



# Translocal resource governance, social relations and aspirations: Linking translocality and Feminist Political Ecology to explore farmer-managed irrigation systems and migration in Nepal

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## ABSTRACT

Widespread male out-migration presents major challenges to the sustainability of existing collective irrigation systems. However, the effects of socio-spatial changes on collective resource governance systems remain unknown.

This paper addresses this gap by building a synthesis of translocality and Feminist Political Ecology (FPE). Translocality examines the socio-spatial interconnectedness of rural societies in the context of out-migration. FPE explores how changing gender and social relations shape resource governance. A translocal Feminist Political Ecology framework (tFPE) contextualizes resource governance within translocal social flows, and captures (i) translocal resource governance, (ii) translocal social relations, and (iii) translocal aspirations.

Drawing from qualitative interviews and participatory methods on two farmer-managed irrigation systems in Far Western Nepal, I illustrate the complexity, intersectionality and ambiguity of translocal social relations in collective resource governance. *Translocal resource governance* is shaped by changing household and labor relations marked by remittances, and translocal flows of social and human resources, ideas and knowledge, e.g. migrants' advice via phone on when and how to irrigate. *Translocal social relations* entail marginalized groups, i. e., women and elderly people, providing increased labor contributions and possibly receiving migrants' support in the form of advice and networks. However, authority and power relations are sustained in resource governance by mostly upper caste men. *Translocal aspirations* to the home village by both migrants and non-migrants is ambivalent and leads them to hope for frequent visits home, while aspirations and shame turn them away from agriculture towards earning higher incomes through migration.

The tFPE framework emphasizes important but understudied translocal social relations and aspirations in collective resource governance, water, irrigation and migration research. By linking translocality and FPE, I show how translocal resource governance, social relations and aspirations change everyday practices and gender, caste and labor relations in irrigation, and how we may understand the water-migration nexus.

## 1. Introduction

Irrigation systems are crucial for local food security. Irrigation systems require sustained collective action, which in turn is shaped not only by environmental changes, e.g. climatic variability, but also by socio-economic changes such as rural out-migration (Meinzen-Dick et al., 2022; Shrestha et al., 2023; Sugden et al., 2014; Leder et al. forthcoming). While recent literature has noted a delocalization of communities and changing forms of engagement in natural resource management (Ojha et al., 2016), a theoretical framework for how

changing socio-spatial relations affect collective resource governance is generally lacking. This paper introduces such a framework and builds on extensive empirical engagement with farmer-managed irrigation systems and rural out-migration in Nepal

Public debate and scholarly literature on the effects of rural out-migration on migrants' home regions is broadly two-sided: migration 'optimists' stress the positive effects of remittances, while migration 'pessimists' claim the threat of reduced cultivation of land and a decrease in those who identify as farmers (de Haas, 2006; Jaquet et al., 2015; Jaquet et al., 2016). Recent literature has started

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to explore the greater involvement of women and the elderly in the agricultural workforce (Gartaula et al., 2010; Giri and Darnhofer, 2010; Maharjan et al., 2012). Increased physical mobility, social engagement in the village and handling household cash has created new spaces for women to influence, move, and communicate in agriculture and resource governance (Leder, 2022). Recent approaches in the literature criticize concepts such as the “feminization of agriculture” as being narratives, catchphrases and umbrella terms with little and contradictory evidence, and which require demystifying (Kawarazuka et al., 2022; Leder, 2022). Similar critiques have been applied to the term “De-agrarianization” (Bryceson, 2002), suggesting a correction of inherent linear assumptions of decreasing agriculture (Hebinck et al., 2018; Shackleton and Hebinck, 2018; Leder et al. forthcoming).

These recent approaches in the literature make visible the widely invisible work of women and other marginalized groups in agriculture – work which government policies have been overlooking by prioritizing male migrants and male farmers in irrigation and agriculture. Women often do not benefit from locally available subsidies, for example, as they require land ownership certificates, which usually have the name of the male, and agricultural extension services do not address women’s diverse needs and time schedules arising from the double labour burden with care work (Fisher and Kandiwa, 2014; Leder et al., 2017; Shrestha et al., 2023; Witinok-Huber et al., 2021).

In this paper, I argue that migration, resource governance and agrarian change scholarship could analytically benefit from greater engagement with theoretically informed linkages to translocality and FPE. To explore how socio-spatial relations affect farmer-managed irrigation systems, I link the two theoretical frameworks, Translocality and Feminist Political Ecology. As of yet, these have not been combined with each other. Translocality is a concept which encompasses multi-sited social, cultural, human, material, and financial relations as dynamic translocal resources or capital flows (Brickell and Datta, 2011; Sakdapolrak et al., 2016). Translocality moves explicitly beyond economic and measurable research foci to include more social and cultural spatial flows in migration research.

Feminist Political Ecology (FPE) focuses on understanding socio-culturally embedded roots of gender norms and power relations in agriculture and natural resource management practices to uncover trajectories of social and environmental change (Elmhirst, 2011; Rocheleau et al., 1996). FPE explicitly stresses intersectionality, the role of emotions and the ambivalence in power relations and builds on specifically local and often marginalized knowledge (Mollett and Faria, 2013; Nightingale, 2011; Sultana, 2011). In my earlier work drawing from FPE, I understand changing population dynamics due to migration as constitutive of new struggles over resources, influence and aspirations (Leder, 2022; Leder et al., 2019b). Building on this and through my empirical results in this paper, I advance translocality and Feminist Political Ecology approaches. I develop a translocal FPE framework (tFPE) with three themes: (i) translocal resource governance, (ii) translocal social relations, and (iii) translocal aspirations.

These three themes help with studying collective water resource management situated within migration, as they unpack layers and processes of socio-spatial interconnectedness and capture changing household and labor relations with attention to gender, caste, class, and generational relations. This approach tries to address challenges with which indices and surveys struggle, being snapshots of time. These challenges include capturing socio-economic relations, marginalization processes and change over time, and explaining analytical complexities, such as migration effects being perceived as both positive and negative

at the same time by different people. Globally, migration is often harshly critiqued by politicians, while migrants are driven by the hope of improving their livelihoods. Focusing on the effects of socio-spatial relations and collective action in resource management helps to contextualize and analyze migration effects in sending communities.

I build on qualitative enquiry in two case studies in the districts of Doti and Dadelhura set in the hills of Western Nepal. This allows a comparison of canal and pond irrigation systems in a similar agro-ecological zone.

In the next section, I review the frameworks of translocality and FPE before explicating how I use aspects of them for my empirical analysis. In section three, I introduce the context, methods and the cases of two farmer-managed irrigation systems in Western Nepal studied in this paper. I present my results on three themes: (i) translocal resource governance, (ii) translocal social relations, and (iii) translocal aspirations. I finish with a discussion and a conclusion on how these three themes build a foundation for a translocal Feminist Political Ecology framework (tFPE).

## 2. Theoretical Framework

To contribute to theorizations of marginalization processes in the context of socio-spatial and agrarian change, this paper bridges two strands of scholarship: Translocality and Feminist Political Ecology.

