



**Utrecht
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FLUID WATER CARE:
AN EXPLORATION OF CRITICAL CARE PRACTICES IN THE
LOCAL WATER INFRASTRUCTURE OF CABO PULMO, BAJA CALIFORNIA SUR, MEXICO.

Subject: Ethnographic Fieldwork & Thesis 2023-2024

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“Diving deeper, I cover myself in the deep blue. When the air is leaving my diving vest, my mind slows down. Looking up I am seeing the reflection of the bubbles reaching the light of the surface. Looking down, I get surrounded by kinetic grey sculptures. They move gently in harmony around me and next to me. They are dancing in silence. Bullsharks, whales, Mularays. Their curiosity and calmness is so present. In this moment, time is standing still, I am floating. No longer I have to dream of them, today I am experiencing this beautiful underwater world together with them”.

ABSTRACT

This thesis critically explores the notion of ‘care’ in sustainable development and its implications for socio-political and cultural inequalities in small-scale communities, using Cabo Pulmo’s water infrastructure in Baja California Sur, Mexico as a case study. Through ethnography, the research moves beyond the common positive perception of care by showing how controlling, concerned, and experimental forms of care can both alleviate and perpetuate these inequalities. The first chapter explains how ‘care’ in water governance is an alternative paradigm to political control in local land and water allocation. It reveals how conservation efforts in Cabo Pulmo, intended to benefit marine ecosystems, have historically marginalized the local Mexican community by prioritizing external interests. The second chapter investigates the concept of care within matters of concern, highlighting diverse practices of care in Cabo Pulmo’s Mexican and settler-migrant communities. This chapter emphasizes the complexity of transforming issues like water scarcity into collective action through various perceptions of care practices. The third chapter discusses ‘care’ as an act of ‘tinkering’, focusing on innovative and adaptive practices that transcend techno-managerial systems. It introduces a more social system through grassroots community initiatives. This thesis argues for a reimagined and critical approach to ‘care’ within conservation and resource management that prioritizes inclusivity, transparency, and adaptability. It calls for recognizing and addressing power dynamics, promoting collaborative solutions, and fostering a holistic understanding of care encompassing both human and more-than-human entities. By critically engaging with the notion of care, this research aims to contribute to more effective and equitable strategies for managing natural resources and supporting community resilience amidst environmental challenges.

Keywords: Critical Care, Water Infrastructure, Tinkering, Resource Grabbing, Water Governance, Socio-political inequalities, Cabo Pulmo.

ACKNOWLEDGEMENT

“Fieldwork has been, and remains, the defining mark of the discipline of anthropology” Rabinow 2007, xi.

Completing this thesis marks a crucial moment in my academic and professional journey, one that I perceive as a rite of passage that embarks the journey from being a student to becoming an anthropologist. In the discipline of anthropology, rites of passage are understood as transitions that signify the movement from one stage of life to another, encompassing the phases of separation, liminality, and incorporation. Reflecting on this anthropological concept, I recognize that the process of participating in the SCIM program and researching and writing this thesis has been a profound journey of transformation.

Separation. The journey began with the separation from my previous identity as an HBO bachelor student. Embarking on this SCIM program required me to step away from familiar routines and immerse myself in the unknown territories of fieldwork, literature review, and theoretical exploration. This stage was characterized by a departure from the structured environment of classroom learning to the more autonomous and challenging realm of independent research during the fieldwork.

Liminality. The liminal phase of this journey involved navigating the complexities and uncertainties inherent in the research process. It was a period of intense learning, critical thinking, and personal growth. During this phase, I was neither a novice student nor a fully-fledged anthropologist, but rather in a state of transition and becoming. This period was marked by moments of doubt and discovery, requiring resilience and adaptability as I honed my skills and deepened my understanding of anthropological inquiry.

