Riverine Reciprocity Routes:

The Roads Towards Water Justice in the Guarguallá River Basin in Ecuador?

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Abstract

Abstract: Reciprocity has been the foundation of the normative frameworks that characterise social bonds in the Andes. In the Guarguallá River basin, the upstream and downstream communities established reciprocal relationships to ensure the future water flow to the Guarguallá-Licto irrigation system and the sustainable livelihoods of the smallholders in the basin. However, over time, the relationship between the riverine communities slowly disappeared which caused frustration in the páramo communities. This thesis analyses the transformation of reciprocal traditions over time and explores how this influenced the bond between the riverine communities. Consequently, it explores how a potential new, equitable bond can take form via the notion of `riverine reciprocity routes´. It finds that neoliberal ideas, norms, and values influenced the riverine communities in diverse manners which has led to individualisation and the loss of communal traditions. While there are obstacles to overcome, there may be a `momentum´ for the restoration of the relationship between the communities. The riverine reciprocity route as envisioned consists of several elements and is based on the ideas, needs, and wishes of the riverine communities. This implies it can contribute to context-relevant, sustainable, and more equitable water governance in the Guarguallá River basin and demonstrate how alternative `living with river´ assemblages can take form.

Keywords: watershed conservation mechanisms, PES, páramo conservation, territorialisation, governmentalities, reciprocity, water justice, alternative imaginaries, riverine reciprocity routes, Ecuador, Andes, Guarguallá River basin

Abstracto: La reciprocidad ha sido la base de los sistemas normativos que caracterizan los las relaciones sociales en los Andes. En la cuenca del río Guarguallá, las comunidades de arriba y de abajo establecieron relaciones recíprocas para asegurar el futuro caudal de agua al sistema de riego Guarguallá-Licto y los medios de vida de los campesinos de la cuenca. Sin embargo, con el tiempo, la relación entre las comunidades ribereñas lentamente desapareció, lo que provocó frustración en las comunidades del páramo. Esta tesis analiza la transformación de las tradiciones recíprocas a lo largo del tiempo y explora cómo esto influyó la relacion entre las comunidades ribereñas. En consecuencia, explora cómo podría tomar forma una nueva relacion equitativo a través de la noción de `rutas de reciprocidad ribereña´. Se constata que las ideas, normas y valores neoliberales influyeron en las comunidades ribereñas de diversas maneras, lo que ha llevado a la individualización y a la pérdida de las tradiciones comunitarias. Aunque hay obstáculos que superar, puede haber un `impulso´ para la restauración de la relación entre las comunidades. La ruta de reciprocidad ribereña tal como se concibe consta de varios elementos y se basa en las ideas, necesidades y deseos de las comunidades ribereñas. Esto implica que puede contribuir a una gobernanza del agua equitativa, sostenible y pertinente al contexto en la cuenca del río Guarguallá y demostrar cómo podría tomar forma conjuntos alternativos de convivencia con el río.

Positionality

Before you dive into this thesis, I would like to start with some notes on my positionality as it had a considerable influence on how this research has been formed. I have written this thesis in the process of completing the master International Land and Water Management at Wageningen University, the Netherlands. This thesis is part of the master´s exchange programme of the Riverhood & River Commons research and action project and therefore lines up with its objectives. Riverhood & River Commons aims to develop and employ transdisciplinary concepts and methodological tools for research, education, and multistakeholder interaction, to understand and support innovative river co-governance initiatives and contribute to equitable policies and sustainable socioecological river systems (see movingrivers.org). In collaboration with the communities of the Guarguallá and Alao rivers in Ecuador, a countermap of the river basin was created last year. This thesis draws upon one of the issues that came to the surface as a result of this initiative: the disappearance of the relationship between the upstream and downstream communities of the Guarguallá River basin.

My motivation to write this thesis comes from my interest in social justice, especially in the realm of water and nature conservation. While I believe water and nature are vital for numerous reasons, it interests me how dominant discourses from particular powerful actors in these fields, promote certain mechanisms (such as water funds or protected areas) as neutral ´win-win´ solutions, while the (subtle) injustices they cause on the ground are often rendered invisible. In my thesis, I hope to explore which alternative and other creative ways of ´living with the river´ may be possible or already out there, to ensure sustainable livelihoods and the conservation of water sources in the Guarguallá River basin. Such a `riverine reciprocity route´ is to be based on the histories, realities, needs, and wishes of the riverine communities. For this reason, I have chosen to focus most of my research efforts on the upstream and downstream communities in the basin. I did not want to impose my ideas or simply extract their stories but, instead, I hoped to make this research meaningful by making a first endeavour to explore the visions of how their relationship could be restored in a sustainable and equitable manner.

What undeniably needs to be noted, is that I entered the lifeworlds of the riverine communities as a complete outsider, unfamiliar with the local realities, complexities, and histories. I realised beforehand that this asked for a humble attitude and lots of personal dedication to open up and immerse myself in the dynamics of the Guarguallá River basin. Therefore, I have been in Ecuador for a little over four months for this research. The first month was spent in Quito to study Spanish and to familiarise myself with Ecuador´s politics, culture, society, and history. The other three months were spent in the area of Riobamba to collect the information for this research. While you learn so much when you immerse yourself in a place, I believe it would never have been possible to fully comprehend all the histories and realities of the basin in the relatively short time I was there.

While I sincerely did my best to listen to the stories of the people carefully, it is way different to *live* such experiences than to only listen to them as an outsider. It risks oversimplification as you may miss parts of the story. The fact that I am not a native Spanish speaker did not make this easier. Especially in the first month, I mostly understood what I had already read in `the books´ about the battle for water in Licto, the conservation of the páramo, the importance of reciprocity, and the disappearance of the bond between the communities, and missed certain details that

were new to me. Over time, my Spanish slowly improved and I became more familiarised with the dynamics in the basin which made it easier to understand more. Nonetheless, I think it is important to be open about the potential bias that this may have created.

Finally, I want to note that, in the process, there have been quite some personal doubts and uncertainties about why I, as a Dutch student so unfamiliar with the place, had come all the way to Ecuador for this research. Especially in the first month in Riobamba. I surely was learning a lot as a person and improving my Spanish, but what was in there for all the people who welcomed me and shared their stories? After some time in the Guarguallá River basin, I started to realise that my eventual thesis report may not have a lot of impact on the lives of the riverine communities, but that the relationships that have been built in the process of this research do matter. Not only are the connections made valuable in themselves, but I believe that the little web of relations also sparked new conversations about the bonds between the riverine communities. The `riverine reciprocity route´ described in this thesis is based on the ideas, needs, and wishes of the people themselves, which means the outline of how a new bond can take form is there. I hope the communities will continue the conversations about the route and find a manner to materialise it. Because, above all, it is their battle - for their water territories and related water cultures – and not that of others.

Figure 1: In appreciation of all the people who welcomed me and contributed to the thesis that you are now reading (own picture)

Table of contents

Chapter one: Introduction

Water is life in the Andean highlands, not only for survival but also to sustain numerous smallholders in their livelihoods. Smallholders are responsible for most of the national food production in Andean countries, which causes a deep interconnection between water control, local livelihoods, and food security. Rivers are the sources of water that many smallholders depend upon for their animals, lands, and households, and therefore entire livelihoods. In Ecuador, rivers sprout in the Andean highlands, also known as the páramo. These unique high-altitude ecosystems are considered the ´water towers´ of the Andes, due to their ability to capture, store, and release water from mist, rain, and melting glaciers (Manosalvas et al., 2021; Waldick, 2003).

While water is life in the Andes, it is also power and intense contestation. Just like in many other places in the world, pressure on water sources in the Andes rises because of increased competition between diverse water users and uses. On the one hand, water demand rises because of developments in irrigated agriculture, urbanisation, and extractive industries while, on the other hand, water supply becomes more unpredictable because of climate change and intensive land management practices (Boelens & Hoogendam, 2002). As a consequence of these developments, water is often a cause of conflict in the Andes. However, contestations over water are not merely about its distribution. Boelens (2015) describes that contestations also occur over cultural and political definitions of water control. Since the Incan colonisation of the Andes, societal actors with more economic, political, or technological power have tried to shape local water territories and related water cultures in line with their norms, values, and ideas.

One of the places that has received lots of attention in the last decades is the páramo. While these areas used to be considered unproductive, cold, and barren places, these are now considered important biodiverse areas that need to be protected for carbon capture and the provision of water to downstream water users and uses (Rodríguez de Francisco & Boelens, 2016; Manosalvas et al., 2023). For these reasons, there has been a rise in watershed conservation mechanisms, which often adopt mechanisms based on `payment for environmental services´ (PES) schemes nowadays. In such schemes, upstream land managers are financially compensated by downstream water users to implement conservation measures so that downstream water users have a more reliable water supply and improved water quality (Boelens et al., 2018).

While such mechanisms are often framed as a `win-win´ in international policy discourses, beneficial for both páramo caretakers and water users, previous research has shown that the story may not be all that rosy. Smallholders in the upstream communities often face poorly compensated land-use limitations and locally existing political and cultural definitions of water management are transformed due to these mechanisms (Boelens et al., 2018). In the Andes, the organisation of water has been rooted in community structures in which reciprocal norms and traditions have been fundamental (Curran, 2020, Walsh-Dilley, 2017). Festivities and rituals, collective work parties (mingas), and helping each other on the land (maki mañachi), were not only ways to establish social relations within and between communities but also key to the sustenance of livelihoods (Mayer, 2002).

In Licto, a parish in the Chimborazo province in the Central Ecuadorian Andes, the communities draw water from the faraway Guarguallá River for the irrigation of their lands. When the plans

for the irrigation system started to materialise, the future water users established a relationship based on reciprocity with the upstream communities in the páramo, to secure the conservation of the water sources they depend upon. Nonetheless, over time, the relationship between the riverine communities slowly disappeared. Nowadays, there are diverse opinions on whether and how to restore the bonds between the riverine communities, which raises concerns about the future water flow to the system and the livelihoods of the communities. Reciprocal norms and practices continue to be of importance in the Andes, but local water cultures also transform due to various economic, social, political, and cultural developments and the influence of broader discourses and power structures (Boelens & Gelles, 2005; Zavala, 2023). In this thesis, a first endeavour is made to explore the notion of `riverine reciprocity routes´ in a search for ways to restore the bonds between the riverine communities in an equitable and sustainable manner.

In the next chapter, I will dive into the political and cultural histories of the Ecuadorian waterscape to illustrate how local water cultures have been shaped and impacted by Incan and Spanish colonisation, state and market-based policies, and broader political discourses and power structures over time. Chapter three dives more specifically into the histories and developments in the riverine communities of the Guarguallá River basin. Chapter four outlines the problem statement and objectives of this thesis. Chapter five dives into the conceptual framework that forms the backbone of this research. Chapter six elaborates on the methodologies used to study the identified problem. In Chapters seven to ten the results of this research are presented. Chapter seven dives into the importance of reciprocal norms and practices within the riverine communities and how it relates to water justice and equitable relationships. Chapter eight explores why the bond between the riverine communities was established and which developments led to its transformation. Chapter nine presents a first outline of how a new bond, a `riverine reciprocity route´, is envisioned in the Guarguallá River basin. Chapter ten reflects on the theoretical concepts used in this thesis and discusses the value of `riverine reciprocity routes´ as a new conceptualisation to envision watershed conservation mechanisms in the Andes. Finally, Chapter eleven concludes that despite the influence of neoliberal ideas, norms, and values in the riverine communities, reciprocal norms and traditions remain of importance. While there are some obstacles to overcome, there may be `momentum´ for the riverine reciprocity route to materialise which could contribute to context-relevant, sustainable, and equitable relationships between the riverine communities.

Chapter two: Water, power and identity in the Ecuadorian Andes

Water is vital for the livelihoods of smallholder peasants in the Andes, and its organisation was often seen as a communal matter (Sherbondy, 1998). However, local water cultures are not static and, instead, are interwoven with the cultural and political foundations of earlier and present societies (Boelens & Gelles, 2005). In this chapter, it will be explored how Incan and Spanish colonisation, state policies, and broader political discourses and power structures have shaped and transformed water cultures in the Andes throughout history. It will illuminate the importance of reciprocity in Andean communities and how norms and practices based on this principle became (re)appropriated over time.

2.1 Pre-Columbian water cultures

In the second half of the 15th century, the Incas launched a conquest from Cuzco (Peru) to expand their empire, and it did not take long before they dominated a considerable part of western South America, especially the Andes (Figure 2). As the empire expanded, also the Incan cosmovision spread. The Incan cosmovision had some fundamental components. To start with, water was the most important element in the Incan cosmovision. It was believed that the ancestors of the people in the Andes had arisen from water, even as the sun, the moon, the stars, and the earth itself, which were considered the most important elements of the cosmos. The ancestors were created in Lake Titicaca (Mama Cocha), where the deity Viracocha provided them with symbols unique to their ethnicity. The ancestors went back to the Lake and travelled via underground rivers to places where they reached the earth´s surface. These underground rivers were considered the blood veins of Pachamama, and would eventually all flow back to Mama Cocha (Sherbondy, 1998; Mazadiego, Puche & Hervás, 2009).

Figure 2: The Incan empire (Gelles, 1995)

A second component of the Incan cosmovision is the division of the world into three layers: Hanan Pacha, Kay Pacha, and Hurin Pacha. Hanan Pacha was seen as the higher world, in which deities such as Viracocha, Mama Cocha, and Pachamama lived. Kay Pacha was the middle world or the earth´s surface, where all living beings live. Finally, Hurin Pacha was the lower world, inhabited by the deceased. Lakes, caves, and rivers were seen as communication lines between Hanan Pacha and Hurin Pacha and therefore sacred (Mazadiego, Puche & Hervás, 2009).

A third component of the Incan cosmovision was the division of society and space into halves, also known as `dualism´. The Empire, Incan cities, and other spatial entities were divided into *anansaya* (upper half) and *urinsaya* (lower half), even as social entities such as male/female. Dualisms were of cultural and symbolic importance, but also a fundamental hierarchical principle that helped to structure spatial and social organisation (Gelles, 1995). Harrison (1989) describes it as the idea that two forces – such as the sun and the moon - balance and order each other in such a manner that an equilibrium can be achieved. The centre, *chaupi*, is the place where the two sides meet. Chaupi differs from Western beliefs and ideas about the centre, in that it focuses on what is on each side of the balance (Sherbondy, 1998). Reciprocity was a fundamental principle in the Incan empire to achieve an equilibrium between the two forces. Reciprocal relations between the human and natural world enabled sustenance and production, but also

structured the production and flow of resources between people and areas (Gelles, 1995). However, for the latter reason, Gelles (1995) illustrates that the notion of reciprocity later also took on asymmetrical and exploitative forms, as they became used to extract surpluses and revenues from the peasants to the Incan state. As a tribute to the Incan state, all subjected citizens had mandatory military service and had to work several days a year in collective work parties, the *mingas.* Mingas were used to construct agricultural terraces, bridges, and road networks in the Incan empire. The dual form of organisation was later adopted and transformed by the Spanish colonisers, who appropriated it for their own extractive and productive motives.

A fourth component of the Incan cosmovision was the *ayllu*, the local communities that formed the microcosmos (Sherbondy, 1998). Ayllu share kinship bonds, common ancestors, and rituals and traditions. Ayllu can be seen as the main political and productive unit of Andean societies, as it owned lands and waters, cultivated crops, constructed irrigation systems, raised herds, and was, therefore, able to sustain itself in its basic needs (Salomon, 1991). Ayllu held the right to use water and land from which their ancestors were born if the duties related to the ayllu were fulfilled. Another way to claim water rights was based on the principle that the ones who build irrigation infrastructure also had the responsibility for its maintenance and care. This principle was later appropriated by the Spanish and is still fundamental to the definition of water rights in the Andes (Sherbondy, 1998).

Within the ayllu*,* the work tasks and surpluses are distributed based on the principle of reciprocity (Sherbondy, 1998). All members are expected to contribute to the work in the fields, and receive support from the others when for example a house needs to be constructed in return. Furthermore, senior members were appointed for a certain period to take the lead in organising festivities or rituals related to the agricultural cycle or social events. This task was seen as an obligation towards the community. While balance and equality are inherent to the idea of reciprocity, the unequal distribution of commodities by responsible elders or heads was not uncommon (University of New Mexico, n.d.).

2.2 Spanish colonisation and hacienda systems

In 1532, Spanish colonisers invaded Ecuador and the Spanish Crown eventually ruled the country until 1822. In the initial phases of the colonisation, the Spanish Crown implemented the *encomienda* system in its territories, which was based on the dual form of organisation of the late Incan empire (Julien, 1991). Spanish lords (*encomenderos*) were trusted with numbers of Indians (*encomendabas),* who had to work for their *encomendero* in return for protection (Lemaire, 1986). Just as the Incan state extracted tributaries from their citizens in the form of labour, the *encomenderos* extracted labour and tributaries in the form of products, gold, and silver from the Indians (Gelles, 1995). Besides the wish of the Spanish to become 'rich' and produce for the world market in their new territories, the spread of Christianity was often mentioned as another main motive for the colonisation of the Americas (Lemaire, 1986).

Lemaire (1986) describes that the situation of the Indians in the *encomienda* system did not differ much from that of slaves. Many indigenous people died because of the spread of infectious diseases, forced labour, and genocide (Nieuwstadt, 1969). For this reason, questions and critiques started to arise about the conquest and exploitation of the Indians in some Spanish circles. While the idea of Indians as `barbarians´ and 'backwards' had been used to justify the exploitation, Indians now also became seen as `Christians´ and `noble savages´ by Westerns

(Lemaire, 1986, Baud, 1997). Such representations have continued to be used in the justification of interventions in local territories by states and the development sector (Sánchez, 2022). Eventually, the Spanish Crown implemented laws to protect the indigenous population and imported enslaved Africans to the Americas as `replacements´. A similar, but different type of system developed, known as the *hacienda* system. A hacienda is an estate or plantation, often focussed on large-scale agricultural production. The owner of the hacienda (*hacendado)* used to control both the land and the workers. Many workers used to live on the hacienda*,* and were indebted in a system of bonded labour, in which a landowner forced a worker to pay their debts with work, or sharecropping, in which the worker was allowed to use a plot of land in return for a part of the production. Sometimes, workers were allowed to hold a small plot of land *(huasipungo),* on which they could produce for the household in return for a number of days of work on the hacienda*.* For these reasons, the labourers were tied to the hacienda*,* which made it fairly difficult to leave or improve their situation (Lemaire, 1986).

Even after Ecuadorian independence from Spain in 1822, the haciendas continued to exist. However, they then became owned by Ecuadorian elites. State´s investments in industrialisation and agricultural production continued to favour the ownership of land and water into the hands of a few (Zapatta Carpio & Hidalgo Flor, 2009). The first official Ecuadorian water law, established in 1832, did not recognise indigenous water cultures, based on collective ownership of lands and waters, either and instead promoted private ownership (Boelens et al., 2015). In 1964, the hacienda system was officially dismantled as a result of the Agrarian Reform Policy. Land ownership was transferred to cooperatives of peasants who initially worked on the haciendas. However, the transfer of land ownership did not proceed evenly as the State favoured the expropriation of less arable land in the páramo over fertile lands in the lower areas (Joslin, 2021). Some haciendas, while much smaller as over time the land has been divided over the families´ children, continue to exist nowadays in the Andes.

2.3 From centralisation to decentralisation after Ecuadorian Independence

From the 1960s onwards, water control was centralised and nationalised in Ecuador. In 1966, the national water control institution INHERHI was created and a new National Water Law was consolidated in 1972. INHERHI was responsible for the allocation of water, the mediation of conflicts over water, the expansion and maintenance of irrigation infrastructure, and the enforcement of laws. Most people who worked at INHERHI were agricultural engineers, which resulted in most of the money being directed to the construction and maintenance of state-owned irrigation systems (Hoogesteger et al., 2016). So, while the land reforms now enabled peasant communities to own land, communal forms of water control remained unrecognised by new national water control policies.

A period of decentralisation and privatisation of water control started in the 1980s and 1990s, under pressure from several bilateral financial institutions such as the World Bank. Neoliberal reforms intended to decentralise water control from the national state to provinces and municipalities, to enhance the involvement of water users and private enterprises. INHERI was replaced by the financially and institutionally weaker National Council of Water Resources (CNRH), which directed many of its responsibilities to regional development corporations (RDCs). RDCs had limited financial resources and were often understaffed, which led to more space for NGOs, international donors, and private enterprises to fill the created void. These actors entered

the Ecuadorian waterscape with their own interests and ideas, which – in combination with the introduction of neoliberal laws - slowly led to the introduction of neoliberal water rationalities into local water territories (Hoogesteger et al., 2016). Neoliberal water cultures are based on private ownership of land and water and commoditisation, in which nature is decoupled from society and converted into marketable items via various forms of market environmentalism (Boelens, 2015). This rationality contrasted with indigenous water cultures, based on reciprocal norms and practices and characterised by their collective nature. The neoliberal reforms in the 1980s were therefore met with massive resistance from the indigenous movement in the country and led to national protests (Boelens, 2008).

2.4 A new plural water culture?

In 2007, when the water users had helped to vote Rafael Correa and his left party into power, reforms were implemented to re-centralise water control once more (Hoogesteger et al., 2016). After the extensive revision of the Ecuadorian Constitution in 2008, the National Water Law from 1972 was also revised in 2014 in correspondence with the new constitution (Wingfield et al., 2021). The fundamental principle on which this new water law was based is *sumac kawsay*, which is Kichwa for `to live in harmony with nature´. Human development and environmental protection are therefore key focal points. For the first time since Spanish colonisation, local norms and practices around water control were (re)valued. Local water user associations, the juntas, are considered the main authorities responsible for managing their systems' infrastructure, determining the water allocation in their communities, resolving conflicts, and determining sanctions. Furthermore, all forms of water privatisation became forbidden as it was considered fundamental to life, the economy, and the environment (Ley Orgánica de Recursos Hídricos, Usos, y Aprovechamiento del Agua, 2014).