### 2.1. Translocality

Translocality is a concept that allows us to better study socio-spatial interconnectedness with direct implications on how we understand changing rural societies in the context of out-migration. The concept is sited broadly in the sciences of culture and modern history, and recently used in human geography and anthropological literature on migration. Translocality captures population dynamics as flows of ideas, knowledge, capital, material, and social and human resources (Sakdapolrak et al., 2016). Thus, translocality is a frame to analyze the circularity and continuous feedback effects of out-migration on agrarian systems beyond just absent labor (Greiner and Sakdapolrak, 2016), and with a focus on social aspects of migration (Brøgger, 2013). In their edited volume on translocal geographies, Brickell and Datta (2011: 6) focus on personal experiences and narratives, and define these as “a set of dispersed connections across spaces, places and scales which become meaningful only in their corporeality, texture and materiality – as the physical and social conditions of particular constructions of the local, become significant sites of negotiations in migrants’ everyday lives”. Hence, the concept highlights diverse and contradictory interactions and connectedness in an open and non-linear way (Freitag and von Oppen, 2010: 5).

The concept of translocality thus offers a greater diversity than transnationalism or globalization concepts, which have been rightly critiqued for a Eurocentric understanding and narrow focus on national boundaries (Freitag and von Oppen, 2010). The authors write: “translocality very consciously attempts to transcend the elitist focus on much of global history [...] from below” (Freitag and von Oppen, 2010: 5). Notions of stagnation and isolation associated with rural space, or immobile perspectives of those who do not migrate are challenged by applying multi-sited translocal geographies, personal experiences and narratives (Brickell and Datta, 2011; Greiner and Sakdapolrak, 2013). Hence translocality can question what Zharkevich (2019) criticizes as “a rigid dichotomy between ‘mobile men’ and ‘immobile’ women, illustrating that the ‘left behind’ wives experience

an impressive degree of everyday mobility in contrast to their internationally mobile husbands". While initial translocal studies focus on geographic-spatial translocality, more recent studies focus on social spatial aspects of translocality (Steinbrink, 2009; Andersson Djurfeldt, 2021). As of yet, only one study (Andersson Djurfeldt, 2021) raises gender concerns regarding studies on translocal livelihoods by stressing that household units should be re-thought as highly gendered spheres rather than spaces of cohesion.

I prioritize the socio-spatial aspect in the translocality literature. To address the limited engagement of the concept with gender relations, I will merge this with Feminist Political Ecology. Greiner and Sakdapolrak (2016) suggest a "political ecology of translocal relations" for researching the migration-environment nexus, but the limitation of translocality, however, remains: so far, it does not grasp gendered power relations and diverse lived perceptions, which are relevant to understanding how resource management in the context of gendered rural out-migration is negotiated in practice. Therefore, the concept requires linking to another theoretical approach.

## 2.2. Feminist Political Ecology

Feminist Political Ecology (FPE) is grounded in a social and environmental justice perspective and helps examine changing power relations in collective action and natural resource governance. FPE helps to understand how gender and social relations emerge and transform everyday practices of natural resource management (Nightingale, 2003b). Social relations are ambivalent, contingent and consequences of the exercise of power (Nightingale, 2019). Marginalization processes, that is the social marginalization of people due to ascribed social identities, and more broadly, shifting socio-spatial power struggles over resources are relevant in everyday struggles over resources and agriculture (Clement et al., 2019b; Harris, 2006; Sultana, 2011; Leder et al., 2019b).

FPE's relational approach focuses on diverse lived everyday experiences, and links these to rapid social, economic and environmental changes, enabling a multi-scalar analysis. Nightingale (2003b) and Harris (2006) explore the shifting and dialectical relationships between socio-political relations, cultural practices and ecological conditions, and understand resource management practices, collective action and cultural norms in rapidly changing contexts as being co-produced.

I will take a situated and intersectional approach (Leder and Sachs, 2019; Nightingale, 2011; Nightingale, 2003a) to study how social differences such as gender, age, ethnicity, marital status, caste, remittance flow and land ownership are renegotiated, and how they shape irrigation practices in the context of rural out-migration. Intersectionality in Feminist Political Ecology (Harris, 2008; Mollett, 2017; Nightingale, 2006, 2011; Leder and Sachs, 2019) can explain differentiated access, use and control over natural resources. Apart from intersections of social and economic differences such as gender, age, ethnicity and caste (O'Reilly, 2006; Panta and Resurrección, 2017; Sugden et al., 2014; Leder et al., 2017, 2019b; Leder and Sachs, 2019), this is also contingent

on and intra-household and intra-community relations (Leder et al., 2017, 2019b).

Furthermore, FPE's key interest focuses on everyday struggles due to power relations and emotional attachment at the household and community levels (Nightingale, 2011; Sultana, 2011). A focus on emotions can explain choices on participation or non-participation in natural resource management, and open up spaces for transformative change by marginalized groups (Morales and Harris, 2014). Emotional attachment to the community, land or kinship can explain why people cooperate (Nightingale, 2013). Hence, incentives for collective action cannot solely be explained by economic or political rationalities (Nightingale, 2013; Singh, 2017). Therefore, FPE explicates how social relations and especially gender norms shape participation, rules and practices of collective action in resource governance.

In the following section, I will link FPE with translocality in a framework to investigate how translocal relations change everyday space and affective relations attached to the community, water governance and agricultural practices, and how this affects when and how individuals choose to engage in resource governance. The framework helps examine how diverse groups' interests are re-framed, re-shaped and silenced within community-based resource management in the context of rural out-migration. Only a few scholars have looked at such intersections. Ge et al. (2011) employed such a performative and intersectional view to demonstrate how migrants remain embedded within a strong fabric of gender, class and kinship that constitutes their communities' sense of collectivity. They question "the extent to which any influx of new ideas, relationships and practices acquired from migrant experiences necessarily destabilizes power and authority in the village in any meaningful way" (Ge et al., 2011).

## 2.3. A translocal Feminist Political Ecology framework (tFPE)

To explore challenges and dynamics in collective action in irrigation systems in the context of rural out-migration, I suggest fusing the translocality and Feminist Political Ecology (FPE) into one relational and justice-oriented framework for society-nature relations.

In this paper, I draw from two FPE frameworks which I developed in earlier publications which examine "Rural out-migration, shifting gender relations and emerging spaces in natural resource management" (Leder, 2022), and "Ambivalences of collective farming" (Leder et al. 2019, see Table 1). Both FPE frameworks documented diversely situated female farmers' struggles in agriculture, water and land resource management in three themes and analyzed how some gender norms and power relations are renegotiated. The three themes can be categorized as "Resource governance struggles", "Marginalization reinforcers", and the "Emotional Realm". These analytical frameworks enabled the study of emerging spaces for influence in resource governance in contexts of rural male out-migration (Leder, 2022), while most unequal gender, class, ethnicity, caste and age relations are reproduced in collective action, land tenure and water management (Leder et al., 2019b).