Incorporation. The completion of this thesis represents the culmination of this transformative process, marking the becoming of a professional anthropologist. It signifies the attainment of a new status, equipped with the knowledge, skills, and perspectives necessary to contribute meaningfully to the field. This final phase is not just an academic achievement, but a rite of passage that acknowledges my readiness to engage with the broader anthropological community. As I reflect on this transformative journey, this moment in time marks the beginning of becoming a critical anthropol-

ogist in the working field.

I am deeply grateful to the many individuals who have supported and guided me along this process. I extend my heartfelt thanks to my advisor Emanuele Fantini, whose encouragement and feedback have been invaluable. Furthermore, I want to make a special thanks to H and P for their perpetual support and help. Both served as my preliminary gatekeepers in the field professionally, however personally we connected as family along the research process. Besides, I would like to extend my gratitude to Ryan Anderson, whose two decades of anthropological expertise in Cabo Pulmo have been invaluable to my research and writing process; his help, support and experience have been immensely supportive. Lastly, I want to thank my family for their willingness to think along with me during the research and writing phases. This thesis is as much a product of their contributions as it is a reflection of my own efforts. I am honoured to share this work with you. Enjoy reading!

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July 7th 2023, 1:16 pm. Cabo Pulmo, Baja California Sur, Mexico.

“Diving deeper, I cover myself in the deep blue. When the air is leaving my diving vest, my mind slows down. Looking up I am seeing the reflection of the bubbles reaching the light of the surface. Looking down, I get surrounded by kinetic grey sculptures. They move gently in harmony around me and next to me. They are dancing in silence. Bullsharks, whales, Mula rays. Their curiosity and calmness are present. At this moment, time is standing still, I am floating. No longer do I have to dream of them, today I am experiencing this beautiful underwater world together with them”.

Finally, the day has come! After a three-hour-long ride from La Paz through deserted landscapes we are finally closer to our final destination. The last thirty minutes of our drive is on a dirty-unpaved road. From a distance, I could see the deep blue colour palette reflecting in the ocean that welcomes our arrival. We have to close our windows to not get covered in white through the clouds of dust. After we crossed several golden beaches and exciting rock outcrops, we reached the tiny village of Cabo Pulmo. Every element of nature ties closely together in this place. As portrayed in the media, nature seems in harmony here. While half of the residents in Cabo Pulmo rather escape the heat of the hot summer months, I came to search for it today. Even though I get overwhelmed by the increasing temperatures, a fresh ocean breeze refreshes my mind. I get out of the car and start exploring the village to search for the diving school in which I booked my dives today. I observe there is not only one diving school, I count at least ten in this tiny village. I guess I found it.

Different from other dive sites that I had dived before, the first thing that the diver instructor explained are the rules of the National Park. Meaning that: nature comes first here, respecting the territory of large-and-small scale predators, taking care of the corals etc. We get a brown colored bracelet which serves as an agreement of these rules. Before we head out into the ocean, we pass by a little desk that is called ‘CONANP’¹. After our diving instructor checks me and the other divers in, we get a dive site assigned: ‘El Vencedor’; yes, I am lucky today! We are going