As the new National Water Law now officially recognises local norms and practices around water management, there seems to be a shift towards a new `pluriverse´ model in which multiple water cultures can co-exist. However, financial and technical limitations hinder the successful implementation of the law (Wingfield et al., 2021). This means that in practice little has altered since its implementation, as powerful businesses and projects (such as dams) continue to be conceded, while now in the name of `development´ (Hoogesteger, Boelens & Baud, 2016). For this reason, smallholders continue to face threats of water insecurity and inequity in Ecuador (Wingfield et al., 2021). In 2015, the Confederation of Indigenous People in Ecuador (CONAIE) demanded the National Water Law to be revised as the indigenous people were not sufficiently included in its formulation, despite the impact the law would have on them. In 2022, the National Water Law was declared `unconstitutional´ by the constitutional court based on Article 57 of the Constitution, which states that impacted communities should be consulted before the adoption of a law (Constitución de la República del Ecuador, 2008). To this day, organisations such as CONAIE, ECUARUNARI, Foro de los Recursos Hídricos, and the State are working on a new draft of the Water Law. Until a new law passes the National Assembly, the 2014 Water Law remains in force (Foro Provincial de los Recursos Hídricos Chimborazo, 29 November 2024).

In the meantime, neoliberal water rationalities have continued to influence the Ecuadorian waterscape. However, this time via more subtle techniques such as neoliberal water policies, market-based mechanisms, infrastructures, and influential discourses that are spread via education and media (Boelens, 2015). As water demand continues to increase in the Andes,

there has been a rise in interventions that promise watershed conservation in the páramo for downstream water users and uses. Such interventions often adopt mechanisms based on payment for environmental service (PES) schemes, in which upstream landowners are financially compensated by downstream water users to implement land and water conservation measures, such as reduced pesticide use, afforestation, or the removal of cattle to improve the water flow and water quality for downstream users (Boelens et al., 2018). Boelens et al. (2014) state that while the expropriation of smallholder farmers from their lands used to be justified by the idea that they were `irrational´ and `unproductive´ users, the smallholders are now `positively´ included in the system as `equals´ and potential `protectors´ of nature (Rodríguez de Francisco & Boelens, 2016). Important to realise, is that the smallholders are included in the *neoliberal* system, as there is, contrary to what is in the law, no space for the myriad of local norms and definitions in a world where everyone is `equal´. When their participation results in disappointment, it is due to their so-called `backwardness´ and unableness to participate in the system, which once more keeps in force colonial representations of indigenous people (Boelens & Gelles, 2005). Furthermore, Rodríguez de Francisco & Boelens (2016) describe how smallholders in the Andes often experience poorly compensated land-use limitations due to dominant water conservation mechanisms and how it transforms local reciprocal norms and practices which historically used to form the basis of relationships within and between communities in the Andes.

2.5 Conclusions

From this historical journey, we can conclude that water cultures have shaped and formed each other in complex and plural ways, as norms and beliefs from previous cultures were adopted and transformed. Local beliefs, norms, and practices around water control are, therefore, interwoven with traces from the water cultures of Incan and Spanish colonisers, state policies, and broader political discourses and contemporary power structures. While Spanish colonisers and state policies oppressed local water cultures in a top-down manner, neoliberal water cultures are now spread via more subtle techniques and discourses based on the profound belief in development, technical expertise, and modernisation. These ideas trickle down in local water territories via projects, infrastructures, education, and media and slowly transform local water cultures. PES schemes have become popular market-based mechanisms to ensure the conservation of upstream water sources for downstream water uses and users. However, as will be illustrated in this thesis, local communities also hold on to their own cultural and political norms and practices, to secure their water territories and related cultures.

Chapter three: An introduction to the Guarguallá River basin

The Guarguallá River basin is a micro river basin located in the parish of Cebadas, the canton Guamote, and the province Chimborazo in Ecuador. The river sprouts in the extensive páramo in and around the Sangay National Park in the Central Ecuadorian Andes, and eventually flows into the larger Chambo River. The river´s water comes from the many small streams fed by the slow release of water from the páramo after extensive rainfall. Via an impressive system of hydraulic infrastructure, the water is eventually directed to the rural parishes of Licto, Punín, Flores, and Pungalá where 1851 water beneficiaries use it for the irrigation of their plots. In this chapter, I will dive into the characteristics of the Guarguallá River basin and the histories of the riverine communities.

Figure 3: Countermap of the Alao and Guarguallá River basins (River Commons, 2023)

3.1 The upstream communities (`páramo caretakers´)

The Guarguallá River sprouts in the páramo of Guarguallá, Llullunpala and Etén. Around 40 per cent of the water comes from the páramo of Yurac Rumi, Tres Cruces, Carcebel, and Tazan around Guarguallá. The indigenous communities of Guarguallá Chico, Guarguallá Grande, San Alberto, Tranca San Luis, and Tranca Pucara have shared these places with deer, bears, condors and other animals for centuries. At the moment, the 97 members of the páramo caretaker association ASARATY collectively own 7340 hectares of páramo. Most families are smallholder farmers who own scattered plots of land to produce potatoes, maize, beans, barley, onions, and other vegetables, or herd cattle, sheep, and horses. While most smallholders can irrigate their fields via tubes nowadays, there are still some families who depend on rainwater for their land. Families consume most of their produce themselves, but the milk and meat of the cattle are often sold. Sometimes, families sell part of their produce or cattle on local markets in Guamote, Licto, and Riobamba. Some families also have a house, some land, or (additional) jobs in towns in the downstream area, such as Licto or Riobamba.

3.1.1 The battle for land in Guarguallá

In the past, most of the land in the area of Guarguallá was owned by the Merino family. The indigenous people used to work on the hacienda where grains, beans, and vegetables were grown and cattle were held for the production of milk, meat, and cheese. However, in 1993, some families organised and managed to buy an estimated area of 12.000 hectares of páramo from the hacienda. The association was named ASARATY (Asociación Trabajadores de San Rafael, Tres Cruces, y Yurac Rumi) and became official in 1993. Nonetheless, even after the association became the official owner of the land on paper, the battle continued but, this time, between communities themselves. While ASARATY owned the land in Tranca San Luis and San Alberto, some families in the communities did not want to be part of the association and refused to consider them the new owners of the land. Leonardo Tenegusñay, president of ASARATY, describes:

"*Nuestra lucha por los linderos fue tremedo. Habían muchos problemas. Las comunidades de Tranca San Luis y San Alberto han dicho: No, nuestra tierra no es de ustedes. No tienen escrituras, es de nosotros.*" (interview, 17 October 2024).

Nowadays, some parts of the old hacienda are still in the hands of the Merino family or were bought by other families over time. In Guarguallá Chico, some community members still work on these haciendas which are mostly destined for milk production.

3.1.2 The conservation of the páramo

In the past, the families used to take their cattle to graze in the páramo and burn its grasslands, which decreased the productivity of the land and the ability of the soil to capture and store water. Since 1999, the communities received support from the Ecuadorian NGO Fundación Natura to counter the degradation of the páramo and, instead, conserve its water sources. At first, NGO Fundación Natura supported ASARATY with the establishment of their association and with buying the land from the former hacienda. Thereafter, the foundation provided training to ASARATY´s members on how to sustainably manage the páramo. It became prohibited to burn land or hold cattle in some parts of the páramo, and instead, two hundred alpacas were introduced in these areas. NGO Fundación Natura also supported the formation of a women´s organisation that started to process the alpaca fibre and produced handicrafts from it. Furthermore, some community members were trained as local tourist guides. The local guides took tourists to Sangay National Park or other places in the province of Chimborazo. So, while it became prohibited to burn the páramo and keep cattle in these areas, the families found additional sources of income in the production of alpacas, handicrafts, and community-based tourism. ASARATY even became the founder of CORDTUCH, a collaboration between 36 communities in Chimborazo that aimed to promote community-based tourism. NGO Fundación Natura left the project in 2004 and eventually had to close its doors in Ecuador in 2012 due to debts.

Fundación Natura has not been the only foundation that has supported ASARATY with the conservation of the páramo over the years. Around 1995, when the Guarguallá-Licto irrigation system was constructed, NGO CESA started to support the páramo communities with the improvement of agricultural production in the lower areas. The families could borrow credit to buy potato seeds and fertilisers. The idea behind it was that when production in the lower areas

would improve, the smallholders would not let their cattle graze in the páramo anymore. CESA also supported the communities with the plantation of native species such as eucalyptus and pines, as they capture water and the wood from the trees can later be used or sold. In 2009, the Swiss foundation REGALO supported the community of Guarguallá Chico with the construction of the Sangay Lodge `El Quishuar´ to promote community-based tourism in the area. Furthermore, since 2012, ASARATY has participated in the SocioPáramo Program of the Ministry of Environment, Water, and Ecological Transition (MAATE). The SocioPáramo Program falls under the SocioBosque Program, which was created to reduce deforestation rates in Ecuador and, instead, incentivise the conservation of native forests and moorlands throughout the country. The Program consists of the provision of economic incentives via a PES-based mechanism to landowners and communities that voluntarily commit to the conservation of their native forests, páramo, or other native ecosystems. The incentives can only be received when people comply with the conditions to monitor their conservation and protection efforts as described in the accord with MAATE (MAATE, n.d.). At the moment, ASARATY protects 585 hectares of páramo for which it receives 1600 dollars annually. To receive this financial compensation, ASARATY needs to monitor the state of the protected area and send photos and written reports to MAATE every month. Furthermore, ASARATY needs to make an investment plan, which describes where the compensation is used for. ASARATY dedicates most of the money to the conservation of the páramo (creation of fences, food bowls for the alpacas, etc.) and to the provision of food support to its members (interview Agualsaca, 24 October 2024).

Figure 4: Alpacas owned by ASARATY in the páramo of Guarguallá (own picture)

Since 2016, NGO World Vision started to support several communities in the province of Chimborazo with the conservation of the páramo and the production of alpacas. In 2021, Rafael Ushca, founder and former leader of ASARATY, came up with the idea to unite these communities in what became the Andean Camel Agricultural Producers Cooperative (COOPROAGROCAN). COOPROAGROCAN counts 27 communities and 957 members, who together conserve around 30.000 hectares of moorland in the cantons of Riobamba, Guano, Colta, Guamote, and Alausí in the province of Chimborazo. ASARATY is one of the associations that is part of the cooperative. With the support of NGO World Vision and the Ministry of Agriculture and Livestock (MAG), the collective aims to produce and market alpaca products, to contribute to and improve the

livelihoods of its members and the páramo communities in the province (COOPROAGROCAN, n.d.). In each community, promotors have been trained in the conservation of the páramo and the production of alpacas. The wool, meat, manure, and even the alpacas themselves can be sold by the communities as an additional form of income. Furthermore, 19 women and 1 man have learned to produce hats, sweaters, ponchos, scarves, and other products from alpaca wool. The products are sold under the brand `ILLA´, which was founded in 2024 with the support of NGO World Vision and ESPOCH University in Riobamba.

Finally, ASARATY works with NGO CONDESAN on a project named `the Amazone without fire´ at the moment. The project is focused on the sustainable and controlled use of fires in the páramo. Interested members can participate in workshops. ASARATY also works on the project `Parks for Life´ with CONDESAN and MAATE, which focuses on the improvement of cattle production in the lower areas.

Figure 5: The páramo of Guarguallá (own picture)

Nowadays, ASARATY has 97 members that collectively own 7340 hectares of páramo and 250 alpacas. ASARATY´s objective is to sustainably manage the páramo and water sources and to produce and commercialise alpacas. Not only for the benefit of its members but also for the ones in the downstream areas that depend on the water that comes from their páramo. Three projects depend on the water that comes from these areas: the Guarguallá-Licto irrigation system, the Chambo-Guano irrigation system, and the hydroelectric company Agoyan (ASARATY, 2024). On an administrative level, ASARATY has a central board formed by a president, secretary, and treasurer who are elected by its members every two years. A position on the board is *pro bono* since the work is considered a service for the community and its common welfare. The most important decision-making authority is the general assembly, formed by all members of ASARATY. The general assembly meets once a month on Sunday, but when needed, more often. A member can only attend an assembly when fees are paid. ASARATY also has an administrator, a commission of surveillance, and two *alpaceros*, who take care of the alpacas.

The rights, rules, functions, obligations, and sanctions of the organisation are established in the statutes (2016) and the internal regulations (2024). It states, for example, that members should attend mingas and reunions called by the board. Furthermore, to become a member one needs to pay a one-time fee of 100 dollars and their children 50 dollars. Once a member, a (symbolic) monthly fee of one dollar should be paid at the assembly.

3.2 The downstream communities (`water users´)

Via an impressive system of hydraulic infrastructure, the water from the Guarguallá River is directed to the parishes of Licto, Punín, Flores, and Pungalá where 1835 water users benefit from it nowadays. The Guarguallá-Licto irrigation system consists of an intake, 23 km of main canal, 9 siphons, 8 reservoirs, tanks, and secondary and tertiary canals (Figure 6). The irrigation organisation is formed by 22 communal irrigation committees: 14 in Licto, 1 in Punín, 2 in Flores, and 5 in Pungalá, and a central irrigation board that is based in Licto town. Most people in the area are smallholders, who produce a variety of products on their plots such as potatoes, maize, beans, vegetables, and some fruits, often in combination with a small number of cattle for milk and cheese production and some smaller animals such as chickens or guinea pigs. Since the arrival of irrigation water in the communities, one can also find several greenhouses in which a variety of vegetables and fruits are produced, especially in the community of Molobog. Most of what the smallholders produce is sold at local markets in for example Licto town (Sundays) and La Mayorista (daily) in Riobamba, in the coastal area, or consumed by the families themselves.

Figure 6: Representation of the Guarguallá-Licto irrigation infrastructure (drawn by José Quitio, former canalero of the Guarguallá-Licto irrigation system)

3.2.1 The battle for land in Licto

Historically, there have been many contestations over land and water in Licto. Licto, also the name of the central town, consists of 26 peasant communities. The mestizos, who traditionally formed the local elites, mainly reside in Licto town. Further from the river, one can find several indigenous communities that can be characterised by the small and scattered plots on which its inhabitants practice subsistence agriculture (Figure 3). The distribution of land traces back to the times of the Spanish colonisation. The local population was driven to less productive, erosion-prone areas, as the most productive lands – the haciendas - were destined for most `rational´ or `modern´ producers (Boelens, 2015).

When Spanish colonisation ended, one of the haciendas, in the lower area of Licto, became owned by the Izurieta family. Peasants from the indigenous communities of Molobog, Tunshi, Pantaño, Sulsul, Cuello Loma, and Caliata were allowed to own small plots of land on which they could produce for household consumption, in return for work on the hacienda. The peasants did not receive any compensation for their work in the form of food or money (interview Guallán,

24 November 2024). While the Agrarian Reform Law had been adopted in 1964, the hacienda still controlled the smallholders in this area of Licto in 1990. When Mr Alberto Izurieta, the one who administered the land and controlled the people, died and his children, who moved to other cities or countries, did not take over the hacienda, it slowly went into decline. In 1993, Alfonso Guamán was elected as the new president of the commune of Molobog and formed the communal land committee `Mushug Ashpa´, which operated under the motto: "tierra sería ser para todos, no para algunos." In the same year, the 91 families that were part of this committee were able to buy 38 blocks of land from the hacienda with financial support from the `Land for Indians´ project of the Archdiocese of Munich (Germany) and the NGO CESA, the Indigenous Movement of Chimborazo, and the Diocese of Riobamba. In 1998, the land was divided equally between the members of the committee (interview Guamán, 30 September 2024; Zavala, 2023).

3.2.2 The battle for water in Licto

However, there have not only been contestations about land, but also water in Licto. The indigenous communities had been dreaming about the construction of an irrigation system since the 1960s. It was believed that the arrival of irrigation water would make agriculture prosper in the communities. Until then, the peasant families depended on rain which allowed them to harvest wheat, barley, chochos, mellocos, mashua, maize, peas, lentils, quinoa and potatoes only once or twice a year. It took some time to find a suitable source to draw water from, as the Chambo river is in between Licto and other water sources. However, due to the dedication of the peasants and the support of national and international organisations, the Guarguallá river was chosen and the irrigation project finally started to materialize (interview Chapi, 15 November 2024). The Federation of Licto Councils (FEDECAL) was of fundamental importance for the administration and implementation of the irrigation system. In 1993, the federation became the Corporation of Peasant Organisations of Licto (CODOCAL), which was made up of 16 communities and organisations. As a legally recognised organisation, CODOCAL was able to communicate demands, address conflicts, establish relationships with other entities, and operate communal projects such as the irrigation system (Zavala, 2023).

In 1989, the Swiss Agency for Development and Cooperation (COSUDE), the Ecuadorian Institute of Water Resources (INHERHI), and CODOCAL came to an accord about the finances of the project. COSUDE would finance 60 per cent, INHERHI 30 per cent, and CODOCAL would provide the last 10 per cent in unskilled labour (Zavala & Tuaza, 2021; Boelens, 2015). NGO CESA had the lead in the implementation of the project and included new institutions such as the Dutch Development Cooperation Service (SNV) and the British Voluntary Service, while INHERHI had the lead in the study and plan of the irrigation system. However, the initial plan was made in a typical top-down manner and took on a blueprint nature. It did not involve the indigenous communities in the creation of the plans and, therefore, did not respond to their realities. It did not include some communities in Licto in the plans and failed to respect communal boundaries (Zavala, 2023; Boelens, 2015). Furthermore, the system would provide 24 hours of water which meant that the peasants would have to practice night irrigation. However, most of the future water users would be women as many men worked in other places to earn some additional income for the household. It would be difficult for women to irrigate at night, as they had to take their children and there was a risk of assault (interview Olazaval, 12 November 2024). Due to these issues and financial problems, there were several delays, few results, and lots of distrust in the project (Boelens, 2015).

Therefore, involved community leaders and technicians had to motivate the smallholders to continue with the project. The leaders emphasised how the arrival of water would improve production and therefore the lives of the smallholders. New technicians and engineers looked for methods to include the peasants in a new plan for the project, that would respond to local demands and capacities. As most of the future water users were illiterate Kichwa women, innovative methods needed to be used. With the support of CESA, women learned how to read and write, leaders and promoters were invited to visit other irrigation systems in the area, and models were constructed to discuss adjustments to the initial project plan (Zavala, 2023; Boelens, 2015). The future water users established their norms and principles around communal water control, centred around one fundamental principle: "water is a right earned by those who work in the collective minga work parties" (Boelens & Doornbos, 2001). Most of the system was then also constructed by women, elderly, and youngsters in mingas, which continue to be of importance today (Figure 7).

Figure 7: Minga during the construction of the Guarguallá-Licto irrigation system (archives Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto)

On an administrative level, the Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto is formed by several bodies. Firstly, the most important decision-making body is the General Assembly, formed by all members of the irrigation organisation. The General Assembly meets once a year in December. Secondly, the central board is composed of a president, secretary, treasurer and two vocals who are elected every two years by the members. A position on the board is *pro bono,* however, contrary to ASARATY, the leaders receive compensation for meals and transport. The board meets every last Sunday of the month – or more often when needed – with the representatives of the communal irrigation committees (Figure 8) who, collectively, form the directive. Each communal committee can elect two representatives, preferably a man and a woman, who attend this monthly assembly. The communal committees each have their own board, commissions and system operators. The irrigation organisation also has two system operators (*canaleros*), specific commissions, an administrator and an accountant (Zavala, 2023).

N°	Comités de Riego	Comuna	Parroquia	N° de usuarios	N° de hectáreas
1	Productores San Pedro de Licto	Centro Poblado	Licto	212	140.38 ha
2	Ceceles	Cecel Grande	Licto	255	208,09 ha
		San Antonio			
		Incas			
3	Chumug	Chumug	Licto	59	64,27 ha
4	Cuelloloma	Cuelloloma	Licto	56	71,57 ha
5	Guanlur	Guanlur	Licto	32	36,87 ha
6	Molobog	Molobog	Licto	147	201.11 ha
7	Pompeya	Pompeya	Licto	67	19,23 ha
8	Resgualay	Resgualay	Licto	44	42,56 ha
9	San Antonio de Guagñag	San Antonio de Guagñag	Licto	72	31,18 ha
10	San José de Chalan Grande	San José de Chalan Grande	Licto	25	26,68 ha
11	Santa Ana de Guañay	Santa Ana de Guañay	Licto	70	27,72 ha
12	Sul	Sul	Licto	80	120,32 ha
13	Tulabug- Escalera	Tulabug- Escalera	Licto	99	122,16 ha
14	Tzimbuto Quincaguan	Tzimbuto Quincaguan	Licto	174	206,62 ha
15	Lluishi	Lluishi	Flores	23	8,31 ha
16	Santa Rosa	Santa Rosa	Flores	63	66,5 ha
17	Cachiuaico	Cachiuaico	Punín	75	57,17 ha
18	Tramo 1	Apuñay	Pungalá	28	73,41 ha
		Chacapamba	Pungalá	14	
		Cochapamba	Pungalá	28	
		Shanaicum	Pungalá	37	
19	Chilcapamba	Llugshibug	Pungalá	55	17,24 ha
20	Guitarrapamba y Quiansapamba	Guaruñag	Pungalá	49	14,88 ha
		Guaruñag			
21	Lagmo Mishqui Pamba	Lagmo Mishqui Pamba	Pungalá	32	21,12 ha
22	Puruhaypamba	Puruhaypamba	Pungalá	55	32,99 ha
Total				1851	1268,89 ha

Figure 8: Overview of the 22 communal irrigation committees of the Guarguallá-Licto irrigation system (Zavala, 2023)

Just like ASARATY, the rules, rights, functions, obligations, and sanctions of the organisation are established in the statutes (2023) and the internal regulations (2023). It states that water users should attend mingas and reunions called by the board. Water users are expected to pay an annual fee of 22 dollars, which corresponds to the basic fee per hectare, as established in the Annual Operating Plan (OPA). However, the precise amount of fee depends on the hectares of land owned by the water user and is therefore specified in Figure 9. For the first three hectares, the water user pays an annual amount of 22 dollars per hectare, from the third to the fifth hectare the water user pays an amount equal to two tariffs or 44 dollars per hectare, from the fifth hectare onwards the water users pay an amount equal to three tariffs or 66 dollars per hectare.

Las tres primeras hectáreas	1 tarifa/ha
Desde la tercera hasta quinta hectárea	2 tarifas/ha
Desde la quinta hectárea en adelante	3 tarifas/ha

Figure 9: Tariff per number of hectares (Reglamiento Interno de la Junta de Riego Guarguallá-Licto, 2023)

Since the construction of the impressive hydraulic infrastructures finished, the landscape around Licto transformed from sandy, volcanic soils (*cangahua*) to a mosaic of greens. As production increased, the livelihoods of many families also improved (Zavala, 2023; River Commons, 2023). However, new challenges continue to arise in its waterscape. Licto communities established relationships with the upstream páramo communities in the past for reasons yet to be further

explored. Historically, these relationships were based on norms and practices related to reciprocity. For example, when the irrigation system was constructed, CESA and involved community leaders motivated the future water users to collect products like maize, barley, or wheat for the páramo communities to ensure the conservation of the water sources they depend upon (interview Vinueza, 23 November 2024). While the páramo communities have been dedicated to the conservation of the páramo these last decades, the relationship between the riverine communities slowly disappeared which makes the páramo communities feel forgotten (Tubino de Souza et al., 2025). In the context of these developments, the future water security of the Guarguallá-Licto irrigation system and, therefore, the livelihoods of the smallholders may be at risk.