**Table 1**  
FPE Frameworks for agriculture and natural resource governance.

	FPE and collective action: Ambivalences of collective farming of land, water and agricultural production (Leder et al., 2019)	FPE and migration: Rural out-migration, shifting gender relations and emerging spaces in natural resource management (Leder, 2022)	A translocal FPE framework: Farmer-managed irrigation systems and migration (Leder, this paper)
Resource governance struggles	Social relations across scales and sticky relations of power in collective farming	Socio-spatial struggles over resources	Translocal resource governance
Marginalization reinforcers	Intersectionality	Influence within agrarian households and communal spaces	Translocal social relations
Emotional Realm	Emotional attachment in people's willingness to cooperate	Aspirations, feelings of insecurity and self-determination	Translocal aspirations

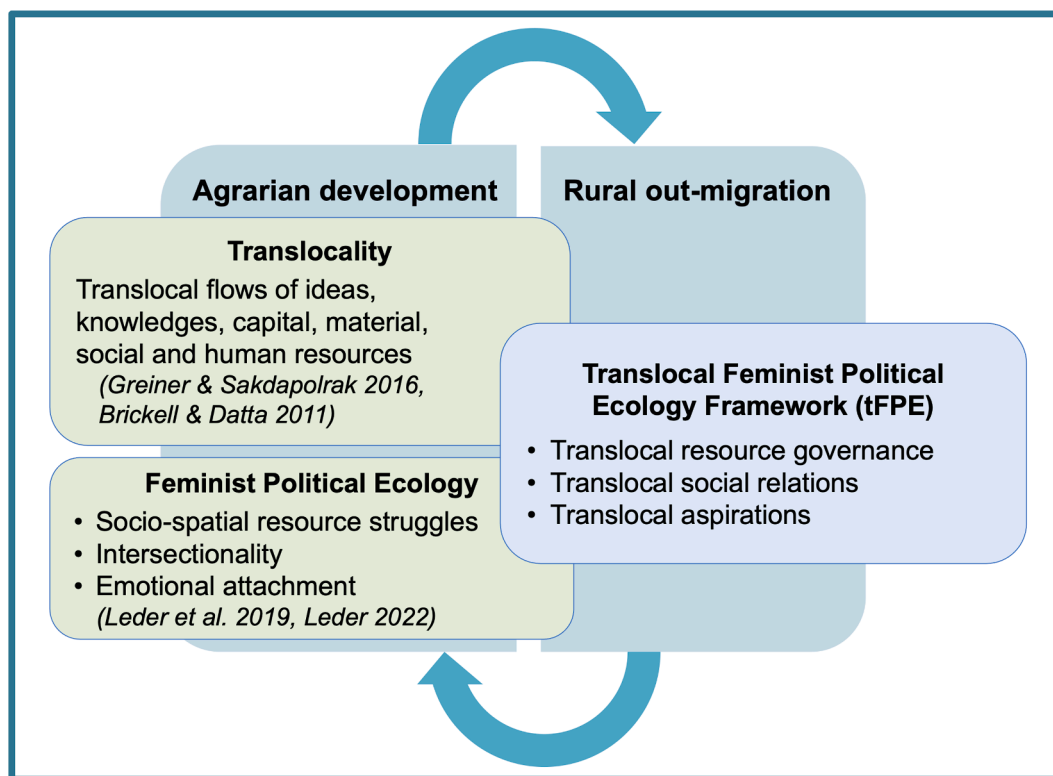


Fig. 1. Translocal Feminist Political Ecology Framework.

By combining the analytical strengths of both FPE frameworks with the concept of translocality, my empirical investigations for this paper led me to explore the following three dimensions (cf. Fig. 1):

- (i) *Translocal resource governance*
- (ii) *Translocal social relations*
- (iii) *Translocal aspirations*

Under the theme (i) *Translocal resource governance* I explore how natural resource governance is shaped by the socio-spatial interconnectedness at household and village levels and beyond. Political ecology and Feminist Political Ecology explore power relations in natural resource management. Combining (feminist) political ecology with a translocal perspective, I aim to grasp specifically translocal flows of ideas, knowledge, capital, material, and social and human resources (Brickell and Datta, 2011; Sakdapolrak et al., 2016) as these affect farmer-managed irrigation systems in contexts marked by rural out-migration.

The theme (ii) *Translocal social relations* unpacks social relations and sticky relations of power which shape households, collective action and resource management as a result of rural out-migration. This theme helps to focus attention on shifting subjectivities through translocal social relations. Gender and caste relations and other social norms are ambivalent and are negotiated in and beyond personal and domestic spheres (Leach, 2007; Nightingale, 2011; Arora-Jonsson, 2013; Leder et al., 2017; Leder and Sachs, 2019). Building on intersectionality at the gender-agriculture nexus (Leder and Sachs, 2019), I explore migration-induced changes in social, gender, caste and collective labor relations within collective action, water resource governance and agriculture. I also address how intra-household, and intra-village relations mediate the reorganization of agricultural labor and decision-making in irrigation management in the context of translocal relations. This builds on work by Shrestha et al. (2023), who demonstrated that the social inclusion in community groups and activities of those who do not migrate depended on caste and kinship relations in Western Nepal.

Theme (iii) *translocal aspirations* is crucial and often overlooked in research on rural out-migration. Translocal aspirations describe desires in regard to household, family and kin, peoples, culture, place, environment, and local resources, even in physical absence, and hence beyond socio-spatial distances. Aspirations and feelings of insecurity can push or pull migrants' decisions to physically move away and/or return to their villages seasonally or permanently, and to contribute to irrigation, agricultural labor and decision-making. In general, emotions influence willingness to cooperate in resource governance (Nightingale, 2011; Singh, 2013, 2017). Similarly, decisions to migrate are highly correlated with feelings and aspirations, but this is under-researched. Importantly, those who do not migrate also have translocal aspirations which can influence them to engage or disengage in collective action and agricultural labor.

Overall, these three themes – translocal resource governance, social relations and aspirations – can help explore how collective irrigation practices, and agrarian practices more broadly, are changing in rural regions affected by rural out-migration. To hold true to a non-elitist approach (Freitag and von Oppen, 2010), I use a methodological approach which draws on personal experiences and narratives.

### 3. Context: Farmer-managed irrigation systems in Western Nepal

Farmer-managed irrigation systems (FMIS) have been considered central to the sustainability of agricultural systems in Asia since the 1980s (Liebrand, 2019). A wide range of studies on farmer-managed irrigation systems have focused on Nepal since Elinor Ostrom's ground-breaking work on the Governance of the Commons (Ostrom, 1990). Her work demonstrated how rules and stable norms in collective action efficiently sustain local resources. Ostrom's work opposed Hardin's theory of the "Tragedy of the Commons" (1968) which assumes that users' self-interest will deplete shared resources. In Nepal, mechanisms for water allocation, irrigation system maintenance, resource mobilization and conflict resolution have been documented since the



1980s (Pradhan, 2000).