to be face-to-face with bull sharks. It is one of the large-scale predators in Cabo Pulmo that made this protected area very popular amongst international divers. Excitement flows through my body. Besides my excitement, I always feel a little nervous when I go diving. Every dive is different, every site is different; it always feels like a deep dive into the unknown. Total dive time: 51 minutes, total air use: 2000 PCI. The light of the surface is slowly touching the tip of my forehead. I blow my vest with air and take off my mask. I float. Adrenaline is running through my body. What an experience: being surrounded by fifty-five bull sharks. A little overwhelmed, I reach for the rope of the boat to hold on to. I take off my diving equipment and get back on board. A little confused I asked our diving instructor: the sharks we saw were really Bull sharks? They are portrayed as one of the most dangerous shark species. The diving instructor smirks. ‘Yes, they were!’ But, these bull sharks are protected in this area. In the last 30 years, this area recovered 400% of their total biomass. So that means that there is a lot of life, and food, for them here. ‘No need for them to be aggressive!’ While heading back to the shore, we encountered breaching whales. When I look closely, it is not just one. Next to the baby whale, I see two, or three more fins above the surface. I cannot check it precisely but for sure this Humpback whale is more than fifteen meters. While the mother whale is breaching, her baby jumps in the air. Wow, I am amazed by the richness of the salty waters here. We reach the village. While a truck is pulling the boat out of the ocean, we head back to the diving school. We were advised to take short showers and wash our equipment in a specific order. In the bucket filled with fresh water, I put my mask and fins first. Luckily both of them are not dirty, I just need to wash the salty water off. In the same bucket of water, I clean my diving vest and regulators. At the very end, with the water that is left in the bucket, I wash my wetsuit and shoes. After I finish, I see the signs appearing all around the village: ‘Ya que estás de visita en la comunidad, te invitamos a realizar acciones para ayudarnos a conservar el agua’. Meaning, “While you are visiting the community, we invite you to take action and help us conserve the water”. Now I understand the reason why the diving instructor told me: “Please use as little water as you can”. This makes me curious: all these tourists, in a very tiny village with limited resources.

How do they manage the local freshwater resources in a deserted area? Diving and other aquatic activities that Cabo Pulmo offers, require a lot of freshwater usage. It is not only cleaning the equipment after every activity, it also includes cleaning boats, showers, toilets etc. This reflects a very interesting construct: a crazy number of tourists come all year round and visit the National Park of Cabo Pulmo to explore the beauty of the salty waters. But at the same time, I see that all these people together overexploiting local freshwater resources. How do they manage the stress on the resource that creates and sustains life: water.

This prologue describes the unique geographical environment of Cabo Pulmo and illustrates a personal reflection following my first visit to Cabo Pulmo prior to my fieldwork while being there as a tourist. It provides a critical overview of Cabo Pulmo, which is portrayed as a popular international ecotourism destination. Meanwhile, it illustrates the strain on local water resources caused by the influx of global attention and tourists in this region. This prologue serves as an introduction to the main argument described in my thesis, stressing the importance of care for groundwater infrastructures and their management. Not only in Cabo Pulmo but also, in the pursuit of future sustainable developments.

1: CONANP is a Mexican federal agency that has the responsibility of protecting, managing, and preserving Mexico’s natural protected areas. The agency administrates over 182 designated places of natural importance, which include biosphere reserves, national parks, and natural monuments. Cabo Pulmo is one of the places where Conanp operates, manages and protect NPCP. <https://www.seaofcortez.guide/conanp.html> Accessed on: June 17th 2024.

INTRODUCTION

“We have been considered weird throughout our entire life’s, because we don’t do the things in the way most the general public does. They call us the ‘nature nuts’, in America that’s what they call you ‘nuts’, just because you care. We are considered to be the crazy people because we try to be conscious and care for our planet when the rest of the world is completely fine”. -O²

‘Caring’ for the earth and its inhabitants is the ‘dire’ moral challenge of our time (Flower and Hamington 2022; Latour 2004). Future generations are expected to face more environmental disruptions which stresses the importance to ‘care’ about climate concerns (Flower and Hamington 2022). Water scarcity is an example of the environmental complexities to which people today, and future generations, currently live and will continuously be exposed. By critically analysing and reflecting on environmental concerns, we have the potential to have a better understanding of how we can ‘care’ for such events (Bellacasa 2017). But what does ‘care’ mean? One of the risks of understanding ‘care’ is the neglect of a thorough analysis which portrays ‘care’ as a deeply flawed and emotive subject (Cook and Trundle 2020; Duclos and Criado 2019). However, this limits the ability to approach and understand the concept of ‘care’ more critically and creatively.