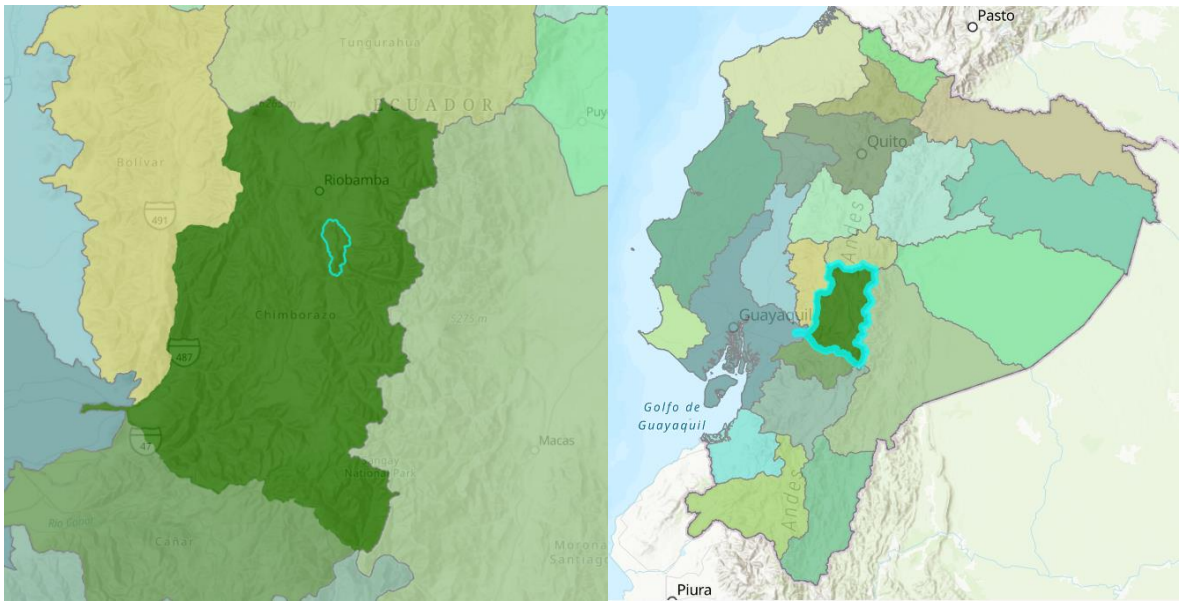

Figure 10: The parish of San Pedro de Licto (left) in the Province of Chimborazo (right) in Ecuador (left) (created by author)

Chapter four: Research outline

4.1 Research problem

Water is vital for survival and the livelihoods of the downstream communities in the Guarguallá River basin. Nonetheless, the battle over water control, rules, and rights has not been easy and new challenges continue to arise (Boelens & Gelles, 2005). While the Guarguallá-Licto irrigation system has literally brought back life to the impoverished area, the future water flow of the system and, therefore, the livelihoods of the smallholders may be under pressure. The downstream communities in Licto (the water users) established reciprocal relationships with the upstream communities in Guarguallá (the páramo caretakers) to secure the conservation of the water sources they depend upon for their irrigation system. However, these relationships have slowly disappeared and practically do not exist anymore nowadays for reasons yet to be explored. As the páramo communities have been dedicated to the conservation of the water sources, they now feel forgotten (Tubino de Souza et al., 2025).

While the relationships between the riverine communities used to be based on reciprocity, these local norms and practices have transformed due to various developments in the communities related to the construction of the irrigation system, conservation initiatives in the páramo, and the influence of broader political discourses and power structures. Until now, the riverine communities have resisted market-based watershed conservation mechanisms based on the neoliberal rationale to restore their relationships. While this implies that their relationships could be restored based on local reciprocal norms and practices, this has not happened yet. When the relationship fails to be restored in an equitable and sustainable manner, there is a risk that the páramo communities return to less conservationist practices which would threaten the future water supply to the Guarguallá-Licto irrigation system and the livelihoods of the communities (Tubino de Souza et al., 2025).

4.2 Research objectives

The first objective of this thesis is to better understand the importance of reciprocal norms and practices in the riverine communities of the Guarguallá River over time, and how these practices relate to water justice and equitable relationships. Secondly, I intend to better understand why reciprocal relationships between the upstream and downstream communities were established, how these took form, and what led to their transformation. The final objective of this thesis is to provide a first outline of how the riverine communities envision a ´riverine reciprocity route´ to restore their bonds equitably, to ensure the sustainable water flow in the basin and the livelihoods of the families.

The contributions of this thesis are as follows: while there has been much research on the impacts of PES mechanisms on nature conservation and social outcomes (Joslin, 2019; Rodriguez de Francisco, 2013; Boelens et al., 2014; Fletcher & Büscher, 2017), there are not many studies on alternative mechanisms to establish relationships between water users and water protectors. Therefore, the notion of riverine reciprocity routes could provide new insights into how riverine communities envision and produce their own ´living with the river´ assemblages.

Furthermore, this thesis builds on the work of for example Manosalvas et al. (2021), Boelens & Gelles (2005), and Mills-Novoa et al. (2022) on the battle of riverine communities to preserve water territories and cultures in the context of diverse cultural, economic, political, and social

developments, and broader discourses and power structures. This thesis can contribute to this work by documenting how water cultures in the Guarguallá River basin transform, but also how these influences are exploited, debated, and resisted in diverse and plural ways.

4.3 Research questions

Main question:

How may the notion of *riverine reciprocity routes* generate new understandings on restoring equitable relationships between the upstream and downstream communities of the Guarguallá River basin to ensure the sustainable water flow in the basin and livelihoods of the families?

Sub questions:

(1) What has been the importance of reciprocity in the riverine communities in the Guarguallá River basin over time and how does it relate to water justice and equitable relationships?
(2) How have reciprocal relationships between upstream and downstream communities developed over time in the Guarguallá river basin and what led to their disappearance?
(3) How do the riverine communities envision a ´riverine reciprocity route´ to restore their relationship and how does it relate to water justice and equitable relationships?

Chapter five: Conceptual framework

In this chapter, I will elaborate on the conceptual framework that forms the basis for this thesis. It will illuminate how rivers are envisioned, defined, and produced in diverse ways and how power and politics influence how the material landscape and its related culture have transformed over and over. While neoliberal norms and values are spread via various subtle techniques nowadays, reciprocal norms and practices remain of importance in Andean communities and are used to organise autonomous spaces, access materials and resources, and preserve communal culture and identities. In this thesis, the notion of riverine reciprocity routes was developed to explore how the relationship between the riverine communities can be restored in an equitable and sustainable manner.

5.1 Rivers-as-territories

While territories are often considered as `natural´ or `prescribed´, Boelens et al. (2016) state that these are instead socially and politically constructed in interactions between nature, society, and technology. From this perspective, nature and society are inherently related to the creation of territories. The boundaries, contents, and relations between humans and nature in a particular space are then the outcomes of the interactions between certain aspirations and worldviews, knowledge systems, and social practices. In this context, Manosalvas et al. (2023) describe that territorialisation processes can then be understood as attempts to control how a certain space is organised. In such processes, diverse actors decide on the functions, values, and meanings of the biophysical and social elements of a space, in line with particular aspirations and world views about it.

Recently, the notion of territories has been related to `water´ in academic literature to explore how rivers can be envisioned, defined, lived, produced, and materialised in diverse ways by diverse actors. Boelens et al. (2016) captured this relation in the concept of **hydrosocial territories**, which can be understood as:

"The contested imaginary and socio-environmental materialisation of a spatially bound multi-scalar network in which humans, water flows, ecological relations, hydraulic infrastructure, financial means, legal-administrative arrangements, and cultural institutions and practices are interactively defined, aligned and mobilised through epistemological belief systems, political hierarchies, and naturalizing discourses." (p. 3)

Consequently, the notion of **imaginaries** is defined as:

"The socioenvironmental world views and aspirations held by particular (individuals or) social groups, as the wished-for patterning of the material and ecological territorial worlds with and through the corresponding values, symbols, norms, institutions and social relationships." (p. 7)

In the context of this thesis, this means that there diverse ideas of what the Guarguallá river is, where its waters should be used for, and whether and how its water sources in the páramo should be conserved. While different imaginaries of a hydrosocial territory can exist, not all become materialised. To understand which imaginaries become materialised, the notions of politics and power are fundamental. Manosalvas et al. (2023) describe that for politicians, water companies, NGOs, scientists, practitioners, and others relevant to the Andean waterscape, a territory constitutes the place in which the local populations should be governed or steered

towards specific outcomes in line with their imaginaries about that place (such as the páramos as `water towers´ or `pristine nature´). Actors employ distinct **governmentalities** to create `objects´ for their interventions (Foucault, 2008). In turn, `subjects´ need to be produced that fit within this `truth regime´. Therefore, recognition politics and related participatory mechanisms are enacted at the same time to create so-called `beneficiaries´. Simply put, the `beneficiaries´ are both instrumental to and fundamental for actors´ imaginaries of the Andean water territories (Mills-Novoa et al., 2022; Foucault, 2008). Manosalvas et al. (2023) describe that `interventions´ in these places (such as the creation of water funds or conservation initiatives in the páramo) can then be understood as actions that intend to line up the objectives, subjects, and the relation between them in a certain `order´.

One form of governmentality is known as **disciplinary governmentality**, an `art of governance´ in which subjects internalise certain norms and values in such a manner that they become compelled to self-control them, which, in turn, leads to their normalisation (Foucault, 2008). The **neoliberal governmentality** overlaps and complements the first form, as it works via internalised ideas of economic norms, values and incentive structures. Foucault (2008) elaborates that the role of the state in neoliberalism is "to make the market possible" (p. 167), and should not be associated with "laissez-faire" (p. 132), but instead with permanent attentiveness, action, and intervention. In other words, it means "a minimum of economic interventionism, and maximum legal interventionism" (p. 167). Hommes et al. (2019) describe that the neoliberal form "builds on the idea that each individual is acting out of a self-interested, profit-maximizing rationality and that only the right incentive structures are needed to motivate appropriate behaviour" (p. 403).

5.2 Water cultures

It has been illustrated that local water cultures in the Andes have been shaped by Incan and Spanish colonisation, state policies, and broader political discourses and power structures. In the last decades, various techniques have been used to create `subjects´ that think and act in line with the neoliberal world vision. Core ideas, norms, and values of **neoliberal water cultures** (commodification, competitive markets, the focus on economic development and innovation) influence communities in the Andes via infrastructures, markets, education, political discourses, and the media. Once neoliberal ideas, norms, and values slowly become adopted and internalised, **local water cultures** (characterised by their collective nature and reciprocal norms and practices) slowly transform (Boelens & Gelles, 2005; Zavala, 2023).

Historically, water control has been a communal matter in the Andes (Sherbondy, 1998). People have united and collaborated to organise local water governance which makes social relationships fundamental. Reimer et al. (2008) state that trust and reciprocity are core elements of the normative frameworks that characterise these social relationships in Andean communities. Instead of trust, Baud (2018) adopts the Spanish term **confianza** to understand the notion in its Latin American context. Lomnitz (1977) describes how confianza should be understood as a sentiment that one has about another person, in which loyalty, friendship, and respect are key. Baud (2018) describes how confianza is based on four elements: First, confianza needs to be performed to be sustained, solely words do not suffice. For this reason, a second element is that confianza is (best) created in real life, in a space where individuals live close to each other. A third element is that confianza relations are open to choice as individuals can

choose whom to trust themselves. Finally, confianza is not just `there´ but needs time to be constructed. It is the outcome of a process in which respect, trust, and reciprocity are (re)established over and over (Baud, 2018; Lomnitz, 1977). Most of the time, there is a common interest in the confianza relation, which makes reciprocity – the mutual return of the favour - another core element. Mayer (2002) defines **reciprocity** as:

"The continuous, normative exchange of services and goods between known persons, in which some time must elapse between an initial prestation and its return. The negotiating process between the parties, instead of being an open discussion, is covered up by ceremonial forms of behaviour." (p. 105).

Mauss (1954) also emphasises that while often hidden from the public view, there are interests and duties behind reciprocal services which differentiate them from presents and barter. Manosalvas et al. (2021) describe how reciprocal norms and practices are rooted in cultural beliefs, traditions, and institutions that maintain their importance via mutual cultural, social, economic, and political interdependencies. Reciprocal relations are established between individuals, within a collective, but also with other collectives.

Important to note, is that reciprocal relationships are not only `positive´ or symmetrical, which means that all services between equal individuals are returned at some point with the same service so that there are no dues (Mayer, 2002). Walsh-Dilley (2017) describes that reciprocal relations can also take on asymmetric or even exploitative forms. Asymmetric reciprocity may be understood as an unbalanced material flow in favour of the more powerful person in the interaction, but also as the idea that power and status differences are intricately woven into the relationship (Mayer, 2002). An example may be that the commitment does not count to the person with more power, or that the person with less power shows ´respect´ to the person with more power via services or favours without awaiting anything in return. For this reason, Mayer (2002) emphasizes it is important not to romanticise the nature of reciprocal relations.

5.3 Riverine reciprocity routes

"(…) Ultimately, different socio-ecological assemblages are always possible, up for grabs, for the making. What will be made and how depends on who or what decides the political choreography of the making" (Swyngedouw, 2014, p. 92).

While reciprocal norms and practices have transformed over time, they continue to be key elements of local water cultures in the Andes. This implies the relationships between the riverine communities of the Guarguallá River basin may be restored based on these traditional norms and practices. I have developed the notion of **riverine reciprocity routes** to explore potential ways to restore the relationships between the `páramo caretakers´ and `water beneficiaries´ in an equitable manner, to ensure the sustainable water flow in the basin and the livelihoods of the riverine communities in the long-term. A riverine reciprocity route is to be based on the visions, ideas, wishes, and needs of the riverine communities, which implies that it can contribute to context-relevant, sustainable, and equitable water governance in the Guarguallá River basin. This thesis intends to make a first endeavour to explore whether there is support for such an initiative and, if so, how it is envisioned. As Swyngedouw (2014) describes, a riverine reciprocity route has the potential to demonstrate how alternative, creative ways of `living with the river´ are possible. There may be other mechanisms, better suited to the local context, to establish relationships

between the upstream and downstream communities in the Guarguallá River basin than dominant watershed conservation mechanisms.

5.4 Water justice

In this thesis, **water justice** is fundamental to better understand riverine reciprocity routes, as we have seen that the Ecuadorian waterscape has been characterised by unequal participation, representation, and distribution, as policies and practices have often been in favour of dominant water cultures and powerful actors throughout history (Boelens et al., 2018). Riverine reciprocity routes can address a form of cultural justice, as riverine communities take or receive autonomy to work out and employ their own norms and practices related to water management. While the cultural dimension is an important aspect of water justice, it is closely related and influenced by three other dimensions of water justice and intertwined with questions about power.

Zwarteveen & Boelens (2014) describe the **cultural dimension** of water justice as follows:

"Recognition, the cultural dimension of justice, refers to acknowledging and respecting various forms of dealing with, organizing around, and talking about water. This has to do with diversity, identity and culture, and relates primarily to forms of injustice that deny or discriminate against particular socially and culturally embedded rules and practices of water management and control." (p. 153)

The **political dimension** of water justice relates to the ability to participate in decision-making on water management and governance. The **socioeconomic dimension** relates to equal distribution and access to water, and the ability to sustain livelihoods. Lastly, the **ecological dimension** relates to environmental stewardship, socioecological integrity, and intergenerational sustainability (Fraser, 2000; Zwarteveen & Boelens, 2014; Boelens, 2015).

Furthermore, the water justice framework is used to analyse reciprocal relations in the riverine communities. The four dimensions will function as a tool to explore how the diverse forms of reciprocal relations relate to local, particular, political constructions of fairness, or, in other words, equity (Boelens, 2009). Boelens (2015) emphasises that there is a need to move beyond universalist descriptive theories and localised romanticism on what water justice is "supposed to be" (p. 34). Instead, we should start with the way water distribution, feelings of belonging and fairness, and the impact of water policies and laws are experienced and understood by people themselves, which calls for a relational and contextual approach.

5.5 Conclusions

The conceptual framework as outlined in this chapter, helps us to understand how there are diverse visions and ideas of how a waterscape should be formed. Powerful actors use diverse techniques and strategies to materialise their visions of a waterscape, which influences both the landscape and its related local water culture. As norms and values related to neoliberal water cultures are slowly internalised and adopted by people in the Andes, local water cultures transform. However, reciprocal norms and practices have been and still are key to the culture and social organisation of Andean communities. The notion of `riverine reciprocity routes´ is developed to explore potential ways to restore the relationships between the riverine communities of the Guarguallá River basin, and is to be based on their ideas, needs, and wishes.

Chapter six: Methodology

This chapter elaborates on the research approach and methods used to answer the questions fundamental to this thesis. The main research methods used are literature review, participant observation, semi-structured interviews, and a workshop. Furthermore, some limitations related to the spatial scale and temporality of this thesis are discussed.

6.1 Research approach

The nature of this research is qualitative, and an ethnographic approach is used to answer the main and sub questions. Ethnography is a practice that seeks to document, in detail, relations and interactions between people, and to understand these in their local contexts (Madden, 2017; Caulfield, 2020). Ethnographers write interpretive and explanatory stories about people and their behaviours in their related social, cultural, and institutional contexts, based on systematically collected and analysed information. Madden (2017) describes:

"It is a practice which values the idea that to know other humans, the ethnographer must do as others do, live with others, eat, work and experience the same daily patterns as others" (p. 16)

For this reason, around four months of `fieldwork´ have been conducted for this research. As speaking Spanish was essential to be able to perform this research, the first month consisted of learning Spanish at a language school in Quito. The rest of my time in Ecuador was spent in Riobamba, Licto, and Guarguallá. The three months that have been spent in the research area, were essential to build up relationships of trust and to slowly learn more about the way they see, know, produce, and experience their water territories. It enabled me to dive deeper into the importance of reciprocity in the riverine communities, and to better understand how local norms and practices based on this principle have been transformed by diverse economic, political, social, and cultural developments and broader discourses and power structures.

However, there are also some important limitations of ´doing´ ethnography. One of the main limitations in this research has been that I was rather unfamiliar with Ecuador as a whole and the local realities, complexities, and histories of the Guarguallá River basin since I only knew the stories from `the books´. Therefore, the methods used in this research build up on each other in such a manner that it enabled me to slowly learn more about the Guarguallá River basin. In the next subchapter, the most important limitations related to each of the methods will be further reflected upon.

Finally, the importance of ethics deserves to be emphasised beforehand, due to the sensitive nature of this thesis´ theme and the connections that have been made with the people in the riverine communities. In the process of this thesis, I have adhered to the Netherlands Codes of Conduct for Research Integrity. The five main principles described in this code concern: honesty, scrupulousness, transparency, independence, and responsibility (KNAW et al., 2018). I have continuously been reflecting on whether and how to safeguard these principles on my own, and in conversations with my supervisors, fellow students, and research participants.

6.2 Research methods

6.2.1 Literature review

Snyder (2019) describes that a literature review serves to collect and synthesise earlier research in a more or less systematic way, and consequently forms a firm base to build further research on. For this reason, the first phase of this research consisted of a literature study on the political and cultural histories of the Ecuadorian waterscape (chapter 2), the history of the battle for water in Licto (chapter 3), and the importance of reciprocity in Andean water cultures (chapters 5, 7, and 8). Most of the literature study has been performed after the first visits to the field, as these impressions have slightly changed the angle of the initial research proposal. Relevant literature and books were mainly found via Google Scholar, WUR Library, and my supervisors. Water, Power, and Identity by Boelens (2015) has been an important basis for this research, and much other relevant literature has been found in this book. Important to note, is that there may be bias towards literature from Boelens, as he is one of the most important (co)authors of academic articles and books on contestations over water in the Andes, the battle for water in Licto, and water justice, which are all topics relevant to this thesis.

6.2.2 Participant observation

In this research, participant observation has been an essential method. It has to be mentioned, that Susana Zavala – who was born and raised in one of Licto´s communities – has been indispensable for the establishment of the first connections in Licto. She introduced me to the board of the irrigation board and several ex-community leaders, which enabled me to join several community reunions and events and to slowly create a network in Licto. I believe that since people already knew Susana and my supervisor, who lived in Licto himself, it was easier to create a sense of trust. The reunions and events of the irrigation board helped me to better understand the role of reciprocity within the communities and how it is used to access resources and services from other actors, which have been included in chapter seven. Furthermore, the reunions between the irrigation board and ASARATY provided important insights into their current dynamics and their perspectives on whether and how their relationships could be restored. Finally, but key, I had the opportunity to stay with a family in the páramo of Guarguallá for around two weeks in total. My stay in the páramo was spread over different moments, but it allowed me to join several reunions and a collective work party of ASARATY, reunions of COOPROAGROCAN and the NGO World Vision, stay in the community tourism lodge, experience communal festivities, and most importantly, to experience a little bit of how peasant life is in these remote places. It enabled me to slowly meet more people from ASARATY and learn more about the conservation projects in the páramo (chapters 3 and 8), the role of reciprocity in the communities and with other actors (chapter 7), and the frustrations people experience from the lack of valuation for the conservation of the páramo (chapter 8).

The observations made were written down in a notebook while in the field, and transcribed in a Word document on my laptop at the end of each day. Back in the Netherlands, the data was analysed with the use of `Atlas.ti´. Field notes were labelled with particular keywords that illustrated the main importance of the note, which helped to organise the notes in themes such as the conservation projects in the páramo, the history of water in Licto, ASARATY, the irrigation board in Licto, the importance of reciprocity, the relationships between the riverine communities, and perspectives on how to restore their bonds. Eventually, the field notes were

compared with collected information from the literature study and interviews, to ensure the accuracy and reliability of the data and consequently develop the story of this report.