Studies on gender relations in Nepal have already shown the importance of the greater involvement of women, since this strengthens the effectiveness of local irrigation governance (Zwarteveen and Meinzen-Dick, 2001). Two recent studies support the argument that gender and social relations sustain irrigation systems in contexts of rural out-migration. Leder et al. (forthcoming) show that collective labor in irrigation systems is not affected by migration, as absent men's labor contributions are mediated at the household unit, increasingly involving women in sustaining irrigation systems. They further show that participation in a water user group or irrigation committee is significantly higher when there has been a migrant in the household in the past five years. While most households in their study stated having decreased crop production, migrant households did not report a decrease in crop production more often than non-migrant households. The other study by Meinzen-Dick et al. (2022) highlights that women's attendance and speaking at water user association meetings is higher in sites with male migration, and that women are significantly more likely to be involved in supervising water distribution. They also found that systems are adapting to male migration, and there is little idling of land and little deterioration of the systems due to labor shortages; however, there are concerns regarding high labor burdens for women.

In Nepal, an estimated 17,000 irrigation systems exist which account for 40 % of national food production (Pradhan, 2000). About half of all cultivated land is irrigated, and 70 % of irrigation systems are farmer-managed in Nepal (Pradhan, 2000). In 2013, an Irrigation Policy Amendment states that "the user's committees will have at least 33 percent women's representation with representation of Dalits and people from marginalized groups" (Government of Nepal, 2013). However, these gender representations have not been met in practice (Pradhan, 2016; Udas, 2014). Instead, women from more powerful households are added for signing papers, and they often have little knowledge and decision-making power. It has been widely documented that the irrigation and water sector remains dominated by static, apolitical, masculine and technical discourses (Shrestha and Clement, 2019).

### 3.1. Introducing two cases of farmer-managed irrigation systems

Each irrigation system is unique and has a diversity of socio-spatial relations among the people managing it locally. These shape the mechanisms for water allocation, irrigation system maintenance, resource mobilization and conflict resolution. In the following section, I will introduce two farmer-managed irrigation systems in the districts of Doti and Dadeldhura in Western Nepal. However, this paper does not intend a comparative analysis of the two cases.

In Doti, a 6.5-km cemented canal irrigation system was initiated by a well-off upper caste Chhetri<sup>1</sup> family, and then significantly funded under the 2nd Hill Irrigation Project by the Asian Development Bank in 1989 (2nd Pahadi Sichai Yojana 2046 BS under King Birendra). 9 cemented canal outlets catering for 9 toles (housing sections based on ethnicity, caste and kin) were built over a period of two to three years and brought into use in 1992. Today, the canal has 9 outlets and 17 earthen canals. The 9 cemented outlets are opened in a rotating system in which two outlets are opened at a time to supply 1–3 toles with water,<sup>2</sup> depending on the size of land. The canal supplies water to a total of 400 households. Every household pays 30 NPR (0.21 EUR) monthly maintenance fees. According to the committee, 200 households send one household member to provide labor and participate in the yearly collective canal

<sup>1</sup> In the hills of Nepal, the dominant Hindu caste is that of the Chhetris, who are, like Brahmins, considered the "upper caste". There is also the marginalized caste of Dalits, formerly called "the untouchables", as well as the Janajati (indigenous nations).

<sup>2</sup> The 9 canal outlets are not catering for each of the 9 toles as these are different in size. 1–3 toles share one outlet.

cleaning and repair days in May to prepare for the paddy plantation in monsoon. The remaining 200 households pay an annual fine of 80–100 NPR (0.56–0.70 EUR) for non-participation. These rules are enforced by the tole representative of the irrigation committee, who verbally informs all households both on labor and financial requirements of the irrigation canal use.

In the district of Dadeldhura, a diversity of functional, non-functional and virtually non-existent canal and pond irrigation systems are spread across a hilly area at approximately 1600-m altitude. Their functionality is dependent on the existence of active irrigation committees and accessible funds for building, repairing and maintaining irrigation infrastructures through government or international aid funds. In case there are funds locally available for irrigation, the process requires local leaders in the committee to formally apply for and often exert regular pressure on the local officer to receive funding. Several internationally funded climate adaptation programs in the last decade funded and implemented individual household taps as multiple use systems, which were mostly used for domestic purposes, however, and less so for vegetable garden irrigation as also intended (Clement et al., 2019a; Clement et al., 2019c; Leder et al., 2017). In February 2020, an agricultural cooperative and members of a local drinking water committee joined forces in the village of Selinge and successfully applied for local government funding for three irrigation ponds and pipes collectively, with 10–12 households participating in each. They were taking turns to irrigate their land every three days from these ponds. These newly set-up or revitalized ponds would ensure their food security for about three months a year.

## 4. Methods

I conducted fieldwork in two villages in two districts, Doti and Dadeldhura, in Western Nepal, where I have been engaged in since 2015, with regular follow ups in 2016, 2020 and 2021. The two purposively selected villages represent a canal irrigation system and collectively managed ponds for irrigation which are both typical for the hill population in Western Nepal. Land holdings are small and fragmented. This research builds on earlier studies in the same region, and partly in the same villages, by myself and colleagues on women's empowerment, food security, intersectionality and water security programs (Buisson et al., 2022; Clement et al., 2019a; O'Hara and Clement, 2018; Leder et al., 2017; Leder and Sachs, 2019).

In the district of Doti, I interviewed diverse households in 9 toles along a 6.5-km cemented canal irrigation system. The respondents were selected with the help of a local research assistant, who advised how to cover different castes and migration status. We also applied the snowball technique, asking respondents to identify other possible respondents who they compared themselves to. In the district of Dadeldhura, I covered households within the village with a local assistant and the snowball technique. Rural out-migration is common in both villages and across all castes (Chhetri, Dalit and Brahmin). I conducted 80 semi-structured qualitative interviews (see Table 2) and 12 focus group discussions with female and male farmers of different castes and ages in the two villages. The interviews conducted with about 60 farmers who were non-migrants, and about 20 migrants who had returned either temporarily or permanently. Of those interviewed, about 60 % of households had at least one migrant in the past five years, of which more than 80 % were male. This aligns with a recent socio-economic survey conducted in the same villages (Leder et al. forthcoming). I covered a roughly equal

**Table 2**  
Interviews conducted (of which households with migrants are listed in brackets).

Interviews	Dadeldhura	Doti
Brahmin	2 (2)	1(1)
Chhettri	30 (17)	31 (18)
Dalit	8 (7)	8 (7)