Anthropologists have shown that ‘care’ includes a double-edged risk as it is entangled with the emergence of inequalities considering exclusion and dispossession, and the expansion of capital (Biehl 2007; Han 2012; Heineman 2016; Jervis 2001, Glenn 2012; Garcia 2010; Stevenson 2014; Ticktin 2011). Meaning that ‘care’ practices often become a tool of governance that includes certain based class structures in which inequalities are reproduced (Bella Casa 2017; Cook and Trundle 2020; Deleuze 1989; Haraway 2008; Kleinman 2009; Ticktin 2011). The main chapters in this thesis will critically outline how these double-edged risks are developed across time and space. Anthropologist Puig de la BellaCasa (2017) engages with the concept of ‘care’ by moving beyond the

only human understanding of ‘care’ to more-than-human entities: think of ‘caring’ for not only people, but also ecosystems, technologies and infrastructures etc. In her work “Matters of Care: Speculative Ethics in More Than Human Worlds” she argues that ‘care’ is a fundamental aspect of all living beings and their interactions. This thesis further elaborates on her work by engaging with different ‘care’ practices in the water infrastructure of Cabo Pulmo, Baja California Sur Mexico. Therefore, it is important to critically analyse current cultural norms and practices to consider how we care for a more-than-human world in the pursuit of sustainable developments.

The quote given by O in the first section of this introduction reflects on the notion of care and concern for the planet and its sustainability. Critically understanding the notion of ‘care’ requires ethnographic work that analyses ‘care’ practices that move beyond the merely physical act of ‘caring’. It allows us to not only understand what ‘care’ means but also how ‘care’ is emotionally embedded and enacted in everyday lives amongst local residents of Cabo Pulmo. Moreover, the quality of ‘care’ is more easily turned into a verb: to care. Someone can make oneself concerned, but ‘to care’ more strongly directs to a notion of material doing. Understanding caring as something we do extends a vision of care as an ethically and politically charged practice which signifies ‘caring’ as an active state, a material doing (Bellacasa 2017).

An increase in the local water consumption is Cabo Pulmo’s biggest threat in contemporary contexts and in future prospects. The exponential increase in population and growing global attention towards Cabo Pulmo, located in Baja California Sur, Mexico, has exerted considerable pressure on the local aquifer, which serves as the main water source for the community. The surge in water demand has resulted in excessive extraction, jeopardising both the amount and quality of the water supply. Moreover, the increase in tourists and new inhabitants has worsened the issue,

putting additional pressure on the already delicate water infrastructure. The insufficient oversight and upkeep of this infrastructure have exacerbated the issue, leading to numerous instances of leaks and pollution. These difficulties require a thorough analysis of care practices in water management, specifically how these practices might be modified to address the socio-cultural factors and guarantee the long-term viability of local water resources. Therefore, the main research question that I will engage with in this thesis is:

“How do critical care practices in the water infrastructure shape socio-cultural dynamics among the local population in Cabo Pulmo, Baja California Sur, Mexico?”

THE FIELD

Cabo Pulmo is situated near the southernmost point of the Baja California Sur state on the Mexican peninsula. During a participant observation at the start of the fieldwork, I spoke with V. V has been working in Cabo Pulmo for the last seventeen years in one of the diving and snorkelling shops. I asked him if he also lived in Cabo Pulmo. But, like many others who are working in Cabo Pulmo, V lives in La Ribera; a small town approximately twenty minutes North from Cabo Pulmo (see Figure 1.1).

During an informal conversation we had, V explained that Cabo Pulmo comprises ninety-five percent aquatic landscapes and five percent local land tenure where residents live and work. The National Park of Cabo Pulmo (NPCP) extends from ‘Pulmo Point’ to ‘Los Freiles Cape’, covering an area of approximately 70



FIGURE 1.1

square kilometres. Cabo Pulmo is located 100 kilometres North of larger cities like Cabo San Lucas and around 160 kilometres South of La Paz (see Figure 1.2). Baja California shares a border with both Mexico and the United States. Therefore, Cabo Pulmo and other locations in the Eastern Cape are favoured by American citizens as a sought-after destination for both temporary and permanent living arrangements. The growth of international tourism over the years has led to the development of extensive real estate projects and long-term investments (Anderson 2009; 2019).