Important to note is that participant observation has some important limitations. Participant observation can be sensitive to the presence of the researcher, and also to their positionality as the researcher is the only one who eventually interprets the data (Quierós, Faria & Almeida, 2017). This implies that personal expectations, interpretations, opinions, and prejudices could have led to bias in this research. One important potential cause for bias is my Spanish, as I am not a native speaker. Especially in the first months, I mostly understood what I was familiar with or `expected´ to hear. Nonetheless, over time, my Spanish became better and I was more familiarised with the dynamics in the field, which made it easier to understand more. However, many people also spoke the indigenous language, Kichwa, which I do not speak or understand. For this reason, some information has been missed. Other potential causes for bias have been discussed in the chapter on `positionality´.

6.2.3 Semi-structured interviews

In total, 22 semi-structured interviews have been conducted with academics, government representatives, engineers of the irrigation system, members and (former) leaders of the Junta de Riego Guarguallá-Licto, and members and (former) leaders of ASARATY, to capture the full scope of (inter)relations in the river basin (Figure 11). Before each interview, a set of questions was made relevant to the specific interviewee. Interviews were conducted in person, in a convenient location for the interviewee, and notes were made in a notebook or laptop. At the start of each interview, I explained my research to the interviewee and asked whether the information should be anonymised. Some in-depth interviews were recorded with the consent of the interviewee, to ensure that I would not miss any information. After the interviews, the notes were worked out in a Word document on my laptop, and coded and analysed in the same way as described in the subchapter on `participant observation´. The topics of interest that were discussed with the different interest groups are illustrated in Table 1.

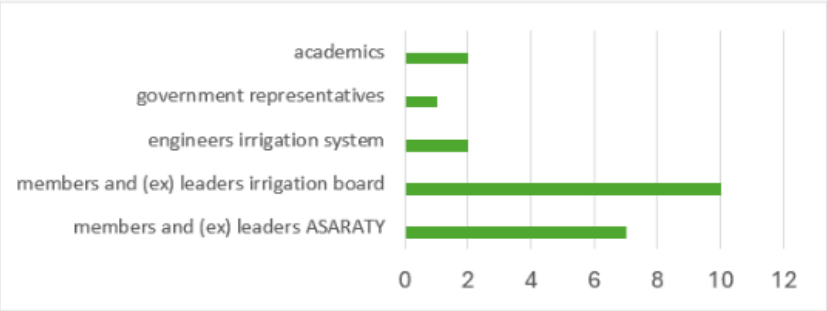

Figure 11: Distribution of interviews over the interest groups

	members and (ex) leaders ASARATY	members and (ex) leaders irrigation board Guarguallá-Licto	engineers irrigation system Guarguallá-Licto	government representatives	academics
.. the importance of reciprocity and its transformation					
.. the reciprocal relationships between the riverine communities and what led to its disappearance					
.. opinions and ideas on a ´riverine reciprocity routes´ to revitalize the relationships between the riverine communities					
... communal organisation and relationships with other actors					
... the battle for water in Licto					
... conservation initiatives in the páramo of Guarguallá					
... neoliberal conservation mechanisms					

Table 1: topics of interest in semi-structured interviews per interest group

6.2.4 Workshop on `Water Governance and Future Leadership´

After three months in Ecuador, I realised that the upstream and downstream communities both face challenges which influence their communal organisation. Some themes that reoccurred were individualisation, the transformation of communal traditions, the migration of the younger generation, and the transformation of agricultural practices due to market demands. In the workshop, we hoped to reflect with past, present, and future leaders on the problems they experienced and how these could be addressed.

Susana Zavala, Sebastián Orozco and I developed three exercises for the workshop. The basis of the exercises was the countermap that was drawn with the Riverhood & River Commons project and the riverine communities last year. In the first exercise, the members of ASARATY and the irrigation organisation each had to identify actors that influenced their territories on a small

version of the countermap. Consequently, they had to describe how these actors influenced their territories on a paper sheet.

In the second exercise, the communities had to characterise the relationships between the actors identified in the first exercise, via coloured ribbons. Participants could explain the reason for their choice of colour in plenary, to which others could respond. In this manner, we hoped to spark a discussion about the issues that came to the fore. With this exercise, we hoped to show the riverine communities, that despite their differences, they experience similar challenges.

In the final exercise, we initiated a collective reflection on how to address the issues that had been identified in the previous exercise. For example: If youth migration is a challenge, what can be done to promote employment opportunities in the communities? If the use of agrochemicals is a challenge, what can be done to promote good agricultural practices? In this collective space, we aimed to identify common strategies and enable collective learning to strengthen community leadership and promote joint action. Participants came up with diverse ideas to handle the challenges in the communities, and one of the proposed initiatives was the School for Future Leaders which will come back in chapter 9. Furthermore, it was a `contact´ moment between riverine communities, whose relationship barely exists nowadays, which hopefully has contributed to more frequent communication in the future.

Figure 12: The participants of the workshop and the map created (own picture)

6.3 The implications of spatial scale and temporality

First of all, it is important to note that the water from the Guarguallá River comes from the páramo of Guarguallá, Llullunpala, and Etén. Around 40 per cent of the water comes from the páramo in Guarguallá, while the other 60 per cent comes from the páramo in Llullunpala and Etén. However, in this thesis, I have decided to focus most of my research efforts on the relationship between the communities in Licto and Guarguallá. One of the most important reasons for this is that, due to the limited scope and timeframe of this research, it was too complex to also dive into the histories and realities of the communities in Llullunpala and Etén. I have therefore chosen to provide a more in-depth picture of the relationship between the water users in Licto and the páramo caretakers of ASARATY. However, this does mean that the story in this thesis is not fully complete as the relationship between the water users in Licto and the páramo communities in Llullunpala and Etén is only briefly covered. In practice, the riverine communities in Llullunpala and Etén should also be included in a potential new relationship.

Furthermore, while there may certainly be similar cases in Ecuador in which the bonds between the páramo caretakers and the water beneficiaries have been lost, this thesis solely focuses on the Guarguallá River basin. The reason for this is that this thesis is part of the Riverhood & River Commons project, which created a countermap of the Guarguallá River basin with the riverine communities last year in which the specific issue addressed in this thesis came to the fore. In this thesis, I therefore intend to dive deeper into the history and future of the reciprocal relations between the communities and the developments and factors that lead to the transformation of reciprocity in the broader sense. While the importance of reciprocal norms and practices may be changing in more Andean communities for similar reasons, the visions and ideas on a `riverine reciprocity route´ are unique to this case as they are based on the histories, ideas, wishes, and needs of the communities along the Guarguallá River. Whether a `riverine reciprocity route´ would function and how it could take form in other river basins, should therefore be explored in other studies.

Finally, it is important to note that the fieldwork for this research has been done from August to December. In this period, it was unusually dry in Ecuador which led to national problems with electricity supply - the country mainly depends on hydroelectricity - and agricultural production. Also in the Guarguallá River basin, the communities experienced daily electricity cuts and the downstream communities became more and more dependent on the water from the irrigation system to water their fields. However, it also seemed like this dry period made the water users in Licto more aware of their dependence on the páramo communities for the conservation of their water sources, especially with future climate predictions in mind. I believe that the lack of rain in this period opened a little `window of opportunity´ for the revitalisation of the bonds between the riverine communities, while other factors such as the need to restore a part of the road in the páramo and maybe even my presence also played a role. Nonetheless, for the first time in a while, ASARATY and the irrigation organisation talked with each other about potential ways in which the water users in Licto could compensate the páramo communities for their conservation efforts.

Chapter six: Reciprocal traditions in the riverine communities of the Guarguallá River basin

"Todo de esto, de la reciprocidad, va un poco en extinction. Va a desaparecer. Porque en el mundo moderno, soy yo. Yo quiero, yo hago, yo digo. Vamos independizando."

Rafael Ushca, former president of ASARATY (interview, 10 October 2024)

In the past chapters, it has been illustrated how reciprocity is fundamental in the normative frameworks that characterise social relationships in the Andes. Reciprocal practices occur between individuals, within and between collectives, and with other societal actors. In this chapter, the importance of reciprocity in the riverine communities of the Guarguallá River basin is explored, even as how it has transformed over time. In addition, it analyses how the diverse practices and traditions relate to local conceptions of fairness via the four dimensions of water justice.

7.1 Maki mañachi

Just like every day I stayed with Dolores and Leonardo in the páramo of Guarguallá, we woke up early in the morning to milk the cows. However, after this daily ritual was finished, Dolores and Leonardo did not take the usual way home but continued to walk up the mountain towards the land of Leonardo´s brother. When we arrived, his brother and nieces were already harvesting potatoes. Leonardo and Dolores quickly grabbed a shovel and started helping on the field. I quickly grabbed one too, while at the same time secretly observing how the harvesting of potatoes actually works. A few moments later, his nieces arrived to lend a hand (Figure 13) (field notes, 1 December 2024).

Figure 13: Family members helping each other with harvesting potatoes in Guarguallá (own picture)

This form of mutual support is named maki mañachi in the Ecuadorian Andes and can be understood as *"hoy por ti, mañana por mi"* (interview Guallán, 24 November 2024). Family and community members lend each other a hand with the construction of new houses, work on the land, and the organisation of festivities and funerals. José Manuel Chafla, former community leader in Licto, explains:

"Nos ayudábamos unos a otros durante la cosecha, la siembra, y con el ganado. Dentro de la familia, pero también como vecinos, nos prestabamos una mano. No era una opción no devolver el favor, era una obligación. Cuando recibías ayuda, preparabas un almuercito y chicha para las personas que te ayudaban. Nos hablábamos, nos reíamos, era parte del trabajo." (interview, 15 October 2024)

Aurerio Guallán, former canalero of the irrigation system, adds:

"You have to return the favour, otherwise the trust is broken. When the favour is returned, a sense of trust is created. When it is not returned, you create distrust and the person will not help you anymore in the future." (interview, 24 November 2024)

This implies maki mañachi can be seen as an implicit contract between individuals, and confirms Maus (1954) statement on the (hidden) interests behind reciprocal acts. In these relations, the provided favour is expected to be returned at another moment in time. Otherwise, the trust (`confianza´) is broken and the bond ends. Walsh-Dilley (2017) also describes reciprocity to be a collective moral order in the Andes. It is an implicit accord about how people should interact with each other and respects that the way you treat other persons influences how you will be treated in return. The standard of the performed work, even as the provision of meals and chicha, are other principles to evaluate the reciprocal bond. When the collaboration fulfils expectations, the confianza is (re)confirmed and the service can expected to be returned with similar standards (Boelens, 2015). In contrast to other forms of reciprocity, Mayer (2002) characterises maki mañachi as a social institution that can function without mutual `measurements´ from both sides, which is seen as unnecessary or even inappropriate. It is a tradition that has been part of the communal culture and fundamental to how livelihoods have been sustained in the Andes. While the `rules´ of the practice often remain implicit, they are known and developed by the communities over time. The distribution of benefits and burdens can be seen as fairly symmetrical, as family members help each other alternately (Boelens, 2015).

7.2 Mingas

Reciprocal bonds do not only occur between individuals, the collective also needs reciprocal bonds to sustain itself. For this reason, communal work parties have been organised in and between communities to build, protect, improve, and maintain irrigation systems, roads, communal houses, schools, and sports fields. José Manual Chafla, former community leader in Licto, tells me about the importance of mingas during the construction of the Guarguallá-Licto irrigation system:

"La minga existe para dar la vida en nuestra proyecto del riego. Trabajamos en mingas durante la construcción del sistema entre 1993 y 2002. Construimos todo el sistema nosotros mismos, no es un proyecto del estado. No teníamos maquinaria, lo hicimos todo a mano." (interview, 15 October 2024).

Since the construction, participation in the collective work parties has become a fundamental condition to obtain water rights in the irrigation organisation (Boelens & Doornbos, 2001). This illustrates the tradition´s importance to the way water has been organised in Licto and how it, thus, has been embedded in the local water culture.

Figure 14: Minga during the construction of the Guarguallá-Licto irrigation system (archives Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto)

Nowadays, the board of the irrigation organisation organises a minga twice a year to protect, improve, or maintain the system. However, when needed, an additional minga can be called. Every communal irrigation organisation is responsible for a part of the system. In the internal regulations, it is established that water users between 18 and 65 years old should participate in the organisation´s mingas. Water users of 65 years or older should send someone to replace them and when a water user does not attend a minga, a fine of 20 dollars should be paid. In extraordinary circumstances, such as sickness or the death of a family member, the water users should always first look for a family member to replace them. When this is not possible, the water user should present a statement from the communal committee that there is indeed no family member who can replace him or her to be exempted. However, a woman can receive pregnancy leave, and also a widow can be exempted from participation for three months (Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto, 2023). In addition to the mingas of the irrigation organisation, mingas can also be called by the communal irrigation committees, the drinking water organisation, the autonomous decentralised government (GAD) of the parish, and the communities themselves.

Also within ASARATY, members are expected to participate in the monthly mingas, centred around the management and conservation of the páramo. In October, a minga was organised to collect alpaca manure in the animal shelter, which would later be sold as fertiliser to members and other interested communities. Before the work would start at nine o´clock, the attendance of the members was checked by the president of ASARATY (field notes, 21 October 2024). Members of 18 years and older are expected to participate, and contrary to the irrigation organisation Guarguallá-Licto, members who are 65 years or older are not exempted from the work. Angel Naula, former leader of ASARATY, explains:

"Cuando eres socio, tienes que ir a las mingas. No importa tu edad, tú ayudas." (interview, 20 October 2024)

Similar to the irrigation organisation, women can get pregnancy leave and members should always first look for a family member to replace them in extraordinary circumstances, such as the death of a family member or sickness. When this is not possible, members can be exempted from work after consultation with the board or the assembly. For example, an older man asked for an exemption from future mingas at the general assembly. He told his fellow members that he needed to be home to take care of his wife, who was chronically sick, and the couple did not

have the money to pay the fines. ASARATY´s members could vote for the exemption of the man and his wife to future mingas, to which everyone agreed (field notes, 1 December 2024). In case someone does not attend a minga, a fine of 10 dollars has to be paid (ASARATY, 2024).

Figure 15: Minga at ASARATY to collect organic fertiliser from the alpacas (own picture)

While the work that needs to be done in a minga is surely important, some also see it as a tradition that fosters communal bonds. Community members work, chatter, make jokes, and share food and drink chicha, as Alfonso Guamán, former community leader in Licto, told me:

"Aquí, una minga es una fiesta. Prácticamente, estamos todos juntos: familia, amigos, vecinos. Trabajamos, hacemos bromas, compartimos comida, bebemos chicha." (interview, 30 September 2024)

In return for the communal work, the irrigation organisation offers a meal to everyone who participates in the minga. Leonardo Tenegusñay, president of ASARATY, explains that in the past, ASARATY used to cover the costs for communal meals. A couple of members would prepare a meal for everyone that participated in the minga. However, due to the costs, ASARATY is unable to provide the meals nowadays. Therefore, everyone takes some food with them – such as toasted maize or broad beans, bread, popcorn, potatoes, or rice with vegetables - to share with others (interview, 17 October 2024).

Figure 16: Sharing a meal during the construction of the Guarguallá-Licto irrigation system (archives Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto)

While it is not deemed necessary or appropriate to `count´ services in maki mañachi relations, it is important to `count´ members' contributions in this form of reciprocity, which Boelens (2015) refers to as `contractual reciprocity´. Boelens (2015) states that these measurements are key to ensuring communal action, fostering communal organisation, and managing conflicts. The moral and political definitions of such reciprocal relations are continuously (re)negotiated and (re)affirmed in the collective, and include questions such as: How many work days should each member dedicate to the communal system? Who should participate in the collective work parties? Women, children, elderly? Can monetary fines replace participation? How much should a fine then be? There is an inherent question in such debates, namely of what it means to be a rightful community member. Boelens (2015) describes how this illustrates the difference between communal reciprocal relationships and the depersonalised and decontextualised relationships in market-based water allocations and state-owned systems, based on, for example, fees or taxes. Because as we have seen, in communal systems the rules can be adapted in certain circumstances, such as when someone is older than 65 years old or when a family member dies. For this reason, communal systems are often considered more personalised and contextualised.

Reciprocal relations are inherently related to identity formation and can serve as a `marker of differentiation´ (Walsh-Dilley, 2017). Who participates in the reciprocal practice and who does not, determines who is considered part of the `community´ and who is considered `outsider´. This does not only lead to the creation of boundaries between communities but also occurs *within* communities. Catholicism has been the primary religion in Ecuador since the Spanish colonisation but Evangelism has been spread since the nineteenth century, and the co-existence of the two has caused tensions in some communities. In San José de Guanlur (Licto), the Catholics in the community did not want to help the Evangelists with the construction of their church. Catholics did not see the need to support them with the construction as it would not be `their´ church (interview Chafla, 15 October 2025). Nonetheless, the two had to work together in the mingas of the irrigation organisation which sometimes led to tensions. For example, the Catholics used to drink lots of chicha in the mingas and ended up drunk, while the Evanglists did not drink alcohol, which sometimes resulted in frustrations. Eventually, it became prohibited to take bottles of chicha to the mingas as it was too dangerous to work while intoxicated. Nowadays, people can only bring a small amount of chicha to the minga (interview, 15 November 2025).

Important to realise, therefore, is that reciprocal relations are not necessarily always equitable. In the case of asymmetrical relations unequal services are traded, but, this can still be locally accepted in a certain time and place. For example, someone can choose to pay a fine when he or she is unable to participate in a minga, to compensate for the missed labour day. Boelens (2015) describes that while the price value may be `accepted´ as equal compensation, the social and cultural value of money as compared to a labour day in the minga is not the same. Nowadays, there are frustrations in both communities about the increasing absence of members during the mingas. Some members choose to just pay the fine, which raises questions about whether these people are still considered rightful members of the association. Rosa Guamán, former community leader in Licto, feels that while communal work parties used to foster cohesion between members, it does not anymore since people´s only motivation to participate is to avoid fines (interview, 28 September 2024).

Reciprocal relations can also be interwoven with power structures and reinforce power imbalances, which makes them asymmetrical. In times of Incan and Spanish colonisation, the colonisers and later elites exploited the indigenous population for labour and tributaries in mingas and the hacienda systems. However, also within the riverine communities such inequitable relations existed. Alfonso Guamán, former community leader in Licto, described the mistreatment and discrimination between the mestizos and the indigenous communities in Licto:

"Antes teníamos mucho maltratamiento y discriminacion, todo el poder estaba en manos de una familia. Había un abuso. Nosotros siempre teníamos limpiar la carretera de Licto y todo el cementerio. Los mestizos no hicieron nada." (interview, 30 September 2024)

Inés Chapi, former community leader in Licto, confirms Alfonso´s story and tells me about how the indigenous communities around Licto always had to participate in the mingas in Licto town, while the mestizo in Licto town never participated in the mingas of the communities. In other words, the power imbalances that already existed between the mestizo elites and the indigenous people were reinforced in the mingas. However, Inés also describes how the unequal relationship slowly improved when the two groups needed each other:

"Como intentamos que los hacendados nos dieran la propiedad de nuestra tierra, tuvimos que trabajar juntos. Teníamos que ser socios para recuperar la tierra. Aunque los mestizos no querían, también teníamos que colaborar durante la construcción del sistema de riego. A partir de entonces, la relación entre nosotros mejoró poco a poco." (interview, 15 November 2024)

Scott (1976) describes how a bond between two unequal societal groups can unfold out of mutual dependence. In the battle for land and water in Licto, the mestizos and the indigenous needed each other to realize a mutual dream, which eventually resulted in collaboration.

7.3 Festivities and rituals

Reciprocity also prevails in festivities and rituals, as family and community members lend each other a hand with the preparation of food, drinks, dances, and funds. Festivities are of cultural importance and a moment to consolidate bonds of cohesion between community members, but sometimes also to establish or maintain relations with external actors (Figure 19). Some festivities that are celebrated are Día de los Reyes in January, Carnival in February, Semana Santa in April, Inti Raymi in June, Christmas in December, and so there are more. Furthermore, each town has its festivities and Licto´s are in June. Licto´s GAD invites everyone in the communities and on the day itself, people dress up, share food, and dance (interview Chapi, 26 September 2024) (Figure 17).

Furthermore, family members support each other whenever there is a funeral, birthday, or other family event. On the day Leonardo´s little nephew married for the State, the women of the family already started early in the morning with the preparation of the festive meal that would take place in his brother´s home later on the day. However, everyone in the family also took some food, such as toasted maize, broad beans, rice, cheese, or bread, to the civil registration in Guamote, which was shared after the ceremony (field notes, 27 November 2024).

Figure 17: Dances during Licto´s festivities in June (picture by Sanne Kroezen)

While each community has its rituals, the pambamesa is a special tradition in the Andes. It is a communal meal, to which everyone takes food that is collected at one table and shared. Everyone is equal and there are no privileges of who can eat first or sit where. Therefore, it is also described as: *"comida de todos y todo"* (interview Guallán, 24 November 2024). It is a ritual that used to take place on special occasions, such as on June 21 to celebrate Inti Raymi. Inti Raymi is celebrated to thank Pachamama (Mother Earth) for the production and harvest of the season. In some – but not all – communities, the pambamesa still occurs in collective work parties (Figure 18).

Figure 18: Pambamesa during a communal minga in Ceceles (Licto) (picture by Bibiana Duarte Abadía)

7.4 Relationships with external actors

Reciprocal relations do not only occur in and between communities, but also with other societal actors. Relations with NGOs, the State, and universities are often tactical. There are interests from both sides in such collaborations, due to which a relationship evolves despite the power imbalances there often are between the communities and the other actors. On October 23, the restoration of siphon 1 was celebrated in Ceceles. The Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto organised a celebration with music, dances, and food for all water users and the politicians who were involved in the project (Figure 19). The restoration of siphon

1 was initiated by Galo Bonilla, the former president of the irrigation organisation. He sought financial support from the Provincial authorities, which he received from the prefect of the Province of Chimborazo. In total, the restoration cost 269.000 dollars. In return for the support, it was expected that the water users would vote for the (at the time candidate) prefect in the Provincial elections. The reason for the celebration was in part to thank the politician for his support, but the Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto also wanted to assure support for the restoration of siphon 2, which has an estimated cost of 400.000 dollars. For this reason, it was also mandatory for water users to attend the event, otherwise they had to pay a fine of 20 dollars. At the celebration, the politician promised to continue with the restoration of siphon 2 and told the water users that the study for the project had already started (field notes, 23 October 2024).

