	FHH	Nuclear
7	Argali	Raj Kulo - Jethi Kulo	Sita Pandey	Bahun	FHH	Nuclear
8	Argali	Raj Kulo - Jethi Kulo	Shrijana Neupane	Bahun	FHH	Nuclear
9	Argali	Raj Kulo - Jethi Kulo	Radhika Pandey	Bahun	FHH	Nuclear
10	Argali	Raj Kulo - Jethi Kulo	Rupa Bishwo Karma	Bishwokarma (Dalit)	FHH	Nuclear
11	Argali	Raj Kulo - Jethi Kulo	Shanti Bhusal	Bahun	FHH	Nuclear
12	Argali	Raj Kulo - Jethi Kulo	Laxmi BK	Bishwokarma (Dalit)	FHH	Nuclear
13	Argali	Raj Kulo - Jethi Kulo	Suamitra Bhusal	Bahun	FHH	Nuclear
14	Argali	Raj Kulo - Jethi Kulo	Laxmi Neupane	Bahun	FHH	Joint
15	Argali	Raj Kulo - Jethi Kulo	Shrijana Bhatarai	Bahun	FHH	Nuclear
16	Argali	Raj Kulo - Jethi Kulo	Keshab Raj Bhatarai	Bahun	WUA	-
17	Argali	Raj Kulo	Parsuram Bhatarai	Bahun	WUA	-
18	Argali	Raj Kulo - Maili Kulo	Kamala Pandey	Bahun	WUA/ FHH	Nuclear
19	Chherlung	Sano Kulo	Dhana Bhatarai	Bahun	FHH	Joint
20	Chherlung	Sano Kulo	Bratikshya Bhatarai	Bahun	FHH	Joint
21	Chherlung	Sano Kulo	Ishwori Bhatarai	Bahun	FHH	Joint
22	Chherlung	Sano Kulo	Mankumari Khamcha	Magar	FHH	Nuclear
23	Chherlung	Sano Kulo	Dila Saru	Magar	FHH	Nuclear
24	Chherlung	Sano Kulo	Mina Saru	Magar	FHH	Nuclear
25	Chherlung	Sano Kulo	Lucky Saru	Magar	FHH	Joint
26	Chherlung	Sano Kulo	Shanti Rana Baral	Magar	FHH	Joint
27	Chherlung	Thulo Kulo	Sarswoti Pandey	Bahun	FHH	Joint
28	Chherlung	Thulo Kulo	Goma Basyal	Bahun	FHH	Nuclear
29	Chherlung	Thulo Kulo	Punam Basyal	Bahun	FHH	Nuclear
30	Chherlung	Thulo Kulo	Kamala Basyal	Bahun	FHH	Nuclear
31	Chherlung	Thulo Kulo	Pabitra Majhi	Bote-Majhi	FHH	Nuclear
32	Chherlung	Thulo Kulo	Jamuna Maghi	Bote-Majhi	FHH	Nuclear

No.	Location (village)	Irrigation System	Name	Caste	Subject type	HH type
33	Chherlung	Sano Kulo	Hamlal Bhattarai	Bahun	WUA	-
34	Chherlung	Sano Kulo	Dhankumar Bhattarai	Bahun	WUA	-
35	Chherlung	Thulo Kulo	Rewanta Pandey	Bahun	WUA	-
36	Lalyang	Andhi Khola	Kamala Bhattarai	Bahun	FHH	Joint
37	Lalyang	Andhi Khola	Sunita Bhattarai	Bahun	FHH	Joint
38	Dimeekt	Andhi Khola	Harikala Aryal	Bahun	WUA	Joint
39	Dimeekt	Andhi Khola	Ishwori Aryal	Bahun	FHH	Nuclear
40	Dimeekt	Andhi Khola	Maya Devi Aryal	Bahun	FHH	Nuclear
41	Dimeekt	Andhi Khola	Jamuna Aryal	Bahun	FHH	Nuclear
42	Dimeekt	Andhi Khola	Shrijana Bhattarai	Bahun	FHH	Nuclear
43	Dimeekt	Andhi Khola	Devi Bhattarai	Bahun	FHH	Joint
44	Dimeekt	Andhi Khola	Homkala Aryal	Bahun	FHH	Nuclear
45	Dimeekt	Andhi Khola	Ambika Aryal	Bahun	FHH	Nuclear
46	Dimeekt	Andhi Khola	Durga Aryal	Bahun	FHH	Joint
47	Dimeekt	Andhi Khola	Santoshi Aryal	Bahun	FHH	Nuclear
48	Dimeekt	Andhi Khola	Shrijana Bhattarai	Bahun	FHH	Nuclear
49	Lalyang	Andhi Khola	Lila Prasad Shrestha	Newari	WUA	-
50	Lalyang	Andhi Khola	Meghnadh Bhattarai	Bahun	WUA	-
51	Lalyang	Andhi Khola	Chintamarni Aryal	Bahun	WUA	-