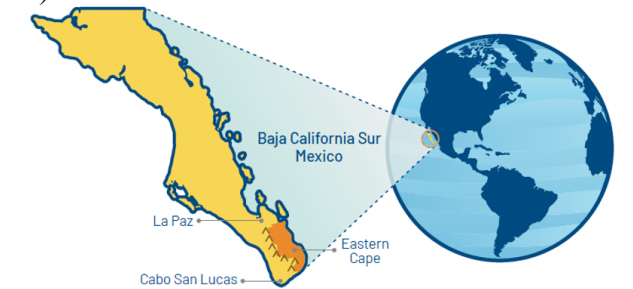


FIGURE 1.2

Due to the growth of international interest and real estate projects after the establishment of NPCP, which will be discussed in greater detail in Chapter One, local land tenures in Cabo Pulmo became geographically and socially divided between the Mexican community and the settler migrant community. This division results in the different positioning of properties in Cabo Pulmo. The Mexican community primarily works and resides in the commercial setting of the town. Prior to 1980, before Cabo Pulmo caught international interest, this commercial part of the village was considered as the ‘original’ area of Cabo Pulmo. In this area, you discover a comprehensive list of the area’s establishments, including diving schools, restaurants, and souvenir shops. In my thesis, I shall designate this location as a commercial area of Cabo Pulmo. I have deliberately chosen to use the term ‘phases’ to address the geographical zones in Cabo Pulmo because ‘phases’ is the word that is particularly used amongst the residents in this community to communicate about the areas where the residents reside. Additionally, it refers to a spatial and temporal progression in which local land tenures were incorporated into the existing phases as a result of the growth in international investment and real estate projects.

2: Section from Semi-Structured Interview with O, a settler migrant resident who has been living in Cabo Pulmo for more than twenty years. Interview conducted on March 16th 2024, Cabo Pulmo, Baja California Sur, Mexico.