Figure 19: Celebration of the restoration of siphon 1 in Ceceles (Licto) with the water users and politicians involved (own picture)

Gonzales-Ocantos & Oliveros (2019) refer to this phenomenon as `political clientelism´, which can be understood as the "personalized and discretionary exchange of goods or favours for political support" (p. 1). It does not only occur in Licto but also in Guarguallá. A bridge in Guarguallá Chico, used for the construction and maintenance of the irrigation system Guarguallá-Licto, was about to collapse after heavy rains between December 2023 and July 2024. ASARATY sought support from the irrigation organisation Guarguallá-Licto, the parish of Cebadas, and the Provincial authorities for the restoration. The former prefect of the province of Chimborazo (between 2019-2023), supported ASARATY with a study about the restoration of the bridge in return for political support in the next elections (field notes, 20 October 2024). It is therefore in the interest of both the communities and the Provincial authorities to establish bonds, but such relations are also delicate. When a politician does not win in the elections, the support to the communities may stop due to which they may not be able to continue the project anymore (Zavala, 2023). Because, in the end, it is the politician in this relation that has the most power. Nonetheless, communities do have a choice in whether they want to establish a relationship. Sometimes, the communities decide to reject collaboration to maintain control over their water territories and forms of organisation. A collaboration can also have an adverse effect, which occurred in Licto. Current president Daniel Noboa, leader of the National Democratic Action party, visited Licto on December 1, 2024, to assure support from the peasant communities in the next elections, which will take place in February 2025. In return for support, the irrigation

organisation received a tractor. However, the tractor was old and did not function well, which resulted in frustration among the water users:

"Piensan que nosotros, como indígenas, seguiremos apoyándoles de todas formas, que pueden utilizarnos. Pero se equivocan!" (water user, field notes, 8 December 2024)

ASARATY has also established reciprocal relationships with NGOs and universities, to access resources and services (workshops, technical assistance, and financial compensation) in return for the conservation of the páramo. The families benefit from this support as this may help them to improve their production and, therefore, income and livelihoods, while it enables other actors to create `subjects´ that help them to materialise their vision of the páramo. However, even in these relations `confianza´ is fundamental. For example, COOPROAGROCAN, the cooperation of alpaca producers in Chimborazo, receives support from the NGO World Vision. World Vision buys alpacas and fibre from the cooperation two times a year and pays this money to the cooperation´s director. However, this resulted in problems last year. In the annual financial administration, it appeared that around 7000 dollars were missed and not paid to the communities it was destined to. It was unclear what happened to this money so the NGO decided to stop their support to the cooperation until it had retrieved the money (field notes, 26 November 2024). In other words, the confianza of the NGO in the cooperation was impacted which (temporarily) ended the reciprocal relation between the actors.

7.5 Relationships with Pachamama

In the Incan cosmovision, reciprocal relations were not limited to humans but extended to the non-human world. Over time, this belief continued to exist in communities in the Andes. Inés Chapi, former community leader in Licto, explains:

"En las comunidades andinas, respetábamos a la Pachamama. Tenemos que cuidar nuestra agua y tierra, ya que es la base de la vida." (interview, 15 November 2024)

In the past, the people in Licto depended on the rain to produce crops such as maize, barley, lentils, peas, melloco, ocas, and quinoa. After the harvest, the land used to receive time to rest (usually in August and September) before new crops were sowed in October (interview Guallán, 24 November 2024). Also in the páramo, the families used to let the land rest after each harvest and only used manure from their animals to fertilise the land (interview Agualsaca, 24 October 2024). However, the relationship with Mother Earth, or Pachamama, has changed over time, with consequences for the environment and people´s health. Alfonso Guamán explains:

Figure 20: Milking the cows in Guarguallá (own picture)

"Antes respetábamos más a la Pachamama. Respetábamos la tierra. Le dábamos tiempo para descansar y sólo utilizábamos productos orgánicos para fertilizarla. Utilizábamos plantas para controlar las plagas. Por el contrario, hoy en día tenemos la ambición de producir lo máximo posible. Hoy plantamos este cultivo, mañana

otro, y no damos tiempo a la tierra para que descanse. La gente tala los árboles nativas de sus tierras, para crear más espacio para producir. Se utilizan agroquímicos para fertilizar la tierra y controlar las plagas. Sabemos que es peligroso para nuestra salud y para el medio ambiente, pero se considera más importante el rendimiento económico." (interview, 30 September 2024)

He continues:

"Las generaciones jóvenes no son conscientes de la importancia del medio ambiente, de la Pachamama. Aquí nos fallamos, desde la construcción del sistema de riego. Yo siempre digo: Tenemos pan para hoy, pero hambre para mañana. No es sostenible la forma en que producimos actualmente." (interview, 30 September 2024)

From a water justice lens, this implies that land and water sources are under pressure due to overexploitation and the use of chemical fertilisers, due to which the ecosystem becomes less able to support and maintain biodiversity and natural processes. The environmental and health consequences this causes are a concern nowadays, but also for the generations to come.

7.6 Reciprocity: a tradition lost in time?

The balanced relationship with Pachamama is not the only form of reciprocity that has changed over time, also other traditions have been transformed or replaced by commoditised forms of interaction (Boelens, 2015). Rosa Guamán, former community leader in Licto, explains:

"Teníamos una relacion con Pachamama, pero ya no hay este covivencia con la naturaleza en la comunidad. También nuestra cultura social esta perdiendo. La gente ya no invita a su familia a ayudar en la cosecha o la siembra, porque el prestamo de mano casi ya no existe. Solo las mingas se mantienen." (interview, 28 September 2024)

Nowadays, paid workers have substituted most maki mañachi relations, fines can be paid to compensate for a missed labour day in the minga, and communal rituals such as the pambamesa almost disappeared in some communities. This made me wonder, how have these reciprocal norms and practices been transformed? After some time in the riverine communities, I realised it is the outcome of the complex interaction between diverse economic, cultural, political, and social developments in the basin which led to the influence of neoliberal norms, values, and ideas such as the commodification of relations, participation in competitive markets, and the continuous wish for development and modernisation, with as a consequence: the transformation of communal culture in the basin.

In the páramo, the implementation of conservation initiatives had an important role in the transformation of the landscape and communal culture. Several NGOs and the state have supported the páramo communities with the conservation of these ecosystems, the production of alpacas, the development of community-based tourism, and the improvement of production in the lower areas since 1999. Since this time, the páramo communities have come to think and act in line with the `conservation discourse´ exercised on national and international levels. Rafael Ushca, founder and former leader of ASARATY, illustrates the adoption of this discourse when he states:

"Yo vivo en el páramo, el lugar donde nace el agua. Sin embargo, todos necesitamos agua, también en las zonas de abajo. Todos necesitamos agua y aire limpio para sobrevivir. Por lo tanto, debemos cuidar el páramo. Para asegurarnos de que el agua esté limpia. Que tengamos aire

limpio. Por eso necesitamos poner el hombro. Todos, para el planeta. Eso es la meta." (interview, 10 October 2024)

Ecuadorian environmental policies and laws have been rooted in neoliberal principles since the final decades of the twentieth century, and while less obvious, even under the presidency of Correa (2007-2017). In the 1980s and 1990s, the traditional idea of the `unitary state´ was left behind, and a variety of private and public actors were welcomed into the policy process (Himley, 2009). When Rafael Correa became president in 2007, the neoliberal political discourse transformed into a clear anti-neoliberal one. Correa promised to re-centralise state control, but in practice, he still relied on market-based mechanisms and capitalist economic rationality – while under close state control – to boost `development´ (Rodríguez de Francisco, 2013). For example, SocioBosque, the initiative to incentivise landowners to conserve moorlands and forests in which ASARATY participates, was introduced in his time. SocioBosque adopts a market-based mechanism to financially compensate landowners, but in public discourses, is characterised by a narrative on `reciprocity´ (Boelens et al., 2008). Nonetheless, instead of valuation based on trust, respect, and reciprocity such as in traditional communal practices in the Andes, it continues to be based on market environmentalism and, thus, valuation based on money (Joslin, 2019).

Paradoxically, the conservation projects in the páramo also contributed to the transformation of the relationship with Pachamama. NGOs supported the families to improve production in the lower areas and introduced chemical fertilisers and pesticides, with consequences for the environment. Nonetheless, the projects did enable the families to earn some additional income, which has led to some improvements in their livelihoods. In the last decades, (some) families have been able to buy mobile phones, fridges, land, and houses, and most children have been able to study in other towns and cities. However, what has become a concern is that the younger generation does not want to return to the countryside anymore once they are finished with school or university. They search for jobs in cities or the United States as they hope for better opportunities elsewhere. The children do not want the life of their parents anymore, as the work on the land is considered hard and it becomes more difficult to make a livelihood as a smallholder as the prices of inputs such as seeds and fertilisers continue to rise. Once children move elsewhere, their relationships with their parents also transform. In the family Tenegusñay, four of the seven children moved to the United States. The ones who are abroad are not able to help with the work on the land anymore, but instead send home remittances to their parents. Consequently, forms of production transform in the páramo. In the past, most families used to produce crops but nowadays, most families only hold cattle. It is less labour-intensive and makes the families less dependent on maki mañachi (interview, 20 October 2024). When communal traditions are not performed anymore, they eventually disappear.

In Licto, the construction of the irrigation system has led to substantial transformations in the landscape and the lives of the families. Families can produce the entire year around and produce a variety of crops, such as tomatoes, strawberries, blueberries, zucchini, cauliflower, and broccoli. Access to credit has made it easier to invest in production and buy seeds and chemical inputs. Families sell most of their produce at the market nowadays which has led to improvements in incomes and livelihoods. Families own cars, houses, televisions, radios, and mobile phones nowadays and children do not need to help on the land anymore but can study

in schools in the cities. However, the construction of the system also led to the transformation of the balanced relationship with the environment and the individualisation of communal culture, which had the transformation of communal traditions as a consequence. Alfonso Guamán, former community leader in Licto, describes:

"Antes, teníamos la ilusión de todo lo bueno que nos traería el riego. Una vida mejor, prosperidad. Pero, ahora me doy cuenta de que también tiene sus lados negativos. Hemos perdido nuestra organización social y tratamos mal al medio ambiente. Antes trabajábamos voluntariamente, por la comunidad. Hoy dominan los intereses personales, la plata." (interview, 30 September 2024)

A little sidenote but important to realise, is how this statement also romanticises traditional communal culture in the Andes. In colonial times, communities in the Andes used to be positioned as `backwards´. However, in recent times, there has been a (re)valuation of Andean communities in some academic circles and political discourses. Such narratives often portray communal culture in a `static´ and `romanticised´ manner, while the `unattractive´ parts are not included in their (re)construction of historical memories about communities in the Andes. Communal reciprocal norms and practices also have another side and have been exploitative and used by colonisers and local elites to extract labour and resources from the poor since colonial times. Bernhard & Kubik (2014) describe that, most of the time, the (re)construction of historical memories is an attempt to create a certain narrative for instrumental reasons. This `romanticised´ narrative of Andean communal culture has been adopted by scholars and politicians on international and national levels, but also by indigenous and peasants in the Andes themselves to access rights, materials, and resources on broader levels.

7.7 Conclusions

In this chapter, we have seen that reciprocal norms and practices have been a key element in the political culture of the communities and essential to the sustenance of livelihoods. Individuals and families helped each other with work on the land, the construction of houses, and events. Community members construct, improve, or restore communal infrastructure in the collective work parties, and relations with other actors are established out of mutual interest. Reciprocal relations are also not limited to humans but extend to the natural world. Political and moral definitions of what is considered equitable and fair in such relations are continuously under debate in the communities and, therefore, particular for a certain time and place. History has demonstrated that reciprocal relations are not always positive and can also take on oppressive or exploitative forms. Nonetheless, both sides of the reciprocal `sword´ have been of importance in how the riverine communities have been shaped, but also sustained, over time (Baud, 1993). Some traditions transform (the balanced relationship with Pachamama) and others are replaced by commoditised forms of interaction (paid workers instead of maki mañachi) due to the influence of neoliberal norms and values, which trickle down in the riverine communities via infrastructures, conservation projects, education, the market, policies, and the media. Nonetheless, their transformation does not mean that reciprocal norms and practices have disappeared in the communities, as they continue to persist (Figure 21).

Figure 21: Communal minga in Sulsul (Licto) to restore a road (own picture)

Chapter eight: The relationship between the riverine communities of the Guarguallá River basin

"ASARATY y la Junta de Riego Guarguallá-Licto, los dos, tienen que caminar juntos en la vida. Yo necesito agua, tu cuidas el páramo, entonces yo doy un incentivo asi que tu me cuidas el páramo."

Rafael Ushca, former president of ASARATY (interview, 10 October 2024)

In the previous chapter, the importance of reciprocal practices in the riverine communities of the Guarguallá River basin has been explored. We have seen that reciprocal bonds have been established between individuals, within communities, and with other societal actors. However, reciprocal bonds were also established between communities. In this chapter, the bonds between the riverine communities of the Guarguallá River basin are explored. For what reasons were these bonds established and how did they take form? Why have the bonds transformed over time and how are the dynamics between them at the moment? I will dive into these questions in the parts to come.

8.1 Bonds between the riverine communities before the construction of the irrigation system

Already before the construction of the Guarguallá-Licto irrigation system started in the nineties, the riverine communities had some form of a relationship. Licto´s communities used to depend on rainwater for their production in the past. Most families owned cows and sheep, but when it did not rain, there was not sufficient pasture for the animals to graze. In such times, families took their cattle to the páramo where the páramo families would allow the cattle on their lands. In return, the communities in Licto offered maize, wheat, and barley to the communities in the páramo. The páramo communities did not only have these relationships with the communities in Licto, but also Cebadas. Hugo Vinueza, former CESA employee, explained:

"Antes de la construcción del sistema de riego, las familias de Licto tenían ganado. Cuando no llovía, el ganado no tenía comida. Por eso llevaban el ganado al páramo. Pero, no se puede pedir un favor sin dar nada a cambio, así que la gente dijo: cuando cuides de mi vaca, te daré maíz a cambio. La mayor parte del año, el ganado estaba en el páramo. Siempre digo: pasan sus vacaciones en Licto." (interview, 23 November 2024)

In this manner, the communities supported each other in the sustenance of their livelihoods. There were interests from both sides in the relationship, but it also illustrates how embedded reciprocal norms and practices are in the culture and social life in the Andes.

8.2 Bonds between the riverine communities during the construction of the irrigation system

Licto´s communities had dreamed about access to water at their fields for decades. While it was a battle, the construction of the system finally started to materialise in the nineties. NGO CESA motivated future water users to think about how a relationship with the páramo communities in Guarguallá, Llullunpala and Etén could take form. The water users would become dependent on the páramo communities to conserve their water sources. A substantial part of the water that feeds the Guarguallá-Licto irrigation system comes from the páramo in Guarguallá. Since NGO Fundación Natura came to support ASARATY with the conservation of the páramo in 1999, it became prohibited to burn the páramo and cattle were evicted in these areas. Instead, the

communities introduced alpacas to the páramo. Rafael Ushca, ASARATY´s leader at the time, asked CODOCAL´s leaders:

"Conservaremos el páramo, dejamos el ganado y la producción. Pero, qué nos darán a cambio? No se puede pedir un favor sin dar algo a cambio." (interview Vinueza, 23 November 2024)

CODOCAL´s first leader, Lauro Sislema, but also Inés Chapi and Rosa Guamán, motivated the communities to collect maize, wheat, beans, and barley in the harvest months between July and September, which was offered to the páramo communities in Etén and Guarguallá. Leaders Angel Condo and José Tenelema continued to motivate the communities to collect food for the páramo communities two or three times more (interview Chapi, 15 November 2024). Rafael Ushca describes that the families in the páramo used to make flour, mote, and toasted maize or broad beans from the products, which supported them in the sustenance of their livelihoods (interview, 10 October 2024). Furthermore, the future water users and NGO CESA organised mingas in the páramo of Guarguallá to plant native plant species and trees such as eucalyptus and pines to support the conservation of the páramo. The wood from the trees could be sold later in time to earn some additional income. A last form of support was the provision of credit by CESA with which the families in the páramo could buy potato seeds and fertilisers.

Figure 22: ASARATY´s alpacas in the páramo of Guarguallá (picture by Maaike de Wit)

Marco Moreano, current administrator of the irrigation organisation, describes that the water users have had more contact with ASARATY than with the communities in Llullunpala and Etén, who own the páramo where the other part of the water comes from. Marco Moreano explains this may have to do with the strength of the communal organisation. ASARATY has always been a fairly strong organisation. Rafael Ushca, founder and former leader of ASARATY, played an important role in this as he was active in the establishment and maintenance of relationships with other actors, such as NGOs, the state, and the irrigation organisation, in contrast to the communities in Llullunpala and Etén. Nonetheless, the irrigation organisation and the páramo communities in Etén, Llullunpala, and Guarguallá always had contact with each other whenever needed (interview Moreano, 14 October 2024). Luz Maria Morocho, treasurer of the irrigation organisation, confirms this as she tells about the support of the water users to the communities in Llullunpala. The páramo communities needed support with the construction of a road, so the water users organised mingas to help them with the project (interview, 10 November 2024).

8.3 A relationship lost in time?

Nonetheless, the relationship between the riverine communities did not last. Unfortunately, the bond slowly started to disappear when the project with NGO CESA ended in 2004. CESA motivated the bond between the riverine communities, but once the construction of the system was finished and water arrived at the fields of the water users, the motivation to maintain the relationship slowly faded. Rafael Ushca describes:

"Desde el momento que acabó el projecto con CESA, los usuarios se olvidaron a las partes altas. Ellos piensan: el proyecto ha terminado y el agua está aqui, entonces no podemos pasar nada." (interview, 10 October 2024

Hugo Olazaval, who has worked with many riverine communities in his career, explains that the bond between upstream and downstream communities is often motivated by external actors. When these actors leave, the relationship also slowly disappears. It always starts well but ends with problems as the downstream communities lose motivation to maintain the relationship or the upstream communities start to ask for more compensation (interview, 12 November 2024). Inés Chapi, former community leader in Licto, explains how the latter happened with the communities in Llullunpala. When the irrigation system was still under construction, the board went to visit the páramo communities in Llullunpala to offer support with the introduction of alpacas in the area. However, the leaders in Llullunpala soon expressed that they were not interested in alpacas, and asked for sheep and lamb instead. Inés was hesitant about this choice, as these animals could still harm the páramo ecosystem and, therefore, put pressure on the water flow to the Guarguallá-Licto irrigation system. In the end, she explains, the leader of the communities in Llullunpala wanted more and more and appeared to only be interested in money from the irrigation organisation. Therefore, the support from the irrigation organisation to the communities in Llullunpala ended there (interview, 15 November 2024). These stories imply that a relationship is more sustainable when motivation comes from the riverine communities themselves instead of an external actor, and includes a collaboration from which both sides benefit.

While the relationship with ASARATY worked when the system was still under construction, it slowly disappeared once the construction of the system finished and former leaders such as Inés Chapi, Antonio Lasso and Edith Hernandez left the board around 2010. New leaders were elected who did not see the need for a relationship with the upstream communities, which has various interconnected explanations.

Firstly, the younger generation did not experience the battle for water in Licto. Alfonso Guamán explains:

"Muchos jóvenes con los que hablo no saben nada de nuestra lucha por el agua y la tierra. Sus padres lo han vivido, pero no hablan de ello con sus hijos. Es un tema doloroso." (interview, 30 September 2024)

Because the older generation finds it hard to talk about the battle for water, the younger generation does not realise how hard it was to even obtain water in the communities. With time, people have become used to the water that arrives at their fields. While most people from the older generation see the need to maintain a bond with the páramo communities, to ensure the

water flow to the system that they have battled so many years for, the younger generations (and, thus, the new leaders) do not feel this need. Rafael Ushca describes:

"Ha pasado mucho tiempo desde llegó el agua en Licto. Entonces, ellos piensan que el agua viene porque viene. El agua no viene porque viene, hay que cuidarla. Hay que dar vida al páramo para la produccion del agua." (interview, 10 October 2024)

A second explanation for why the younger generation may not see the importance of a bond with the upstream communities is that since the downstream communities have had access to water, the culture has become more individualised. With time, the production of smallholders has shifted from subsistence-oriented to more market-oriented and personal interests have become more important than the interests and needs of `the collective´, as we have seen in the previous chapter. For this reason, several reciprocal traditions, such as the relationship between the riverine communities, transformed. Water users nowadays believe a relationship with the páramo communities only costs them valuable resources, such as labour, money, or food, while it does not `benefit´ them. As the support base for the restoration of the bonds is rather low, new leaders decide to prioritise other themes, such as the maintenance of the irrigation system, to win or maintain support from the water users. Especially, since more and more leaders see the function as president of the irrigation organisation as a stepping stone towards a career in the parish or provincial politics (interview Bonilla, 8 October 2024). Even when leaders are open to restore the bond, they often choose to focus on other, in their opinion more acute, problems in their short time (two years) as a leader. At this moment, there is quite some distrust from the water users in the leaders due to money that disappeared in the irrigation organisation over the years. For this reason, it is hard to motivate the water users for a form of support to the páramo communities. Luz Maria Morocho, treasurer of the irrigation organisation, describes:

"Por el momento, existe mucha desconfianza por parte de los usuarios en el directorio, porque en años anteriores desaparecieron más o menos 9000 dólares en la organización. Intentamos restablecer esta confianza, pero los usuarios son cautelosos cada vez que se gasta dinero. Esto dificulta que los usuarios apoyen los gastos en materiales, crédito o maquinaria para las comunidades del páramo." (interview, 10 November 2024)

A fourth explanation is that the water users of the Guarguallá-Licto irrigation system have always had access to sufficient water as they are the only ones who draw water from the Guarguallá river. The system has a discharge of 1200 litres per second but initially, only 900 litres per second were used. This has become a bit more as the number of water users has increased, but it still suffices. In other places, water users often have to compete with other water users and uses for water due to which there is more awareness about the importance of the conservation of the páramo and a relation with its communities. The downstream communities of the Guarguallá-Licto irrigation system may have never felt the need to maintain a bond with the upstream communities as they never experienced competition over or pressure on water sources (interview Olazaval, 12 November 2024)

A fifth explanation is that most water users believe that the water can not be owned by ASARATY, which means there is no need to compensate the upstream communities for the conservation of the water sources. Instead, most water users believe that water is from everyone, or that it

belongs to the State or God. That water control can only be in the hands of the State, is in line with Article 1 of the 2014 National Water Law:

"Art. 1: Naturaleza jurídica. **Los recursos hídricos son parte del patrimonio natural del Estado y serán de su competencia exclusiva,** la misma que se ejercerá concurrentemente." (Ley Orgánica de Recursos Hídricos, Usos, y Aprovechamiento del Agua, 2014)

I believe this is an illustration of how via policies and laws, water control institutions, market-based mechanisms, infrastructures (such as state-owned irrigation systems), and discourses the state succeeds to influence smallholders' perceptions and beliefs and, in that manner, create `subjects´ for their vision of how water control should be ordered (Foucault, 2008). Other water users believe only God can decide whether water will arrive at their fields, making it a matter of faith. From a Foucauldian lens, this illustrates the power of Christianity as a "regime of Truth" which succeeds to influence people´s beliefs and convictions (Foucault, 2008). In contrast, Inés Chapi explains:

"Los nuevos líderes dicen: Por qué necesitamos las relaciones con las comunidades de arriba? El agua no es de ellos, sólo el Estado o Dios pueden controlar el agua. En cambio, yo siempre digo: Pero el páramo, si, es de ellos." (interview, 26 September 2024)

Angel Naula, former leader of ASARATY, adds:

"Hoy en día, dicen que el agua que llega a Licto es del Estado. Pero nosotros somos los dueños de la tierra de donde proviene el agua. La pagamos y somos los propietarios en los papeles. No es del Estado, es nuestra tierra y la cuidamos para que tengan agua." (interview, 20 October 2024)

Finally, the distance between the riverine communities does not make the relationship any easier. While communication has become easier due to mobile phones and the construction of a road between the communities, the physical distance between the communities remains far. It still takes around an hour and a half by car or motor and three hours by bus to travel between Licto and Guarguallá. While the families in the páramo visit the downstream areas to visit markets or stores, many people in Licto have never been to the páramo. Therefore, most water users have never seen the place where their water comes from or the work that ASARATY puts into the conservation of the páramo.