FHH = De facto female household heads

WUA = Water Users Association committee members

HH = Household

APPENDIX 4: 8th International FMIST Seminar. Kathmandu, May 6 – 7, 2019

Table of Contents	
Program	i
Introducing Theme of The Seminar	v
Welcome Address	vii
Activities of FMIST 2017-2019	ix
Key Note Speeches	
Institutional Challenges And Water Security In Irrigation Systems Consideration From Climate Change And Population Dynamics	xii
Dr. Hafied a Gany, phd, p. eng	
Constraints and Opportunities of Farmer Managed Irrigation Schemes - A Perspective	xxv
Dr. Purna Bahadur Chhetri	
Parallel Sessions	
Irrigation and Hydropower	
Hydropower Boom and conflicts in Water Sharing: between Hydropower and Irrigation	1
Rashmi Kiran Shrestha	
Panaut: Hydropower and Irrigation Complementarity and Difficulties	2
Gyanendra Kayastha	
Jhimruk and Anghikholia: A tale of two Siblings	3
Devesh Belbase	
West rapit River- Riparian Claims	4
Dwarika Nath Dhungel	
Multiple Water Use Services (MUS)	
Is Mus a Foreign Concept: Evidences from South Africa	5
Dr. Barbara von Koppen	
Mobilizing Agricultural Collection Center Revolving Funds for Scaling MUS: Anukulan Project Experiences	6
Dr. Luke A. Colavito	
A Push for MUS	7
Alok Rajoura	
Household and Community level Impacts of Sankunda MUS and its sustainability	8
Saroj Malakar and Robert Dongol	
Participatory Irrigation Management	
Institutionalizing Water Users Association in Irrigation Management Transfer (IMT) Project: Case study of Kankai Irrigation System of Nepal	9
Chetman Budhathapa	
Methodology of Data Collection And Information For Better Irrigation Management: Problems and Perspectives – With Special Reference To Local Practices In Eastern Region Of Indonesia	10
DR. IR. M. ULUM A. GANY	
Distributive Regulations in Managing Dry Season Water Deficiency: Case Study of Rampurphat, Syangja	12
Deepak Pandey and Hiranya Raj Regmi	
An Integrated Approach of Upper Bagmati Basin Improvement	13
Ashish Bhadra Khanal and Dr Umesh Parajuli	
Modernization of Rani, Jamara and Kulariya	
Video Screening on RJKIP	
Strengthening Water Users Association of Rani, Jamara And Kulariya Irrigation System Reorganizing Water User Association From Flood Irrigation System To Modernization of Irrigation System: A Case Study of Rani, Jamara and Kulariya Irrigation System of Kailali District of Nepal	15
Susheel Acharya	
Rani, Jamara Kulariya: then and now	15
Kumar Raj Shah and Damodar Khadka	
Strengthening of WUA of Rani, Jamara and Kulariya of Kailali	18
Dr Prachanda Pradhan and Lal Bir Chaudhary	
Changes in Irrigation Systems	
Gender, Social Capital and Collective Commons: A Gender Perspective on collective Sustainability of Water Resource Governance in Far West Nepal	19
Geeta Shrestha and Flonane Clement	
Irrigation Systems to meet the challenges of Climate Change	20
Neha Basnet and Dr Upendra Gautam	
Integrity Challenges for accountability of FMIS	21
Monica Maharjan, Sriharjan Lacoul and Dr. Upendra Gautam	
Lift Irrigation systems for Marsyangdi River Corridor	22
Betek Shrestha	
Adaptation in irrigation Systems	
Building Resilience to poor and Vulnerable communities in Nepal through Solar MUS	23
Dr. Madan Pariyar	
Water and Food Security in Nepal: a new perspective in the face of climate change and population dynamics	24
Dr. Pushpa Khanal	
Hydroponic Cultivation for Leafy vegetables: Examples from TrueFarm, Lalitpur	25
Rajendra Joshi	
Wastewater Reuse for Irrigation: a Review on Challenges and Prospects	26
Binu Karki, Dr. Khem Raj Sharma and Anish Ghimire	

Topics and presenters of keynote speeches and parallel sessions during the Seminar



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