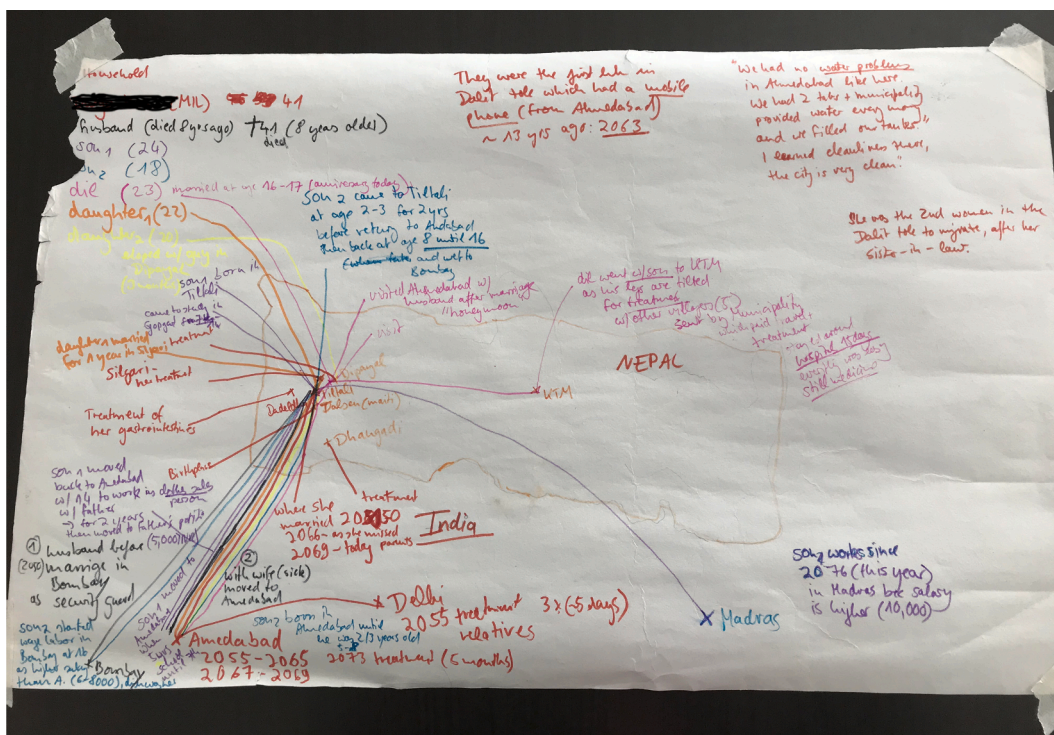


Fig. 2. Translocational Map of a Dalit woman, 41 years old

gender distribution among the interviewees with an age range between 16 and 70 years. The interviews took approximately one hour each.

I also conducted 8 translocational mapping exercises on individuals' translocational social relations. The participatory translocational maps were drawn by myself during an interview with one person relating to her own and her household members' migration patterns, and the reasons for their stays beyond the village, and what they learnt from them. I discussed and verified every translocational social relation and movement I was drawing during the interview with the participant (see Fig. 2).

I observed two irrigation committee and two water user association meetings, and conducted focus group discussions with them. I also conducted twelve expert interviews with academics and NGO staff who work at district, provincial or national level on rural out-migration in Nepal. All methods were conducted with the support of two to three research associates who translated the conversations in Nepali and/or the local language Doteli into English.

## 5. Findings

### 5.1. Translocational resource governance: translocational flows sustain collective irrigation management

At first sight, the studied farmer-managed irrigation systems remain surprisingly functional despite rural out-migration occurring in 60 % of all households in the past five years. One might assume that there is no "visible" rural out-migration effect on collective water management and irrigation infrastructure. However, this only implies that sufficient labor is available and being replaced in households and villages to repair, maintain and use irrigation canals or ponds. During my fieldwork, I noted in interviews and by observation, that it is increasingly women and elderly people who are engaged in collective labor such as cleaning or unblocking canals and using the rotational system. As women reported, before there used to be greater involvement of both young and old men, but now it is women who are doing all the work. This demographic and generational change is an important factor which is easily overlooked given the often invisible and unrecognized work of

women and the elderly who conduct tasks without visible financial benefits or social recognition. Hence, rural out-migration has led to a re-organization of irrigation labor,<sup>3</sup> with an increased labor burden for women and the elderly.

On closer inspection, there is another seemingly contradictory factor shaping the current state of collective action in irrigation governance: while the people who contribute labor have changed, those who have authority and make irrigation decisions have not. Irrigation committees have not changed their composition due to rural out-migration (Leder et al. forthcoming). Existing leaders who are elderly, mostly male upper caste Chhetris, have been in positions for several years, some for decades. Their respective positions as chair, vice-chair, secretary, or ordinary member are regularly documented and they act in the public sphere, for example, applying for available irrigation funds. Because those in positions of power have not changed greatly, one could assume that rural out-migration has not influenced water governance. This is, however, not the case.

Translocational flows of knowledge, capital, social and human resources shape the participation or non-participation in resource governance. The absence of male youth has led to a heavy work burden for women, the elderly, and other marginalized groups, whereas those with translocational resources such as remittances and social networks receive more support than those without. Especially women with strong translocational ties were able to use their translocational relations to their husbands, or other kin or neighbors to receive financial support or information to maintain their involvement in irrigation systems as well as other resource user groups. Furthermore, they could even expand their influence by steering decisions on water flow, e.g. on their tole's turn to irrigate (interview with a female farmer). In contrast, many women remain strongly dependent on their husband and his social networks, and in his absence, their translocational ties encourage or discourage their engagement in irrigation

<sup>3</sup> Regarding other agricultural labor, men come back for seasonal agricultural work, especially during the most important festival in the year, Dashain, as well as to plow, which in Nepal is a deeply cultural belief that only men are allowed to plow as otherwise the harvest will fail.

management. Women can have a decreased influence, as one woman of Chhetri caste stated: *"I don't know about these groups as my husband is not there."* This indicates that women with weaker translocal ties seem less likely to participate in collective irrigation systems.

Given the increasing labor influence of women in irrigation systems, rural out-migration effects leading to changes in authority and decision-making in irrigation committees and water user associations may possibly appear more strongly at a later point of time. This has been the case, for example, in the mid hills, where women have "broadened and deepened their involvement in rural society" as a result of rural out-migration (Maharjan et al., 2012), and even increased women's decision-making if remittances helped to reduce the physical labour (Maharjan et al., 2012). A reason for a delayed institutional change in water institutions and power relations in the Far West of Nepal could be the persistence of patriarchy and a slow change of gender norms. Water governance is traditionally male dominated, while women have always been involved in irrigation and agricultural labor without official roles in decision-making.

Hence, the effects of migration on the most marginalized in the rural community are heterogeneous and contradictory. These contradictions can lead to exclusions and inclusions in water user associations (WUAs). Another female farmer, for example, stated that she had a heavy care burden due to her children and her husband's absence, and therefore less time and too low remittances to continue her involvement in meetings of the WUAs: *"I worry about my children's future and safety, I don't have time because of household work"*.

Diverse strong or weak translocal ties reflect that there is not one narrative regarding migration being either a threat to or opportunity for agrarian development. The concept of translocal resource governance can be helpful to describe the diverse influences of rural out-migration on natural resource governance. The following subsection expands further on the importance of translocal social relations in resource governance, and especially the intersectional effects of rural out-migration on gender, caste and labor relations.

## 5.2. Translocal social relations: changes in gender, caste and class relations in irrigation and agriculture through translocal flows

### 5.2.1. Changing gender relations in irrigation and agriculture through translocal flows

Translocal flows of human and social resources change household structures as well as gendered labor relations. Those with out-migrated husbands or sons may or may not receive support translocally. This can bring either new challenges or opportunities regarding gender relations in irrigation and agricultural labor, and resource governance more generally.