8.4 Frustration in the páramo communities

The lack of communication between the riverine communities, let alone some form of support, has caused frustration in the páramo. ASARATY experiences the bond with the downstream communities as one-sided and, therefore, unfair at the moment. Aurerio Guallán, who lives close to the páramo of Etén and Llullunpala on the other side of the river, describes:

"De hecho, es un poco como la esclavitud en el pasado. Hacemos todo el trabajo para preservar los recursos hídricos de los que se benefician, pero no recibimos nada a cambio. Entonces, cómo vamos a sobrevivir?" (interview, 24 November 2024)

Figure 23: Most people in the páramo of Guarguallá depend on cattle for their livelihoods (own picture)

While ASARATY has participated in several projects focused on páramo conservation, the communities in Llullunpala and Etén rejected participation in the SocioPáramo Program. While the communities would receive financial compensation now, the people are worried that the state will adjust the conditions of the project at some point due to which the communities would lose control over their territories. Nonetheless, Llullunpala and Etén decided to evict cattle in the páramo on their own initiative when the state of their páramo started to deteriorate. However, some families are frustrated because of this decision, as it has become harder to make an income from cattle production due to these measures (interview Guallán, 24 November 2024). In the páramo of Guarguallá, the members of ASARATY are frustrated for similar reasons. Most families used to live mostly from the production of cattle, but it has become prohibited to hold cattle in the páramo and produce in these areas. While the members receive some financial compensation from SocioPáramo, it can not provide subsistence. Angel Naula, former leader of ASARATY, explains:

"Tenemos que vigilar la zona protegida y enviar fotos e informes sobre el estado del páramo a MAATE. A cambio, recibimos 14.600 dólares al año, que se reparten entre los miembros de ASARATY, pero que también se utilizan para curar a las alpacas y conservar el páramo. Los miembros no activos no reciben una compensación, pero aún así, no queda mucho para cada familia. Lo utilizamos para comprar algo de comida, ganado y tierras." (interview, 20 October 2024)

Other sources the members used to receive income from have also been under pressure in the last decades. Women in the communities used to make products from the alpaca wool themselves from 1999 onwards, but this stopped in 2008 as the women simply had no time because of the work on the land. Since 2019, ASARATY has collaborated with other páramo communities to produce and sell alpaca products. Nonetheless, the cooperation faces financial problems and it has not been easy to make it profitable yet without the support of NGO World Vision (interview Tenegusñay, 17 October 2024). Furthermore, tourism in the area has dropped for several reasons. In the past, around 30 tourists a year used to visit the communities and the Sangay National Park. However, this number declined since the dollarisation in 2000. The COVID-19 pandemic, the activity of the Sangay volcano since 2021, and the current political situation in Ecuador (the declared `war´ between drug cartels and the state) have made the number of

tourists fall even further. For this reason, the páramo communities barely earn income from tourism these days (interview Agualsaca, 24 October 2024).

However, important to realise is that the frustration about the relationship between the riverine communities did not appear in the last decades, but is rooted deeper in history. For centuries, the indigenous families have lived in the harsh conditions of the páramo and experienced poverty, exploitation, and discrimination. So, the people in the páramo have never really felt recognised by or equal to others in society, also not in the relationship with the water users now it disappeared. For this reason, the families have started to lose motivation for the conservation of the páramo and want to be able to hold cattle in these areas, as in the past. Angel Copa, member of ASARATY, describes:

"Si en el futuro sigue sin haber algún tipo de relación, es posible que la gente vuelva a criar ganado en el páramo. Algunas personas ya están frustradas y se preguntan: ¿por qué conservamos el páramo? También debería haber un beneficio para nosotros, merecemos el reconocimiento de Licto y Cebadas. Estamos con tres sectores, deberíamos trabajar juntos." (interview, 26 October 2024)

While, until now, ASARATY has continued the conservation of the páramo, it is to be seen what will happen when a new relationship fails to be materialised and (former) leaders motivated about páramo conservation, such as Rafael Ushca, leave (Figure 24). Segundo Agualsaca, administrator of ASARATY, describes:

"Alrededor del 30 por ciento de los miembros son conscientes de la importancia de la conservación del páramo, otro 30 - 40 por ciento no sabe mucho al respecto, y al último 10 por ciento no le importa la conservación. Rafael Ushca tiene muchas relaciones con instituciones como ONG y el Estado, y está muy motivado y dedicado a la conservación del páramo. Él proyecta esta motivación en ASARATY, pero ASARATY no responde." (interview, 24 October 2024)

Figure 24: Rafael Ushca in the páramo of Guarguallá (own picture)

In turn, Rafael Ushca adds:

"Yo me dedico a cuidar el páramo, pero qué pasará cuando yo ya no esté? Seguirán cuidando del páramo o volverán a criar ganado en el páramo?" (interview, 10 October 2024)

8.5 Bonds between the riverine communities in the present

Luz Maria and Carlos, treasurer and secretary of the irrigation organisation, describe the dynamics between the riverine communities at the moment as follows:

"En este momento, no hay mucho contacto con las comunidades del páramo en Llullunpala, Etén o Guarguallá. Claro, siempre podemos ponernos en contacto cuando sea necesario, pero no

existe una relación real entre nosotros como usuarios del agua y cuidadores del páramo." (interview, 10 November 2024)

This implies that the future water flow to the irrigation system may be at risk. However, this risk does not come from the absence of a relationship alone, but also from the changing climate. Between September and December 2024, it rained less than usual in Ecuador. In the downstream areas, the smallholders became more dependent on irrigation to water their fields, and in the entire country, electricity was shut down for multiple hours a day as hydroelectrical plants could not function as usual. Hugo Olazaval, engineer of the Guarguallá-Licto irrigation system, explains:

"En Ecuador estamos sufriendo una gran sequía, la más fuerte de los últimos 60 años. Hemos tenido más sequías en los últimos años, pero nunca había experimentado una sequía como ésta. Es extraordinaria. Hace ya más de dos meses que se corta la electricidad durante varias horas al día porque las plantas hidroeléctricas no pueden funcionar debido a la falta de lluvia. Sin embargo, el lado positivo puede ser que la gente se ha concientizado más de la importancia del agua y de la conservación de las zonas de donde procede esta agua, el páramo. La gente está más motivada para proteger el páramo y hacer un uso más consciente del agua, lo que da lugar a nuevas oportunidades para el establecimiento de relaciones entre las comunidades de arriba y de abajo." (interview, 12 November 2024)

While the absence of rain caused several problems in the country, there may have also been a positive side to it. In the downstream communities of the Guarguallá River basin, this period has created more awareness about the importance of the conservation of the páramo. Until recently, the water users never had to worry about a decreased flow of water in their system. However, this period made the water users realise water sources are under pressure, and that this may become even more severe in the future. For this reason, I think this period contributed to a new `momentum´ for the bond between the riverine communities.

However, there have been some more moments in the past months that create hope for the restoration of the relationship between the páramo communities and the water users. For the first moment, we need to travel back in time to the countermap workshop with the Riverhood & River Commons project in 2023. In this workshop, academics, artists, leaders, and members of ASARATY and the irrigation organisation drew a countermap of the Guarguallá and Alao River basins. However, this countermap is not just a sketch of the landscape, it also represents the problems and frustrations of the communities in the basins. One of the issues that came to the surface in this workshop is the theme of this thesis: the transformed bond between the riverine communities. At the workshop, the water users promised the páramo communities to improve communication between them.

While a real bond between the riverine communities has not materialised in the meantime, there has been some more contact between the leaders in the past months. One of the main reasons for the contact between the leaders was the destroyed bridge in Guarguallá Chico. In the previous chapter, it was already briefly described how heavy rains between December 2023 and July 2024 damaged the bridge. For the restoration, ASARATY has asked for support from the provincial authorities in Chimborazo, the parish of Cebadas, and the irrigation organisation (interview Guallán, 24 November 2024). When the system was still under construction, the water users used this road for the transportation of materials and workers. Nowadays, this road is still

used by the irrigation organisation to reach the intake of the system when maintenance is needed (interview Chapi, 15 November 2024).

On October 20, the board of ASARATY visited the board of the irrigation organisation to ask the water users for support in the form of hands, materials, machinery, or money for the restoration. ASARATY´s leaders presented the study executed with the support of a candidate for the Provincial elections, which comprises the material needs, costs, and technical details of the restoration. Jaime Pintag, president of the irrigation organisation, promised the board of ASARATY to propose the study to the representatives of the communal committees before the end of October and to motivate them to provide some form of support. ASARATY emphasised that a tractor or cement was most needed at the moment, as the páramo communities in Guarguallá, Etén, and Llullunpala offered to do the work in mingas (field notes, 20 October 2024).

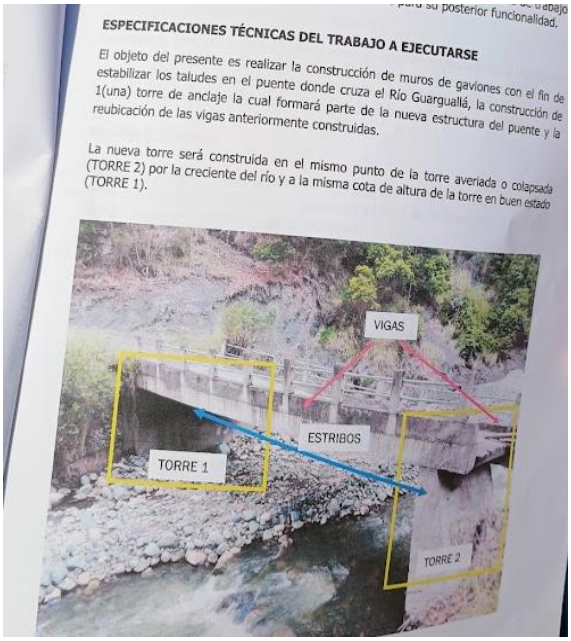

Figure 25: Study executed with the support of the former prefect of the Chimborazo Province for the restoration of the bridge in Guarguallá Chico (own picture)

However, ASARATY did not just visit the board to seek this one-time support. ASARATY also asked the board to think about how a more durable relationship between the riverine communities can take form. Rafael Ushca and Segundo Agualsaca, leaders of ASARATY, explained to the irrigation organisation´s board:

"ASARATY es el dueño de 7340 hectáreas de páramo. Llevamos 25 años conservándolo. Seguiremos haciéndolo porque todo el mundo necesita agua. La gente de las ciudades y del campo. Estamos preocupados por los usuarios, porque en estos momentos apenas hay agua en los ríos. Hicimos nuestro trabajo para conservar el páramo, pero no recibimos apoyo de ustedes. No estamos aquí sólo para pedirles apoyo con la restauración del puente, sino también a más largo plazo. Debemos colaborar, como usuarios del agua y cuidadores del páramo. Entonces, ¿adónde iremos? ¿Hacia delante o hacia atrás?" (field notes, 20 October 2024)

Consequently, ASARATY invited the board to visit the páramo. Jaime Pintag answered he had never seen the water sources of the irrigation system with his own eyes, and said `yes´ to the visit on November 10. In addition, the board promised to present the support plan for the restoration of the bridge on that day (field notes, 20 October 2024).

In the meantime, the plan for the restoration was debated with the representatives of the communal committees in the general assembly. However, not everyone was motivated to support ASARATY with the restoration. As Luz Maria Morocho, treasurer of the board, described in the previous subchapter, there is quite some distrust in the leaders at the moment due to the money that disappeared from the organisation in previous boards. For this reason, it is hard to find support for expenses destined to the support of the páramo communities, especially in the

form of money (interview, 10 November 2024). Eventually, the water users agreed to provide the cement needed for the restoration and to organise mingas to support the páramo communities with the work of the construction. Jaime, the president of the irrigation organisation, presented this plan to ASARATY´s members on 10 November:

"Antes de esta visita, nunca había visitado el páramo de Guarguallá. Dependemos del páramo para vivir, pero ¿de qué vive la gente del páramo? De casi nada. Ahora estamos aprendiendo un poco más de dónde viene nuestra agua, y por eso se lo agradezco. Debemos unirnos, como una familia. Sé que los líderes anteriores no tomaron la iniciativa en esto, pero yo soy un líder joven y me gustaría cambiar esto. No somos una organización con mucho dinero porque sólo recibimos tarifas volumétricas de los usuarios. Pero hemos discutido su estudio con los usuarios, y vamos a apoyarles con el cemento para la restauracion. Además, vamos a organizar mingas para ayudarles con la construcción. Quiero dar las gracias a Dios y a ustedes por darnos la vida." (field notes, 10 November 2024)

Figure 26: Jaime Pintag presenting the support plan to ASARATY´s members at the general assembly (own picture)

ASARATY responded thankful, but also pushed the board to think about a more durable form of support. Rafael Ushca, founder and former leader of ASARATY, proposed:

"Deberíamos llegar a un acuerdo sobre la relación entre nosotros, incluso para el futuro. En este momento, estamos con líderes que son simpatizantes del restablecimiento de la relación, pero deberíamos dejar constancia del acuerdo en un documento para que los líderes venideros también lo sigan." (field notes, 10 November 2024)

Rafael Ushca described that ASARATY could use support from the water users to realise communal projects such as the construction of a road to Yurac Rumi. The president responded that he needed to discuss this with the water users, but that he would stay in touch with ASARATY´s leaders about the matter.

I believe that on this day, the first seed, or real hope, was planted for a renewed relationship between the riverine communities. It was the first time that the current board visited the páramo, to see where the water on which the water users depend comes from. Furthermore, it was the first time in a while that the water users provided some form of support to ASARATY and that the leaders brainstormed about how a more permanent bond could take form. However, it remains to be seen whether the words of the leaders can be translated into action. While the leaders seem to be open to restore the relationship, it remains to be seen whether the water

users can be motivated and an accord about a more permanent relationship can be reached between the (new) leaders. ASARATY´s new board will namely start from January 2025 onwards.

In the meantime, former leaders such as Inés Chapi and Rosa Guamán continue to motivate the leaders and water users about the importance of the system they have and, therefore, the bond with the páramo communities. These leaders have lived the battle for water and continue to battle for the project that the communities have worked so hard for. José Manuel Chafla, former community leader in Licto, explains:

"Es realmente importante no olvidar el sistema de riego. Utilizar el agua como tenemos que utilizarla. Tener relaciones entre comunidades. Compartir nuestras necesidades e historias. Para no desvalorizar el proyecto que tenemos." (interview, 15 October 2024)

Figure 27: The board of the irrigation organisation visiting the páramo in Guarguallá (own picture)

8.6 Conclusions

In this chapter, the bonds between the upstream and downstream communities of the Guarguallá River basin were explored. In the past, the riverine communities established bonds rooted in Andean understandings of reciprocity. Already before the construction of the irrigation organisation, the downstream communities took their cattle to the páramo in return for products like maize, wheat, beans, and barley. When the dreams of the downstream communities finally started to materialise, NGO CESA stimulated the future water users to establish bonds with the páramo communities. In turn, the leaders at the time motivated the water users to collect products such as maize, barley, wheat, and beans for the families and to participate in the mingas that were organised in the páramo. Via this support, the water users hoped to ensure a stable water flow to the Guarguallá-Licto irrigation system. However, the bond between the riverine communities transformed over time for various interconnected reasons. Over the last two decades, ASARATY has experienced the relationship as one-sided as communication and support between the communities faded. Nonetheless, there have been some moments that create new hope for a bond between the upstream and downstream communities. While there is hope, there are also some hurdles to overcome before a more permanent relationship can be materialised.

Chapter nine: A Riverine Reciprocity Route in the Guarguallá River basin

"Deberíamos socializarnos y cuidarnos el sistema con todas las comunidades. Valorar el proyecto que nos tenemos. El agua no viene porque viene, ha costado trabajo. Por lo tanto, tenemos que agradecer a las personas que nos ayudaron a realizar este proyecto. Ser humanos. No estamos solos como los usuarios."

José Manuel Chafla (interview, 15 October 2024)

Since a few months, there may have opened up a `window of opportunity´ for a new bond between the riverine communities of the Guarguallá River basin. While there are some obstacles to overcome, the awareness about the importance of the conservation of the páramo and, therefore, a bond with the communities, has risen between the leaders, which creates hope. However, a question which then appears is: how can a new, equitable bond take form to secure the future water flow to the system and the sustainable livelihoods of the riverine communities? In this chapter, the first idea for a riverine reciprocity route is sketched based on the ideas, wishes, and needs of the people in the basin. It is not a direct route, but one with various levels and elements. We start with the foundation: the social bond between the leaders, and then move to the more `concrete´ part of the relationship: a form of support from the water users to the páramo communities. Finally, the last element, the Riverine Walk, has an educational purpose and intends to address the deeper roots of why the bonds between the communities have transformed, to ensure it will be sustained in the future.

9.1 The Foundation of the Route

Because most water users have never been to the páramo, met the families, and seen the work done to conserve the water sources, the communities barely know about each other´s lives and histories, which makes it harder to motivate a relationship. For this reason, the first step towards a new relationship between the riverine communities is socialisation via reunions and visits between, to start with, the leaders of the organisations. Inés Chapi, former community leader in Licto, explains:

"La mayoría de los usuarios del agua desconocen la historia y la vida de las comunidades del páramo. Por lo tanto, deberíamos organizar visitas y reuniones entre nuestras comunidades para restablecer el diálogo. De esta manera, podemos conocer los problemas y necesidades de los demás y avanzar a partir de allí." (interview, 26 September 2024)

As she describes, socialisation between the water users and páramo communities can increase awareness of each other´s histories and lives and enable the riverine communities to share frustrations, needs, and problems with each other. While there was barely any contact between the riverine communities for some years, the first steps have been made to improve communication between the leaders of the organisations. In 2023, the previous board, under the presidency of Galo Bonilla, visited the páramo in Guarguallá and in 2024, the current board under the presidency of Jaime Pintag, did the same. The workshops with Riverhood & River Commons were another moment for the leaders to socialise and learn more about each other´s problems, frustrations, needs, and wishes. In the last workshop on `Water Governance and Future Leadership´, it appeared that the riverine communities face several similar challenges, related to the loss of communal cohesion and traditions, the migration of the younger generations, environmental and health problems due to the use of chemical fertilisers and

pesticides, political clientelism, and the influence of climate change on water provision and agricultural production. The workshops, therefore, also created a space in which differences were overcome, and instead, the participants brainstormed about potential solutions to the problems that the riverine communities both face.

While socialisation can be seen as a first step to foster communication, it is of importance that the contact does not disappear once new leaders are elected after two years. History has proven that some leaders are more open and motivated to maintain a relationship between the communities than others, which makes it key to come to written accords once decisions have been made. One of the decisions could be: when a new board is elected in one of the organisations, the new leaders should visit the other organisation to socialise and learn more about the histories and realities of the communities.

While written accords will be essential, there is also a need for a transformation in people´s mindset on how the riverine communities are related to each other. Instead of two separate, unrelated, entities, the upstream and downstream communities can also be seen as part of one and the same system, who support each other when needed. Marco Moreano, administrator of the irrigation organisation, describes:

"Es importante y valorosa, tener una relación entre las comunidades. Solitos somos nada. Es mejor estar unidos para cualquier cosa. Estar unidos es parte de ser humano. Tampoco puedes hacer nada sin tus amigos o tu familia. Entonces, como podemos revitalizar las relaciones entre las comunidades? En mi opinion, las comunidades del Llullunpala, Etén y Guarguallá ya son parte del sistema nuestra. Cuando todos de nosotros son parte del mismo sistema, tendrá mucho mas compañerismo. Si necesitan una cosa en el páramo, pueden pedir ayuda. Entonces nos reunimos y vemos cómo podemos apoyar. De este modo, nos beneficiamos todos." (interview, 14 October 2024)

Figure 28: Support between community members in the páramo of Guarguallá (own picture)

However, this asks for a switch in the perspective of, especially, the younger generations in the downstream communities, which is not easy. In 9.3, the idea of a Riverine Walk as a School for Future Leaders is outlined which hopes to address the deeper roots of why the bonds between the riverine communities have disappeared.

9.2 A Reciprocal Kind of Bond: Materials, Hands, and Machinery

Now the importance of a social bond between the leaders of the riverine communities has been determined as the foundation of the route, we move to the second element: a `concrete´ form of support from the water users to the páramo communities. ASARATY has experienced the bond with the water users as asymmetrical over the last two decades, because the members have not received compensation for the conservation of the páramo and, thus, the water sources on which the water users depend. For the relationship to become equitable, the páramo

communities want some kind of support from the water users. How do the páramo communities envision this bond? Alberto Chuto, secretary of ASARATY, describes:

"No queremos dinero, solo reconocimiento y apoyo en forma de manos, máquinas y materiales para proyectos en nuestras comunidades." (interview, 18 October 2024)

In conversations with members of ASARATY, almost everyone responded with a similar answer as Alberto Chuto. Angel Copa, member of ASARATY, described:

"Lo que necesitamos son manos, maquinaria y materiales para la realización de ciertos proyectos en nuestras comunidades. Por ejemplo, hay un sector que aún no tiene acceso al agua en sus terrenos. Así que los usuarios de agua podrían apoyarnos con, digamos, 4000 tuberías que podrían dividirse entre estas familias, para que también tengan acceso al agua. Esta forma de apoyo podría suponer un poco de progreso y mejores oportunidades de producción para las familias." (interview, 26 October 2024)

Figure 29: The Guarguallá River basin (own picture)

First and foremost, the páramo communities want more recognition from the water users for their efforts to conserve the páramo. While this can be expressed in a verbal manner, the families also hope the water users can provide support in the form of machinery, materials, or hands to realise certain projects in the communities that would enable the families to improve agricultural production and, therefore, their livelihoods. A little side note to the story, but I believe this also illustrates well how the never-ending dream for `modernisation´ and `development´ has trickled down in the páramo communities.