In the absence of their out-migrated husband, some women's labor burden increases as they must take over hard physical agricultural labor which they had not done before. Several women reported calling their husbands abroad for advice on when to irrigate or which crops to grow. This reflects the positive influence of translocal flows of ideas and knowledge with those abroad. Those who do not migrate may receive remittances and translocal labor support from migrants as advice via phone.

Rural out-migration effects are mediated by class, based on land-ownership and remittances, which influences the ability to hire labor, and the social and labor support received from family members for care responsibilities. Hence, women's available social relations within the village, beyond their translocal social relations, become even more important in the absence of their husbands. In an interview in Doti, a woman of Chhetri caste stated:

SA: "I have to do many other things by myself which was supposed to be done by my husband when he is not here."

I: "When your husband is not here, whom do you ask for help?"

SA: "Relatives, other family members. Sometimes I get help through Parima." (09:55).

Parima is a system of reciprocal labor exchange based on local social relations and trust, not cash: "I work for her today, she comes to help me tomorrow" (FGD, Doti). This system is widely spread across Nepal (Metz, 2022). Parima offers a counternarrative to capital-driven notions of labor and surplus.<sup>4</sup> In the villages studied, informal labor exchange agreements continue, especially among women with low labor support at home as they depend on each other's support. During the COVID-19 lockdown, Parima was interrupted for reasons of physical distancing (phone interview April 15th, 2020). This was, however, resumed after the restrictions were relaxed. One elderly woman shared with us that Parima is crucial for cleaning irrigation canals close to their fields, and that it is older family members now who take over the work which sons used to do:

"They would go to the field and help us water the field, they used to help us to plow the land. Now this old lady (referring to herself) has to do so many things in their absence. We have this system of Parima when cleaning the canals. So, if they were here, they could represent us in the work rather than us (the old family members) going to work. Sons are in other countries so we need to represent our households (in water user associations) and work there anyhow". 34:37.

In times of (climatic) crises, collective action is particularly important. Despite, or rather because of the high vulnerability to floods, local collective action is functional for the village in ensuring that irrigation canals are unblocked, and fields are cleared of rocks. The following example will illustrate this:

During increased rainfall in the monsoon season, two of the villages are regularly exposed to floods which often cover their fields, irrigation canals and freshwater springs ('naulas' in the local language Doteli). This is particularly accelerated through deforestation for firewood, as in the absence of trees, water is not sufficiently stored in the roots of trees. When their fields were covered by a landslide in 2016, women organized themselves in groups to clean up their fields collectively. To avoid further damage in the future, 60 people led by the local water user association went to the chief district office 20 km away and protested for several days in front of the office until the chief officer promised financial support to build protective stone walls to block landslides from covering irrigation canals in the future. When I observed a group of women carrying heavy stones for these protective stone walls in 2020, I expressed my surprise about those women successfully pressurizing the chief district office for funds, as well as conducting now the heavy physical labor of carrying big stones for the wall. One of the women laughed and said confidently:

"Our husbands are in India, and our stomach needs food, so we are digging!"

(Female) wage laborers building protective stone walls, Tiltali village, Doti, on Feb 13th 2020.

This reflects the necessity of women working together in the absence of men. Especially those with weaker translocal support and resources reinforce local collective labor relations in irrigation. Translocal social relations thus restructure and reinforce local collective labor relations in irrigation. This is similar to other parts in the world.

<sup>4</sup> Parima is similar to other collective action systems, community work and labor exchange in many rural areas such as Kaxkol of the K'iche and Kuchubal of the Maya in Guatemala. In Guatemala, being involved in Kaxkol develops a sense of belonging, social recognition and identity, and helps to save money (Hernández Méndez and Victorino Ramírez, 2021).



### 5.2.2. Changing caste, class and labor relations

The class difference, traditionally based on caste and the inheritance system of land, is altered when Dalits become part of the migrant economy. Many Dalits, as the marginalized caste, were engaged in bonded agricultural labor to upper caste Brahmins or Chhetri households. As rural out-migration and wage labor allow livelihood diversification as an alternative to agricultural labor, the powerful role of Brahmin or Chhetri landlords can be destabilized. In the past, Dalits received in-kind payment in the form of a warm meal or additional food for their family for a full day's labor in Selinge village in the district of Doti. Upper caste families gave loans to Dalit families who often became lifelong indebted. With the availability of remittances and wages, Dalits are able to pay off their loans and refuse to take on oppressive labor arrangements paid in kind, not in cash. The following interview section describes such a case:

Interview with male Dalit, 25 years old, Selinge village, Dadeldhura.

I: "What type of work do you do for Chhetris (upper caste hill farmers)?"

M: "Mostly work related to paddy fields."

I: "Did you help them with plowing?"

M: "Not me, but my father used to do that as well. He did that for 10 years in one of Chhetri's fields."

I: "Why did he leave that now?"

M: "My brother started to earn so my father did not feel like doing that work anymore." (...).

I: "So they don't call your father for help these days?"

M: "My father took a loan of NPR 10,000 twenty years back from that person. So instead of paying annual interest on that loan, my father worked for him for ten years. But later my brother paid all his debts and my father had stopped helping that Chhetri."

After this conversation, I conducted an interview with the outspoken and well-educated daughter-in-law within the Chhetri household, 23 years old, who used to have the Dalit father and son as bonded laborers at home. She stated: "Before people didn't have much and didn't have many ways to earn money, but these days they want money rather than other things so that they can buy whatever they want" (f, 23, Dadeldhura).

Hence, Dalits are now in a better position to break with exploitative labor dependencies and demand a wage, as they have alternative income options. This slowly leads to an economic restructuring and creates possibilities for increased self-determination for Dalits within Nepal's economy. Furthermore, these changes in caste and labor relations have contributed to broader socio-political change processes in other parts of Nepal (Sunam, 2014).

Even beyond changing labor relations, caste discrimination is slowly reducing. On the one hand, Dalits shared that they are considered as Nepalis, rather than Dalits, in India and other countries. Living and working outside the village and the country without being discriminated by their caste background exposes them to new social experiences. On the other hand, awareness programs in the village exposed people to new ideas from "outside," as one Chhetri woman stated:

"People's mentality has been changing regarding untouchability practices. There were many awareness programs which were introduced to this village to make people aware about this practice. (...) People (also) went abroad and got exposed to the outside world. Their mentality regarding the caste system might have changed. So, once they came back, they might start to see things differently" (female of the Chhetri caste, Doti).

In expert interviews conducted in Nepal's capital Kathmandu in March 2020, similar cultural changes associated with rural out-migration were stated. One academic said:

"Migration has brought the unexpected benefits in Nepal which development failed to do: besides an income several times bigger

than what they could expect in Nepal, people gained technical, social, administrative, and financial skills, they learned factory time discipline, and to see a world beyond their village" (academic, m).

This positive framing of migration reinforces the acquisition of resources in terms of skills and worldview from which migrants benefit, but may obscure the often exploitative new labor relations in which migrants find themselves in international labor in which they are overworked and underpaid.

An iNGO researcher who coordinated one of the early large migration projects in Nepal shared how migration was initially seen as a threat to Nepal's development, but throughout the project, she observed change within the project team:

"Finally, they spoke in the migration project meeting about power relations and Dalits overcoming exploitative relations, rather than farmers becoming lazy with migration" (iNGO researcher, f).

This shows that translocally induced changes in terms of shifting caste and labor relations in villages are entering both academic and international development discourses, and are recognized as contributing to broader socio-political change across Nepal.

### 5.3. Translocal aspirations: emotional attachment, worries and insecurities

Aspirations in regard to the home village are ambivalent. On the one hand, emotional attachment to the home village by both migrants and non-migrants leads them to hope for frequent visits home. On the other hand, aspirations turn towards earning higher incomes through out-migration, and away from irrigation and agriculture more broadly. This also entails a reduced willingness to work in their home villages in irrigation and agriculture.

As stated earlier, some women felt increased confidence in repairing irrigation canals and protective stone walls together in the absence of their husbands, or attending water user group meetings more regularly, or speaking up more often than they had done before when their husbands were around and did such tasks. Nevertheless, many women expressed their desires to have their husbands around as support. Women stressed that their husbands and children would stay in the village if they had greater income-generating opportunities. In a focus group discussion in Doti, one woman stated:

"Why would our husband or our children want to migrate to India if they could earn enough to sustain life? Leaving old parents, sick family members behind they go far away for work. They go because they can't earn much here" (woman in FGD, Doti).

In an interview, a woman in Doti stated her financial needs and labor burden:

"If my sons were here, they would help me to plow the land, water the field and help in other activities in the field. It would be easier for us. If we had enough money and were earning sufficient, why would they also migrate? They would stay back" (Feb. 2020, f, Doti).

A farmer explained the difficulty finding local laborers due to changed aspirations and negative associations with hard physical labor in agriculture:

D: "It's hard to find laborers around here. The villagers here don't want to engage in agriculture and think it's a lower job. Some villagers also go outside to work but are ashamed to work in the village."

I: "Is it also because they are earning more outside rather than working in the village?"

D: "They are shy and don't want to work here. They think that working in village is going to make them look smaller. They want to act rich. If they go out of the village, nobody knows them and they find it comfortable to work" (m, Doti).



Other male farmers stressed that it is especially youths' changing aspirations which turn away from irrigation and agriculture:

S: "Abroad they work for around 12 h a day. But when in the village, they don't even work for 2 h in a day. They think that working outside is something to be proud of whereas working at home is embarrassing for them" (m, Doti).

W: "We have enough land for agriculture but (...) the younger generation doesn't want to work in the field or be a farmer. Agriculture production is decreasing and only the old people are engaged in agriculture" (m, Doti).

M: "They prefer to go to India rather than working here in Nepal or even in agriculture. I think around 80 % of the youths have migrated to India."

I: "So what do the remaining 20 % youths do in the village?"

M: "They don't do anything, they just eat their lunch, go around the village the whole day, come back in the evening and have dinner. That's it" (m, Doti).

These statements show that feelings of shame, and embarrassment, and aspirations regarding their social status in their home village can push migrants to move away and only return seasonally to support their families with irrigation and agricultural labor, but not other households. Their willingness to cooperate in collective irrigation resource governance is reduced, as being at home is often considered as leisure rather than work time.

Lastly, I will elucidate how translocal flows of new ideas change aspirations for water practices. For this purpose, I draw from one illustrative example of a translocal map which demonstrates socio-spatial interconnectedness and the flows of ideas. Translocal maps visualize diverse households' social, financial, and material flows of resources, linked with relational life histories, and can be used to trace household and community development.

I asked one Dalit woman to draw together with me a translocal relation map (Fig. 2) in which she decided to use different colors for movements of different household members. Her movements were due to marriage, for medical treatment, and following her husband who worked in Ahmedabad. She observed continuous access to water at her house in Ahmedabad, and learnt there about hygiene and clean water. She took this knowledge from Ahmedabad back to her home village, and unlike other women in her Dalit community who had not migrated, she changed her habits and kept her house and the surrounding vegetable garden clean. They were also the first household in the Dalit tole which had a mobile phone 13 years ago. Her case shows how the transfer of ideas led to new hygienic practices and norms at home. This shows a change in aspirations, as she aspires now to have a clean home and vegetable garden. In how far these new ideas influence or even jeopardize collective labor and irrigation systems requires more detailed studies.

## 6. Discussion

The findings demonstrate how resource governance, social relations and aspirations are not locally bound, but translocal. My approach to expanding the concept of translocality to include those who do not migrate as equally affected by translocal flows and ties, helps to correct the overly present focus on (often male) migrants' roles in the literature on both translocality and irrigation, and breaks with the dualism of mobile men and immobile women in migration studies (Zharkevich, 2019). Bringing gender and intersectional relations to the fore is inspired by feminist political ecologists, and opens up the concept of translocality to allow a more specific analysis of gendered power dynamics and marginalization processes in irrigation and agriculture in contexts of rural out-migration and return migration (Ge et al., 2011).

The empirical findings in rural contexts marked by out-migration imply that non-monetary labor exchange systems are upholding small-scale agriculture in the Himalayan hills of Far Western Nepal. In

contrast, the changing situation of Dalits who migrate and return demonstrates the increasing flexibility of the rigid caste system through remittances and individuals' exposure to different social norms and axes of discrimination (e.g. rather by nationality- being identified as Nepali rather than caste). Hence, caste relations, despite remaining unequal, seem to change positively (Sunam, 2014). While outside exposure and increasing cash flow in hand allows Dalits to break free of exploitative labor relations with landlords, awareness programs by the government and INGO also support changing visions. This demonstrates that rural out-migration is not the single cause of caste and social changes in irrigation and agriculture. Structural issues and power relations in irrigation and agriculture more broadly threaten food and water security (Clement et al., 2019a).

The results show that *translocal social relations* can have some transformative effects on caste and labor relations, but also gender relations. Some women, despite being burdened with labor in the absence of their male counterparts, manage and repair their irrigation canals, and even collectively pressure the local district government office for support. However, women with greater care work, less family and neighbor support, and lower remittances and weaker translocal ties, struggle to find time to attend meetings and stay informed through their social networks in the absence of their husbands. This shows that male out-migration has mixed effects on gender relations, and that financially successful migration in return of remittances, can allow to ease physical labor for women in agriculture more broadly, whereas other households may fall into debt (Maharjan et al., 2012).