Inés Chapi, former community leader in Licto, understands the families want this support, but she is also a bit hesitant about some of the projects the communities hope to materialise. Rafael Ushca, founder and former leader of ASARATY, mentioned the construction of a road to Yurac Rumi, but Inés is afraid this will lead to the expansion of the agricultural frontier to this area. She explains this also happened in Etén, where the water users supported the communities with the construction of a new road with materials and mingas. However, once the project was finished, the road was used to create new fields in the areas. Eventually, this put pressure on the conservation of the páramo, which was the opposite of what the water users wanted. For this

reason, she thinks it may be a better idea to only provide support for the improvement or restoration of roads that already exist and not for the construction of new ones (interview, 15 November 2024). In other words, the conditions of the support still need to be negotiated within and between the organisations.

Since the presidency of Galo Bonilla, the idea of a `water fund´ between the riverine communities has been proposed several times. Inés Chapi, former community leader in Licto, explains the annual fee to the irrigation organisation, which depends on the number of hectares a water user owns, could be increased by one dollar per hectare. In this manner, the water users create a fund that the upstream communities can use for the conservation of the páramo or the realisation of communal projects. Nonetheless, until today, this plan has never been materialised because of various difficulties. First and foremost, there is not a lot of support for this plan from the water users because of the distrust in the organisation´s financial administration nowadays (interview Morocho & Yupa, 10 November 2024). Furthermore, there are also some doubts in the páramo on the idea of monetary support:

"Nos no queremos apoyo economico, porque el dinero puede traer problemas. Verás, un líder cogió dinero pero dice no tiene dinero. O, alguien dice: A mi no me dieron dinero. No, causaría muchos problemas." (interview Ushca, 10 October 2024)

Some people are worried financial support will stir up self-interest in members and leaders, at the expense of altruistic actions and objectives. So, while over the years various reciprocal bonds have become commoditised in the riverine communities and not everyone completely rejects the idea of a financial relationship, this implies that more `traditional´ forms of support are preferred in this case. Interestingly, the mentality is different in the Alao River basin, which springs in the same páramo as the Guarguallá River. Since 2017, the municipality of Riobamba has worked on a water transfer between the Maguazo River and Riobamba to improve the supply of drinking water to the city. After more than seven years of problems and delays, the water finally flows to Riobamba. To incentivise the communities for the conservation of the páramo, the municipality created a financial mechanism via which the downstream water users compensate the upstream communities. So, while the proposed relationship between the riverine communities in the Guarguallá River basin is more based on traditional reciprocal norms, the bond between Riobamba and the páramo communities of the Alao River basin has been commoditised (interview Gonzalez, 8 October 2024). Alfonso Guamán, former leader in Licto, explains the differences between the mindset in the countryside and the city:

"En las comunidades andinas, en nuestra cultura, el maki manachi era indispensable. Por eso, la relación entre nosotros y las comunidades en Guarguallá se basaba en la reciprocidad. Pero en la ciudad, cada uno trabaja para sí mismo. Hay una mentalidad diferente. Por lo tanto, la relación entre Alao y Riobamba es incomparable con la situación aqui." (interview, 30 September 2024)

9.3 A Riverine Walk as a School for Future Leaders

The outline of a riverine reciprocity route in the Guarguallá River basin slowly starts to appear, but there is a key element that still misses: the deeper roots of the disappearance of the relationship between the riverine communities. How can these be addressed to ensure the bond will be maintained in the future?

In Licto, former leaders Inés Chapi, Rosa Guamán, and Alfonso Guamán, proposed the idea of a School for Future Leaders. It appears that this idea has been around for some time and has even been translated into an actual proposal by Susana Zavala (2023) in her master´s thesis, but has not yet been materialised by the leaders of the organisation. The School for Future Leaders intends to address problems the communities have experienced since the construction of the Guarguallá-Licto irrigation system, such as individualisation, the loss of communal traditions, the overuse of chemical fertilisers and pesticides, political clientelism, migration of the younger generation, and the disappearance of the relationship with the páramo communities. Rosa Guamán, former community leader in Licto, emphasises the importance of such an initiative:

"No hay acercamiento entre las comunidades, por eso necesitamos talleres y encuentras. Casi siempre, sólo pensamos en el ague y en nuestros propios intereses. Pero tambien necesitamos pensar en el medio ambiente, la comunidad, la agricultura orgánica." (interview, 28 September 2024)

At some moment, the idea arose to combine this School for Future Leaders with a route between the upstream and downstream communities of the Guarguallá River basin, to enhance the educational experience and literally (re)connect the riverine communities. The Riverine Walk intends to train and educate the participants on political, cultural, environmental, and historical themes. The Riverine Walk is oriented towards individuals from the upstream and downstream communities between 18 and 40 years old, as this incorporates the younger generations and, thus, the potential future leaders of the organisations. However, participation is open to other individuals from the communities who demonstrate interest and motivation to participate. In small cohorts of five to ten individuals, the participants walk the route between the upstream and downstream communities in a (to be decided) number of days. On the route, participants learn more about the histories, battles, and cultural traditions in the riverine communities via stories, (audio)visuals, and activities in various modules. Some elements are separate for the upstream and downstream communities, while others are common and intended to foster the ties between them. In the parts to come, some ideas for the educational content of the Riverine Walk are described based on the visions of the communities and Zavala (2023). Important to note is that this proposal is not complete and needs to be further developed by the riverine communities.

The first (common) module of the Riverine Walk aims to raise ***historical awareness*** of the battles for water and land in the riverine communities. In the downstream communities, participants listen to stories and memories about life in Licto before the Guarguallá-Licto irrigation system, the battles for land and water, and the transformation of the landscape and communal culture since the construction. In the upstream communities, participants listen to stories and memories about the battle for land in the communities, the establishment of ASARATY, and the conservation of the páramo. The stories can be complemented with (audio)visual materials and activities related to the themes, such as the documentary `The Right to Be Different: Struggle for Water and Identity in the Andes´ about the battle for water in Licto and a field visit to the páramo to better understand what ASARATY does to conserve the water sources. The idea behind this module is to raise awareness about the histories of the riverine communities and the true value of water, especially among the younger generations.

The second (common) module of the Riverine Walk focuses on ***cultural education*** to preserve and value reciprocal traditions and, therefore, communal identities. Communal traditions such as the pambamesa, rituals around the harvest, and maki manachi have been transformed over time. For this reason, participants can experience a traditional pambamesa or other communal ritual and maki manachi in the Riverine Walk. The idea of this part of the school is to foster awareness and appreciation of local beliefs and traditions, even as the ties between the water users.

The third (common) module of the Riverine Walk focuses on ***environmental and agricultural education.*** In the upstream and downstream communities, the overexploitation of the land and the use of chemical fertilisers and pesticides has increased, with consequences for the environment and people´s health. For this reason, this module revolves around the importance of good agricultural practices for the peasant of today, but also for the generations to come. In a dialogue of knowledge, smallholders can share their know-how on traditional agricultural practices with each other. In addition, scientists and professionals are present to share their know-how on sustainable agriculture with the participants. Another activity is a lecture on the use of fertilisers and pesticides. Smallholders will learn more about the proper use and impacts of chemical fertilisers and pesticides on the environment and people´s health. But also, about the opportunities of organic fertilisers.

Figure 30: the Guarguallá-Licto irrigation system (own picture)

The fourth and final (separate) module of the Riverine Walk focuses on ***political education*** about the structure, statutes, and regulations of the communal organisations. In separate lectures, the statutes and internal regulations of the organisations are debated with the participants. Furthermore, in the downstream communities, the organisation of water shifts and the land register are explained, since many water users do not respect or know about the functioning of these systems, which results in tensions (interview Chapi, 15 November 2024). Another element of this module could focus on national water policies and `political clientelism´, which both communities experience, but the precise content should be further developed.

While the Riverine Walk, first and foremost, has an educational purpose for the members of the communities themselves, it can be an idea to invite a cohort of interested national, provincial, and local politicians and critical (inter)national academics and students to experience the route, to demonstrate how alternative `living with the river´ assemblages are defined, lived, and produced in the Andes.

9.4 Conclusions

In this chapter, the first outline for a riverine reciprocity route in the Guarguallá River basin has been discussed. It is a route with various elements: some are direct and prioritised in the short term, while others are more indirect and require some time to materialise. The foundation of the route consists of the social relationship between the riverine communities, which can be

created via socialisation and communication between leaders in the short term. Then, also wished for in the short term, is direct support in the form of materials, machinery, or hands from the water users to the páramo communities. However, to ensure the bond will not disappear in the future it is key to address the deeper roots of the disappearance of the bonds even as broader issues the communities face, which is the reason behind the Riverine Walk between the upstream and downstream communities. In diverse modules, it intends to educate and train future leaders of the communities.

Chapter ten: Discussion

In the last decades, there have been several critical studies on the impacts of PES on nature conservation, rural development, and poverty alleviation. Some of them even focus on Ecuador (see Joslin, 2019; Rodríguez de Francisco & Boelens, 2016; Duarte-Abadía et al., 2023). This literature illustrates how PES mechanisms often include poorly compensated land-use limitations for smallholders, transform local cultural and political norms and practices on water control, and enable `business as usual´ to continue. While these studies are much needed, there have not been many studies on local alternative `living with the river´ assemblages to ensure the conservation of water sources and sustainable livelihoods of the people in the basin. I believe the riverine communities in the Guarguallá River basin demonstrate that these alternative imaginaries are out there. In this chapter, I intend to illuminate the dynamics in the Guarguallá River basin via a conceptual reflection on the practices and developments in the riverine communities as described in this thesis.

10.1 Reciprocal norms and traditions in a neoliberal world

In the riverine communities of the Guarguallá River basin, reciprocal norms and practices have been the foundations of the normative frameworks that characterise social relationships. Reciprocity, therefore, relates to the cultural dimension of water justice as it has been embedded in the social and cultural rules and practices of communal organisation for decades. However, it closely interrelates with the other three dimensions of water justice. Reciprocal traditions have been indispensable in the sustenance of livelihoods and enabled a balanced relationship with the environment. Furthermore, the definitions of the practices are the outcomes of communal processes instead of imposed by other societal actors.

Nonetheless, in these manners, reciprocal traditions in the Andes have also been romanticised in academic literature and political discourses in the last decades (Walsh-Dilley, 2017). While indigenous people used to be considered `backwards´ in feudal and colonial days, communal culture in the Andes has become positioned as a potential alternative to capitalist forms of organisation and models for how reforms can be realised more recently (Fabricant, 2013). However, such `romanticised´ historical memories do not reflect the rich diversity, dynamism, and contested nature of these cultural norms and practices in the Andes. I sincerely hope this thesis demonstrates a more complete representation of reciprocal norms and practices in the Andes.

Because, first and foremost, reciprocal relationships can be exploitative and should therefore not be romanticised. When we travel back in time, Incan colonisers used reciprocal norms and practices to extract labour and tributaries from the indigenous population. Spanish colonisers and mestizo elites later (re)appropriated these norms and practices to continue this exploitation in the riverine communities. Baud (1993) also describes reciprocity as a `double-edged sword´ which, on the one hand, has been used by colonisers and local elites for the justification of the exploitation of indigenous people but, on the other hand, has been indispensable for the sustenance of livelihoods and used by the poor to remind elites of their redistributive responsibilities to the collective (p. 196).

Furthermore, the riverine communities in the Guarguallá River basin demonstrate how the political and moral definitions of reciprocal practices are continuously (re)debated and

(re)affirmed within the collectives. What is considered equitable is very particular to a certain time and place, it has transformed over the years and differs even between the riverine communities. In other words, communal norms and practices are continuously contested, and far from frozen in time and space. Nonetheless, communal systems are the outcomes of communal democratic political processes and can, therefore, be considered more just as compared to the depersonalised and decontextualised relationships (fees and taxes) in market-based water allocations and state-owned systems (Boelens, 2015).

So, reciprocal norms and practices are under continuous transformation. In this thesis, the focus has mostly been on the transformation of communal culture in the Andes in the last decades under the influence of neoliberalism. Via irrigation infrastructure, páramo conservation projects, the market, education, laws and policies, and the media, neoliberal ideas, norms, and values have trickled down in the riverine communities. Reciprocal relations have been replaced by commodified forms of interaction, the mentality of the smallholders has become more market-oriented instead of subsistence-oriented, and the continuous wish for development and modernisation has been adopted and internalised. Because of these developments, the relationship with the environment has altered and the culture has become more individualised, with the transformation of communal norms and traditions as a result. When Foucault (2008) refers to the creation of subjects that come to think, decide, and act in line with neoliberal ideas, norms, and values, due to which they eventually become `normalised´, this is what he means. It is not one actor that spreads this world vision, but diverse actors on diverse levels, which has made it so influential.

I realise that these developments are not particular to the Guarguallá River basin but, instead, reflect broader national and international trends. In more and more places, there are concerns about the environmental and health impacts of current ways of production and the future of smallholders. Prices for inputs such as seeds and fertilisers rise and can not be compensated by the prices received for primary produce on the market. One of the most important consequences is that younger generations migrate to cities and other countries in search of better opportunities. In this manner, the countryside desertifies. How to (re)create opportunities for the younger generations in rural areas is, therefore, not just a concern in the Guarguallá River basin, but an issue in more places around the world. The migration of the younger generations also contributes to the transformation of communal traditions, which transform when not performed anymore. Baud (2018) raises how this asks for a revision of traditional understandings of reciprocity, respect and confianza in the Andes. Is it possible to maintain confianza relations without spatial proximity and, thus, via social media and (video)calls? What happens to confianza when reciprocal relations become commoditised (remittances, paid work)? Can someone remain a rightful member of the community when he or she lives elsewhere?

Despite their transformation, reciprocal norms and practices continue to be fundamental in the Andes to this day. Reciprocal norms and practices enable the riverine communities to organise their communal spaces, to access materials and resources on broader levels, and to maintain a collective sense of identity. Walsh-Dilley (2017) also describes how reciprocal norms and practices form an important resource with which the riverine communities respond to the cultural, social, economic, and political forces and power structures that impact them in diverse manners in our contemporary world. In other words, these cultural expressions enable them to

develop processes of community (re)territorialisation in the context of territorialisation efforts by others.

10.2 A New Bond between the Riverine Communities

Also the relationship between the riverine communities in the Guarguallá River basin used to be based on reciprocal norms and practices. The relationship used to be experienced as fair and rather symmetrical, but the power imbalances between the upstream and downstream communities have become wider since the construction of the irrigation system. The downstream communities have been able to increase production and improve their livelihoods since the arrival of irrigation water, while the upstream communities feel left behind. Since the communication and support from the water users to the páramo communities disappeared, the bonds have been experienced as unfair by the páramo communities. The relationship transformed due to various interconnected reasons, such as the withdrawal of CESA, the election of new leaders, and the loss of collective memories about the battle for water in Licto. Eventually, it comes down to how other reciprocal practices also transformed in the riverine communities: the influence of neoliberal ideas, norms, and values. Once the Guarguallá-Licto irrigation system was constructed, the mindset of the smallholders in the downstream areas started to become more market-oriented instead of subsistence-oriented, and the culture became more individualised. Consequently, communal norms and traditions transformed, which was reflected in the leadership of new leaders, who did not maintain the bonds with the páramo communities anymore. As the water users never had to worry about water insecurity until now, the `need´ for the bond was also never really experienced by the younger generation, who did not `live´ the battle for water in Licto as former leaders did.

In the last months, there may have opened up a `momentum´ for the restoration of the relationships between the riverine communities due to the unusual period without rain and the new contact between the leaders since the workshops and the destruction of the road in the páramo. The Junta General de los Usuarios del Sistema de Riego Guarguallá-Licto promised material and manual support to ASARATY with the construction of the road and the leaders opened up the conversation about a more sustainable form of support. What interested me, is whether a new relationship would also be influenced by neoliberal ideas, norms and values or whether the riverine communities would still envision it based on traditional reciprocal practices. Notably, ASARATY is open to a monetary relationship with the state to compensate them for the conservation of the páramo but prefers more traditional forms of support from the downstream water users. This implies that the relationship with the state is based on another logic than the relationship with the downstream communities. With the state, a more decontextualised and depersonalised relationship is accepted while with the water users, the personal and symbolic dimension of the relationship seems to be key. The idea of a `water fund´ has been debated in the riverine communities, but there is a concern that financial compensation would `depersonalise´ the relationship and stir up self-interest. The páramo communities mainly value a bond with the water users as a gesture of recognition, which implies there is more than material interest in the relationship. This takes us back to confianza, one of the core elements in reciprocal relations, which refers to the emotional and moral parts of the bond. Baud (2018) describes: "We need other people, but we need them in complex and often multiple ways" (p. 6). While material interest can be one of the motivations for a reciprocal relationship, the riverine communities demonstrate that it is also about respect, loyalty, and friendship in the Andes.

Based on the ideas of the riverine communities, the first outline of a `riverine reciprocity route´ has been created. It consists of three elements: a social bond between leaders, support in the form of materials, machinery, and hands from the water users to ASARATY in return for the conservation of the páramo, and a Riverine Walk as a School for Future Leaders. With the last element, the route also intends to address the deeper roots of the transformation of the bonds between the riverine communities even as broader issues they face. While there may be a `momentum´ for the relationship to materialise, it remains to be seen whether the hopeful words of the leaders can be translated into action. The most important doubt is whether the water users can be motivated for the restoration of the bonds with the páramo communities, which proves hard in a culture where personal interests have come to dominate over the interests of the collective. Another factor which complicates the matter is the distrust of the water users in the board of the organisation due to financial problems in the past, which makes it hard to find support for expenses related to the bond with the páramo communities. Consequently, leaders decide to prioritise other themes in an attempt to restore this trust and win support from the water users. Furthermore, once the motivation is there, it is not probable that the riverine communities will realise these initiatives without motivation and support from other institutions, which means alliances have to be formed with NGOs, universities, and GADs. However, in the end, it should become a sustainable community-led initiative that can be maintained without the (financial) support from other actors. How? That still needs to be explored.

While it is an ambitious plan, this riverine reciprocity route, and not without its obstacles, it is a relationship rooted in place-based histories and realities. This riverine reciprocity route is based on the cultural norms and traditions of the communities, which corresponds to the cultural dimension of justice, and the outcome of the political process within and between the communal organisations, which corresponds to the political dimension. The route can contribute to a more equitable relationship between the upstream and downstream communities as the páramo communities continue the conservation of the water sources and receive support from the water users in return, which corresponds to the socioeconomic dimension of justice. Finally, once materialised, the route can incentivise the conservation of the páramo and, therefore, secure the future water flow to the Guarguallá-Licto irrigation system for current and future generations, which corresponds to ecological justice. This route is no replacement for other forms of support the páramo communities receive for the conservation of the páramo from, for example, the state, but should be considered a separate relationship between the riverine communities, to valorise social bonds.

10.3 Riverine Reciprocity Routes: A New Conceptualisation of Relationships between Riverine Communities in the Andes

In this thesis, the notion of `riverine reciprocity routes´ has been developed as a tool to explore potential ways to restore the bond between the upstream and downstream communities of the Guarguallá River basin. The notion understands rivers as systems that are envisioned, lived, defined, and produced in diverse manners. Which vision becomes materialised depends on the power dynamics between the actors who operate in the basin. One of the contributions of this concept is, therefore, that it helps us to understand how the waterscape and its related culture have transformed over time because of diverse economic, social, cultural, and political developments and broader discourses and power structures. In this manner, it enables us to

unravel how the neoliberal world vision trickles down and transforms the riverine communities, but also how these are used and resisted.

While market-based watershed conservation mechanisms have become the dominant mechanisms to establish relationships between upstream and downstream communities in most river basins, this notion enables us to explore how alternative ways of `living with the river´ have been materialised in the past, exist in the present, and are envisioned for the future. The riverine communities in the Guarguallá River basin demonstrate how, in this context, reciprocal norms and practices form a more suitable basis for a relationship than a financial compensation mechanism, which does not correspond to their realities. The riverine reciprocity route is based on the needs and wishes of the riverine communities, which means it can contribute to context-relevant, sustainable, and equitable water management in the Guarguallá River basin and demonstrate that, sometimes, there are local alternative mechanisms better suited to the context than PES. Should these diverse cultural expressions not be valued and maintained?

10.4 A Future Research Outlook

The objective of this thesis has been to provide a first outline of a riverine reciprocity route in the Guarguallá River basin. However, the focus has mostly been on the relationship between the water users in Licto and the páramo communities in Guarguallá, while the water also comes from the páramo in Llullunpala and Etén. This means the needs and wishes of the páramo communities in Llullunpala and Etén are not included in this `riverine reciprocity route´, while they do deserve to be included. It can, therefore, be an idea to invite BSc and MSc students to dive into the relationship between the water users and the communities in Llullunpala and Etén, even as their visions on how the bond can be restored. In this manner, the riverine reciprocity route as outlined can be made more complete and inclusive for the entire river basin. Furthermore, interested BSc and MSc students can also be invited to further develop the educational content of the final element of the route: the Riverine Walk as the School for Future Leaders. Consequently, a plan for the materialisation of this initiative can be made with potential support from locally-active institutions such as WUR, ESPOCH, and CAMAREN.

Finally, there are several other river basins in the Ecuadorian Andes where the relationships between the upstream and downstream communities have disappeared over time. This thesis has been the first endeavour to explore the notion of `riverine reciprocity routes´ in the context of the Guarguallá River basin, but future research could explore whether and how a `riverine reciprocity route´ is envisioned or materialised in other river basins in Ecuador. Once it appears there are opportunities for this notion in other river basins, future research could document these stories so other riverine communities, politicians, and academics can learn from these examples about how alternative `living with the river´ assemblages are defined, lived, and produced.

Conclusion

This thesis has illustrated how reciprocal norms and practices have been rooted in communal culture and identities and enabled a balanced relationship with the environment, the sustenance of livelihoods, and communal organisation in the Guarguallá River basin. Nonetheless, reciprocal norms and practices have also been exploitative and used to extract labour and resources from the poor to the elites since Incan and Spanish colonisation. While reciprocal norms and practices should therefore not be romanticised, both symmetrical and asymmetrical reciprocity have contributed to the sustenance and formation of communities in the Andes over time.

The relationship between the riverine communities also used to be based on reciprocal norms and practices. Upstream communities took care of the cattle from the downstream communities in return for products such as maize, wheat, and barley, which contributed to the sustenance of livelihoods. Later, when the Guarguallá-Licto irrigation system started to materialise, the future water users supported the páramo communities in collective work parties and with food, in return for the conservation of the páramo. In this manner, the water users hoped to ensure a sustainable water flow to the Guarguallá-Licto irrigation system and the livelihoods of the smallholders in the basin.

Nonetheless, over time, the relationship between the riverine communities has transformed due to diverse interconnected reasons, which eventually come down to the influence of neoliberal norms, values, and ideas in the basin. Via the irrigation system, páramo conservation projects, the market, education, media, laws and policies, the principles on which this worldview is based (commodification, competitive markets, modernisation, and economic development) trickled down in the riverine communities and led to individualisation, the loss of communal traditions, and the transformation of the relationship with the environment. Nonetheless, until now, reciprocal norms and traditions remain of importance in the riverine communities of the Guarguallá River basin and are used to preserve communal culture and identities, organise communal spaces, and access materials and resources from other societal actors on broader levels.

While there are obstacles to overcome, there may be a `window of opportunity´ for the restoration of the relationship between the upstream and downstream communities of the riverine communities. The riverine reciprocity route as envisioned consists of three elements and is based on the ideas, needs, and wishes of the riverine communities. The first, fundamental, element of the route is a stable social bond between the leaders of the communities, the second element is a direct form of support from the water users to the páramo communities in the form of materials, machinery, and hands, in return for the conservation of the páramo. The third and final element of the route is the Riverine Walk, which has an educational purpose and literally intends to (re)connect the riverine communities. The Riverine Walk seeks to address the deeper roots of the disappearance of the bond between the communities even as broader issues they face, to ensure the bond will be maintained in the long-term.

While most watershed conservation mechanisms are based on PES nowadays, we have seen that such a depersonalised and decontextualised form of interaction does not correspond to the realities of the riverine communities. In a relationship between the riverine communities, the personal and symbolic element seems to be crucial. The route is rooted in place-based cultures and histories and can be seen as the outcome of a communal political process. This implies the

`riverine reciprocity route´ as outlined in this thesis can contribute to more context-relevant, sustainable, and equitable water governance in the Guarguallá River basin as compared to dominant watershed conservation mechanisms, and demonstrate how alternative `living with the river´ assemblages can take form.

Figure 31: Licto´s communal festivities in June (picture by Sanne Kroezen)

References

ASARATY. (2016). Estatutos.

ASARATY. (2023). Reglamento interno.

Baud, M. (1993) Indiaans overleven in de Andes, in: Campesinos: Kleine boeren in Latijns-Amerika, vanaf 1520. Amsterdam: Thela.

Baud, M. (1997). In de Schaduw van de Bosrand: Over de dekolonisatie van de Latijns-Amerikaanse geschiedenis. Leiden: Oratie Rijksuniversiteit Leiden.

Baud, M. (2018). Confianza: Governance and trust in Latin America and the Netherlands. Amsterdam: Valedictory lecture, University of Amsterdam.

Bernhard, M.H. & Kubik, J. (2014). Twenty Years After Communism: The Politics of Memory and Commemoration. Oxford University Press.

Boelens, R. & Hoogendam, P. (2002). Recipes and resistance. Peasants' rights building and empowerment in the Licto Irrigation System, Ecuador. In: ´Water rights and watersheds. Managing multiple water uses and strengthening stakeholder platforms´. R. Boelens, Dourojeanni, A., Durán, A. & Hoogendam, P. (eds). *Water rights and Empowerment,* pp. 110 – 143. Assen: Van Gorcum.

Boelens, R. & Gelles, P.H. (2005). Cultural Politics, Communal Resistance and Identity in Andean Irrigation Development. Bulletin of Latin American Research, 24(3), pp. 311–327. doi: http://dx.doi.org/10.1111/j.0261-3050.2005.00137.x

Boelens, R. (2008). Water rights arenas in the Andes: Upscaling networks to strengthen local water control. Water Alternatives, 1(1), pp. 48–65

Boelens, R. (2014). Cultural politics and the hydrosocial cycle: Water, power and identity in the Andean highlands. Geoforum, 57, pp. 234-247. doi: https://doi.org/10.1016/j.geoforum.2013.02.008

Boelens, R., Hoogesteger, J., & Rodríguez De Francisco, J. C. (2014). Commoditizing Water Territories: The Clash between Andean Water Rights Cultures and Payment for Environmental Services Policies. Capitalism Nature Socialism, 25(3), pp. 84–102. doi: https://doi.org/10.1080/10455752.2013.876867

Boelens, R. (2015). Water, power and identity: The cultural politics of water in the Andes. Routledge.

Boelens, R., Hoogesteger, J., & Baud, M. (2015). Water reform governmentality in Ecuador: Neoliberalism, centralization, and the restraining of polycentric authority and community rulemaking. Geoforum, 64, pp. 281-291.

Boelens, R., Hoogesteger, J., Swyngedouw, E., Vos, J. & Wester, P. (2016). Hydrosocial territories: a political ecology perspective. *Water International, 41*(1), pp. 1-14. doi: https://doi.org/10.1080/02508060.2016.1134898

Boelens, R. A., Vos, J. M. C., & Perreault, T. (2018). Introduction: The Multiple Challenges and Layers of Water Justice Struggles. In R. Boelens, T. Perreault, & J. Vos (Eds.), *Water Justice,* pp. 1-32. Cambridge University Press. doi: https://doi.org/10.1017/9781316831847.001

Boelens, R., Escobar, A., Bakker, K., Hommes, L., Swyngedouw, E., Hogenboom, B., Huijbens, E. H., Jackson, S., Vos, J., Harris, L. M., Joy, K. J., De Castro, F., Duarte-Abadía, B., Tubino De Souza, D., Lotz-Sisitka, H., Hernández-Mora, N., Martínez-Alier, J., Roca-Servat, D., Perreault, T., … Wantzen, K. M. (2023). Riverhood: Political ecologies of socionature commoning and translocal struggles for water justice. The Journal of Peasant Studies, 50(3), pp. 1125–1156. doi: https://doi.org/10.1080/03066150.2022.2120810

Caulfield, J. (2020). What is Ethnography? Definition, Guide, and Examples. Retrieved from: https://www.scribbr.com/methodology/ethnography/

Constitución de la República del Ecuador. (2008). Retrieved from https://www.defensa.gob.ec/wp-content/uploads/downloads/2021/02/Constitucion-de-la-Republica-del-Ecuador_act_ene-2021.pdf

COOROAGROCAN. (n.d.). Us. Retrieved from: https://camelidosandinos.ec/nosotros/

Curran, C. (2020). Communal Reciprocity in the Andes: An Ethnohistorical Approach to the Relationship Between Ayni and Food Production. Spanish Honors Papers, 3. Retrieved from: https://digitalcommons.ursinus.edu/spanish_hon/3

Duarte-Abadía, B., Suarez, L.G. & Hidalgo-Bastidas, J.P. Urban-rural water security in water funds? An analysis of power relations, participation, and knowledge co-creation. Journal of Political Ecology, 30.

Fabricant, N. (2013). Good Living for Whom? Bolivia's Climate Justice Movement and the Limitations of Indigenous Cosmovisions. Latin American and Caribbean Ethnic Studies, 8(2), pp. 159-178.

Fletcher, R. & Büscher, B. (2017). The PES Conceit: Revisiting the Relationship between Payments for Environmental Services and Neoliberal Conservation. Ecological Economics, 132, pp. 124-131. doi: 10.1016/j.ecolecon.2016.11.002

Foucault, M. (2008). The Birth of Biopolitics: Lectures at the Collège de France, 1978–1979. (G. Burchell, Trans.). Palgrave Macmillan.

Fraser, N. (2000). Rethinking recognition. New left review, 3, p. 107.

Gaventa, J. (2006). Finding the Spaces for Change: A Power Analysis. *IDS Bulletin, 37*(6), pp. 23-33. doi: http://dx.doi.org/10.1111/j.1759-5436.2006.tb00320.x

Gelles, P. H. (1995). Equilibrium and Extraction: Dual Organization in the Andes. *American Ethnologist*, *22*(4), pp. 710–742. doi: https://doi.org/10.1525/ae.1995.22.4.02a00040

Gelles, P.H. (2000). Water and Power in Highland Peru. Rutgers University Press, New Brunswick, NJ

Gonzalez-Ocantos, E., & Oliveros, V. (2019). Clientelism in Latin American Politics. Oxford Research Encyclopedia of Politics, pp. 1-29. doi: 10.1093/acrefore/9780190228637.013.1677

Harrison, R. (1989). Signs, Songs, and Memory in the Andes. Austin: University of Texas Press.

Himley, M. (2009). Nature conservation, rural livelihoods, and territorial control in Andean Ecuador. Geoforum 40, pp. 832-842.

Hommes, L., Boelens, R., Bleeker, S., Duarte-Abadía, B., Stoltenborg, D. & Vos, J. (2019). Water governmentalities: The shaping of hydrosocial territories, water transfers and rural–urban subjects in Latin America. EPE: Nature and Space, 3(2), pp. 399-422. doi: https://doi.org/10.1177/2514848619886255

Hoogesteger, J., Boelens, R., & Baud, M. (2016). Territorial pluralism: water users´ multi-scalar struggles against state ordering in Ecuador´s highlands. Water International, 41(1), pp. 91-106. doi: https://doi.org/10.1080/02508060.2016.1130910

Joslin, A. (2019). Translating water fund payments for ecosystem services in the Ecuadorian Andes. Development and Change, 51(1), pp. 94-116.

Joslin, A. (2021). Intersections of Conservation, Cattle, and Culture in Ecuador's Páramo Grasslands. Mountain Research and Development, 41(4), R1-R7.

Julien, C.J: (1991). Condesuyo: The political division of territory under Incan and Spanish rule. Bonn: Estudios Americanistas de la Universidad de Bonn.

Junta General de Usuarios del Sistema de Riego Guarguallá-Licto. (2023). Reglamento interno.

Junta General de Usuarios del Sistema de Riego Guarguallá-Licto. (2023). Estatutos.

KNAW, NFU, NWO, TO2-federatie, Vereniging Hogescholen & VSNU. (2018). *Nederlandse gedragscode wetenschappelijke integriteit*. DANS. doi: https://doi.org/10.17026/dans-2cj-nvwu

Knippenbergh, E., Brienesse, J., Meylemans, J., Yunita, M., Baerveldt, R. & Lodders, W. (2023). The Guarguallá River basin in Ecuador: Waters at risk in the faulting relationship between upstream and downstream communities. *Student report.* Wageningen University.

Lemaire, T. (1986). De Indiaan in ons Bewustzijn: de ontmoeting van de Oude met de Nieuwe Wereld. Baarn: Ambo.

Ley Orgánica de Recursos Hídricos, Usos, y Aprovechamiento del Agua. (2014). Retrieved from https://www.regulacionagua.gob.ec/wp-content/uploads/2019/06/Ley-Org%C3%A1nica-de-Recursos-H%C3%ADdricos-Usos-y-Aprovechamiento-del-Agua.pdf

Lomnitz, L.A. (1977). Networks and Marginality: Life in a Mexican Shantytown. Academics Press. doi: https://doi.org/10.1016/C2013-0-11104-X

MAATE. (n.d.). Socio Bosque Program. Retrieved from: https://www.ambiente.gob.ec/programa-socio-bosque/

Madden, R. (2017). Definitions, methods and applications. In: Being Ethnographic. A Guide to the Theory and Practice of Ethnography. London: SAGE, pp. 15-35. Doi: https://www.doi.org/10.4135/9781529716689

Manosalvas, R., Hoogesteger, J. & Boelens, R. (2021). Contractual Reciprocity and the Re-Making of Community Hydrosocial Territories: The Case of La Chimba in the Ecuadorian páramos. doi: https:// doi.org/10.3390/w13111600

Manosalvas, R., Hoogesteger, J. & Boelens, R. (2023). Imaginaries of place in territorialization processes: Transforming the Oyacachi paramos ´ through nature conservation and water transfers in the Ecuadorian highlands. doi: https://journals.sagepub.com/doi/pdf/10.1177/23996544231168050

Mauss, M. (1954). The Gift: Forms and Functions of Exchange in Archaic Societies. London, Cohen and West.

Mayer, E. (2002). The Articulated Peasant: Household Economies in the Andes. Westview Press.

Mazadiego, L. & Puche, O. & Hervas, A.. (2009). Water and Inca cosmogony: Myths, geology and engineering in the Peruvian Andes. Geological Society, London, Special Publications. 310. pp. 17-24. doi: 10.1144/SP310.3.

Mills-Novoa, M., Boelens, R., Hoogesteger, J. et al. (2022). Resisting, leveraging, and reworking climate change adaptation projects from below: placing adaptation in Ecuador's agrarian struggle. The Journal of Peasant Studies, pp. 1–29. doi: 10.1080/03066150.2022.2144252

Moving Rivers. (n.d.). About. Retrieved from https://movingrivers.org/about/

Nieuwstadt, M. (1969). Filologische aantekening. In Kort Relaas van de verwoesting van West-Indische Landen. (Las Cascas). pp. 180-185.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. Annual Review Sociology, 4, pp. 1–24.

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and Limitations of Qualitative and Quantitative Research Methods. European Journal of Education Studies, 3, pp. 369-387.

Reimer, B., Lyons, T., Ferguson, N., Polanco, G. (2008). Social capital as social relations: The contribution of normative structures. Sociology Review, 562, pp. 256–274.

River Commons. (2023). El río Guarguallá y Alao, en la provincia de Chimborazo: dos ríos viajeros, dos ríos gemelos.

Rodríguez de Francisco, J.C. (2013). PES, Peasants, and Power in Andean Watersheds. *Thesis at Wageningen University & Research.*

Rodríguez de Francisco, J.C. & Boelens, R. (2016). PES hydrosocial territories: de-territorialization and re-patterning of water control arenas in the Andean highlands. Water International, 41(1), pp. 140 - 156. doi: 10.1080/02508060.2016.1129686

Sánchez, J.R. (2022). The making of the Global Indigenous Movement and its relation to Bolivian Indigeneity today: Anthropology, Development, and Transnationalism (1930-2012). PhD thesis. Universiteit van Amsterdam.

Salomon, F. (1991). Introduction Essay: The Huarochiri Manuscript. In The Huarochi Manuscript: A Testament of Ancient and Colonial Andean Religion. Austin: University of Texas Press.

Scott, J. (1976) The Moral Economy of the Peasant: Rebellion and Subsistence in South East Asia. Yale University Press, New Haven, CT and London.

Sherbondy, J.E. (1998). Andean Irrigation in History. In: Searching For Equity. pp. 210–215. Van Gorcum: Assen.

Slosse, W., D´Haese, M. & Schoors, K. (2024). Ripples of Reciprocity: Navigating Trust and Collective Governance in Hydrosocial Territories. World Development, 188, pp. 1-53. doi: http://dx.doi.org/10.1016/j.worlddev.2024.106900

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, pp. 333-339.

Swyngedouw, E. (2014). 'Not a drop of water...': State, modernity and the production of nature in Spain, 1898-2010. Environment and History, 20(1), pp. 67-92.

Tubino de Souza, D., van Teijlingen, K., Boelens, R., & Ruales, G. (2025). Seeing rivers otherwise: Critical cartography as a form of critical pedagogy. Geoforum, 158. doi: https://doi.org/10.1016/j.geoforum.2024.104167

University of New Mexico. (n.d.). Basic Andean Social Structure. Ayllu: The Social Group. Retrieved from: https://www.unm.edu/~gbawden/324-ayllu/324-ayllu.htm

Waldick, L. (2003). Water Management in Ecuador's Andes Mountains. IDRC Reports.

Walsh-Dilley, M. (2017). Theorizing Reciprocity: Andean Cooperation and the Reproduction of Community in Highland Bolivia. The Journal of Latin American and Caribbean Anthropology, 22, pp. 514-535. doi: https://doi.org/10.1111/jlca.12265

Wingfield, S., Martínez-Moscoso, A., Quiroga, D., & Ochoa-Herrera, V. (2021). Challenges to water management in Ecuador: Legal authorization, quality parameters, and socio-political responses. Water, 13(8), 1017.

Zavala, S.S. & Tuaza, L.A. (2021). Socioeconomic transformations in the indigenous communities of Licto, Chimborazo, 1990 – 2018. Bsc thesis research, UNACH Ecuador. Retrieved from http://dspace.unach.edu.ec/handle/51000/7617

Zavala, S.S. (2023). POLITICAL CULTURE AND PEASANT ECONOMY IN THE 21ST CENTURY: IRRIGATION WATER IN THE MOLOBOG COMMUNITY. MSc thesis research, FLACSO Ecuador.

Zapatta Carpio, A. & Hidalgo Flor, F. (2009). Notas en torno a la formación económica y social ecuatoriana con una aproximación al nuevo modelo de desarrollo de la agricultura y a las lógicas de aprovechamiento del agua. In Gestión integrada del agua: conceptos y políticas. pp. 123-146. Consorcio Camaren.

Zwarteveen, M. Z., & Boelens, R. (2014). Defining, researching and struggling for water justice: Some conceptual building blocks for research and action. Water International, 39(2), pp. 143–158. doi: https://doi.org/10.1080/02508060.2014.891168

Annex one: Semi-structured interviews

Name	#	Position	Date	Keywords
Arroyo, A.	1	Academic	September 5, 2024	Construction irrigation system Water funds
Chapi, I.	1	Ex-community leader Licto	September 26, 2024 November 15, 2024	Construction irrigation system Organization irrigation board Reciprocity in the communities Relationships between Licto and páramo communities
Guamán, R.	1	Ex-community leader Licto	September 28, 2024	Construction irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Guamán, A.	1	Ex-community leader Licto	September 30, 2024	Struggle for land in Molobog Construction irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Quitio, J.	1	Ex-canalero Guarguallá-Licto irrigation system	October 2, 2024	Irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Bonilla, G.	1	Ex-president Guarguallá-Licto irrigation board	October 7, 2024	Organization Irrigation board Reciprocity in the communities Relationships between Licto and páramo communities
Gonzales, J.	1	Government representative GAD Pungala	October 8, 2024	Conservation of the páramo Relationship between Riobamba and páramo communities in Pungala Reciprocity in the communities

Ushca, R.	1	Founder of ASARATY, CORDTUCH and COOPROAGROCAN	October 10, 2024	ASARATY Conservation of the páramo Relationships between Licto and páramo communities Reciprocity in the communities
Moreano, M.	1	Administrator Guarguallá-Licto irrigation board	October 14, 2024	Organization irrigation board Reciprocity in the communities Relationships between Licto and páramo communities
Chafla, J.	1	Ex-community leader Licto	October 15, 2024	Construction of the irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Pintag, J.	1	President Guarguallá-Licto irrigation board	October 15, 2024	Construction irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Tenegusñay, L.	2	President ASARATY	October 17, 2024	ASARATY Conservation páramo Reciprocity in the communities Relationships between Licto and páramo communities
Chuto, A.	1	Secretary ASARATY	October 18, 2024	ASARATY Conservation páramo Relationships between Licto and páramo communities
	1	Member ASARATY	October 20, 2024	ASARATY Reciprocity in the communities Relationships between Licto and páramo communities
Naula, A.	1	Ex-leader ASARATY	October 20, 2024	ASARATY Conservation páramo

				Reciprocity in the communities Relationships between Licto and páramo communities
Agualsaca, S.	1	Administrator ASARATY	October 24, 2024	ASARATY Conservation páramo Reciprocity in the communities Relationships between Licto and páramo communities
Copa, A.	1	Member ASARATY and caretaker of tourism lodge in Guarguallá Chico	October 26, 2024	Reciprocity in the communities Community-based tourism Relationships between Licto and páramo communities
Zavala, S.	1	Academic from Licto	October 30, 2024 December 2, 2024	State organisation Organization irrigation board Relationships between Licto and páramo communities
Morocho, L.M. & Yupa, C.	2	Secretary and treasurer Guarguallá-Licto irrigation board	November 10, 2024	Construction irrigation system Reciprocity in the communities Relationships between Licto and páramo communities
Olazaval, H.	1	Engineer Guarguallá-Licto irrigation system	November 12, 2024	Construction irrigation system Relationships Licto and páramo communities Reciprocity in the communities State organisation
Vinueza, H.	1	CESA	November 23, 2024	Construction irrigation system Relationships between Licto and páramo communities State organization
Guallan, A.	1	Ex-canalero Guarguallá-Licto irrigation system	November 24, 2024	Reciprocity in the communities

				Relationships between Licto and páramo communities
Total interviews: 22	24			

Annex two: Participant observation

Name	#	Position	Date	Keywords
Assembly irrigation board Guarguallá-Licto	50 50	Members and leaders irrigation board Guarguallá-Licto	September 29, 2024 December 8, 2024	Current problems irrigation system Organization irrigation board
Assembly ASARATY	70 70	Members and leaders ASARATY	November 10, 2024 December 1, 2024	Current problems ASARATY Relationships between Licto and páramo communities Organization ASARATY
Assembly COOPROAGROCAN and NGO World Vision	100 30 30	Leaders ASARATY	October 18, 2024 October 22, 2024 November 26, 2024	Current problems COOPROAGROCAN Conservation of the páramo Organization COOPROAGROCAN Relations between actors
Foro Provincial de los Recursos Hidricos Chimborazo	200	All interest groups	November 29, 2024	The National Water Law Conservation of the páramo
Reunion ASARATY and irrigation board Guarguallá-Licto	10 10	Leaders ASARATY and irrigation board Guarguallá-Licto	October 20, 2024 November 10, 2024	Relationships between Licto and páramo communities
Minga ASARATY	70	Members and leaders ASARATY	October 21, 2024	Reciprocity in the communities
Inauguration siphon 1	500	Water users irrigation system Guarguallá-Licto	October 23, 2024	Reciprocity in the communities Relationships between actors
Workshop `Water Governance and Future Leaders´	20	All interest groups	December 12, 2024	Current challenges around water management in Licto, Guarguallá, and Alao Leadership in water governance