Importantly, the nuanced description of the ambivalent aspirations and emotions related to migration give strong empirical contributions to argue for an "emotional turn" ((González-Hidalgo and Zografos, 2020) in translocality studies. *Translocal aspirations* often refer to financially more attractive, but possibly exploitative options of wage labor and out-migration which reduces the willingness to work in irrigation and agriculture. Aspirations and feelings of hope are important and valid reasons to move to another country, as are feelings of shame related to hard physical labor and a reduced willingness to work in irrigation and agriculture. Scholars have highlighted the gendered pressures that young people, and particularly men, experience regarding migration in other contexts. Given the "lack of local life-making alternatives that neatly conform to hegemonic masculine ideals, young men experience strong pressures for migration and encounter negative social judgments where they seek to stay put" (Bylander, 2015). Men who migrate are more respected in the community than those who stay behind, while those who do not migrate face greater work burdens and emotionally suffer during the absence of their partners (Leder et al. forthcoming). People migrate with the aspiration of improving and modernizing their lifestyles, whereas this is not necessarily congruent with well-being in the long run (Fox, 2016). Crucially, the important role of emotions and their effects on resource governance in such contexts remain under-researched (González-Hidalgo, 2020).

The empirical data of the two case studies in Doti and Dadeldhura shows that *translocal social relations* and *translocal aspirations* sustain but also challenge *translocal resource governance* in the case study of farmer-managed irrigation systems in Western Nepal. Water for irrigation keeps flowing due the labor contributions by women and the elderly who increasingly replace their male household counterparts. However, this brings two challenges: on the one hand, women have a heavy labor burden (Meinzen-Dick et al., 2022). On the other hand, women's labor inputs are not recognized and acknowledged as they have not yet obtained official positions of authority in irrigation committees and water user associations. However, Ge et al. (2011) showed in their study that gender and kinship norms, and generational and clan-based social hierarchies are reiterated when migrants return to their home villages. This implies that sustained authority in local resource governance by mostly upper caste males is "sticky".

Hence, *translocal resource governance* is influenced by translocal flows of social relations, capital, knowledge, and human resources and shapes

women's ability to participate in irrigation management. Changes in household and labor relations due to migration shape *translocal resource governance*. These encompass translocal capital in the form of remittances, as well as translocal flows of social and human resources, ideas and knowledge, e.g. when migrants advise via phone on when and how to irrigate, and return with new ideas.

Combining two conceptual approaches, translocality and Feminist Political Ecology, into a translocal Feminist Political Ecology framework has three major benefits. Firstly, this novel synthesis enables the framing of resource governance within translocal human, social, capital and material flows, rather than considering purely local resources and relations, as much of the literature on local resource governance describes. Secondly, the framework sheds light on the dynamics of translocal social relations and power dynamics in collective irrigation resource governance in Nepal, which can especially illuminate shifts in gender, caste and labor relations. In this context, the important collective labor sharing practice of "Parima" and households in contexts of rural out-migration came to the fore. Thirdly, the important but understudied role of emotions is highlighted in translocal resource governance.

Thus, the combination of the two approaches speaks truly to their intended similar broader objectives of offering a non-elitist perspective on personal experiences and narratives across space, place and scales (Brickell and Datta, 2011; Elmhirst, 2011; Freitag and von Oppen, 2010).

The three themes I outline as constitutive of a translocal Feminist Political Ecology framework may spark new endeavors for research on migration, (water) resource governance and agrarian change.

Remaining gaps within the translocal Feminist Political Ecology framework are also threefold. Firstly, the framework does not explain broader political economy relations and changing capital-labor relations, which require critical investigation particularly regarding questions of sustainable food security, improved livelihoods and long-term well-being in contexts in which often only capital is considered the solution to overall development. Secondly, clear indicators and tools to measure different degrees of translocal social and other flows are yet to be developed. For example, one could differentiate into "weak" and "strong" translocal ties which shape resource governance, social relations and aspirations. Thirdly, a systematic methodological approach is missing. My research builds on long-term fieldwork and the triangulation of a range of different methods I conducted over a six-year period. If this framework is to be applied in different contexts and under different, more time-limited conditions, scholars require clearer methodological guidance. However, it remains methodologically difficult to capture translocal flows over time, and to do justice to intersectional diversity and ambivalent social relations. All indexes or surveys as well as interview data represent just a snapshot, and the situation may change quickly. The two case studies are exemplary of diverse translocal effects in rural hilly areas of the Himalayas.

## 7. Conclusion

Resource governance systems, and irrigation systems in particular, are often perceived as technical, masculine and apolitical systems by policy makers, staff and researchers. This study develops a novel synthesis to understanding natural resource governance in contexts of rural out-migration by introducing a translocal Feminist Political Ecology framework. By doing so, *translocal resource governance* as a concept shaped by *translocal social relations* and *translocal aspirations* comes to the fore. Applying this translocal Feminist Political Ecology framework to the empirical analysis demonstrates the need to pay greater research and policy attention to (i) translocal flows of capital, knowledge, ideas, and social and human resources shaping resource governance, (ii) translocal social relations such as changing gender, caste and labor relations and intersectional power relations, and (iii) aspirations, confidence, and shame in contexts of rural male out-migration. Several studies have pointed out the need to explore beyond the economic effects and also

examine social, cultural and political changes in resource governance in contexts of migration, and a theoretical framework to do so was lacking (Ojha et al., 2016; Leder et al., 2017). I hope to fill this research gap given that this study demonstrates how combining translocality and Feminist Political Ecology can highlight unique theoretical and empirical insights which are otherwise glanced over in different research approaches.

These three themes bring both approaches, translocality and Feminist Political Ecology, into dialogue with each other in order to produce mutual benefits. Translocality gains analytical depth through the focus on ambivalent "power" relations, emotions and intersectionality being embedded into translocality, which has often focused on descriptive socio-spatial interconnectedness. FPE is broadened as a framework by linking it to translocality, by capturing mobility and migration flows. FPE stresses linking local and global change processes, but often does not explicitly do so. Combining the two frameworks embeds migration with ongoing socio-political change – from household and village level, to consequences for collective action in resource governance, and broader questions of food security.

Furthermore, this paper shows that what has been framed as "local resource governance" up to now does not hold true anymore in the case studies, and most likely in many resource systems, as resource governance has become "translocal". "Local resource governance" has helped to demand a greater role for the local involvement in the governance of resource commons and promoting community-based natural resource management (Agrawal and Benson, 2011). This remains important for policy makers in recognizing farmers' agency. However, for an empirically sound understanding of farmer-managed resource governance, "translocal resource governance" might be a more useful concept reflecting diverse socio-spatial interconnectedness along the three themes outlined in this paper. This further extends translocality studies to include those who do not migrate as being equally like migrants as translocal agents.

The results urge greater recognition of female irrigators among diverse stakeholders through innovative, participatory and transformative engagements (Leder, 2018; Leder et al., 2019a; Leder et al., 2016), as women are central in sustaining collective action in irrigation systems in contexts of male out-migration. This requires strengthening local institutions financially, such as water user associations and irrigation committees, to make them self-sufficient and sustainable. Further requirements are sufficient and accessible local subsidies reaching women as well as incentives to direct remittances towards water management. Further research is needed to embed such approaches within gendered contexts of translocal resource governance, social relations and aspirations.

## CRedit authorship contribution statement

**Stephanie Leder:** Conceptualization, Methodology, Software, Supervision, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Review & editing, Visualization, Project administration, Funding acquisition

## Declaration of Competing Interest

The author declares that she has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

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