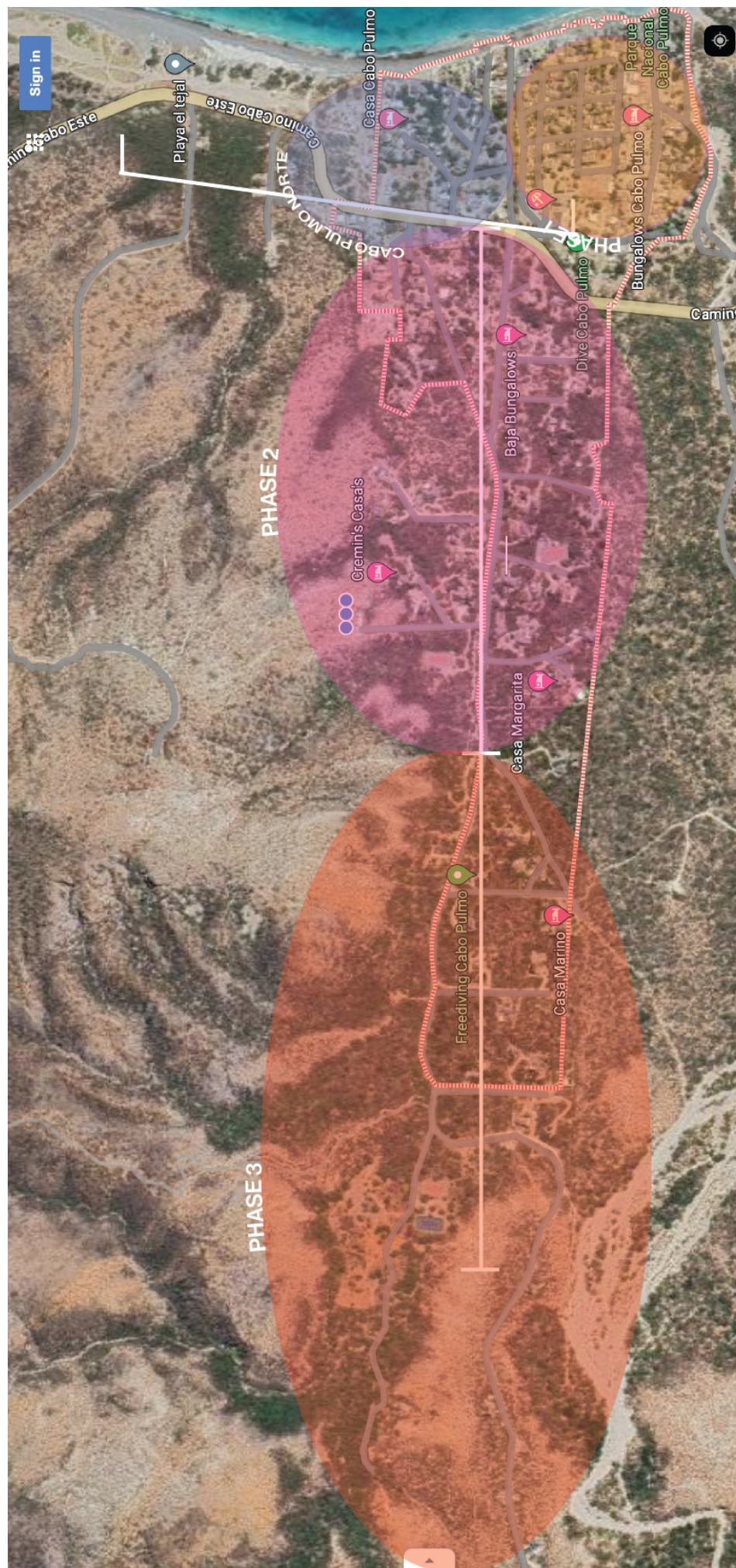


FIGURE 1.3

FLUID WATER CARE

Following the 1980s, a complete residential zone was incorporated into Cabo Pulmo due to the increase in international real estate projects. This expansion began with adding properties in phase one and Cabo Pulmo Norte, and subsequently, properties in phase two and phase three were added. Currently, Cabo Pulmo Norte comprises approximately 20 properties. Phase one consists of approximately 35 properties, including rental units. Phase two consists of approximately 50 properties, including rental units. Lastly, phase three consists of approximately 45 properties, including rental units (see Figure 1.3).

RESEARCH POPULATION

Cabo Pulmo counts up to approximately 250 residents but the community is socially divided through resource grabbing that constitutes a division between Mexican residents (117) and settler migrants (154) (Anderson 2019; Niparaja 2018). This division is mainly tangible through socio-cultural relations and historical backgrounds. Throughout this thesis, I will regularly refer to the ‘Mexican’ community and to the ‘settler-migrant’ community, therefore, it is important to critically outline the differences between both communities. To explain these socio-cultural differences amongst both communities, I will make use of two thick descriptions which are based on several participant observations, numerous informal conversations and 18 semi-structured interviews that were conducted during the fieldwork period.

In ethnography thick descriptions are being used to construct other people’s constructions; sorting out the structures of signification; determining their social ground and relations. It should be analysed through a microscopic lens aiming to analyse empirical data within qualitative research. Thick description is a term introduced by the anthropologist Geertz (1978,6) who defines it as “the detailed account of field experiences in which the researcher makes explicit the patterns of cultural and social relationships and puts them in context”. In the paragraph below, I will use two thick descriptions not as a theory, but as a method to understand social relations and interpretations within the Mexican and settler migrant communities. These sections give insights into the interpretation that individuals give to certain acts, but also

analyses non-tangible acts: realities that we cannot particularly observe. Throughout the analysis of the empirical data that supports these thick descriptions, I have been constantly reflexive of my own positioning as a researcher and personal bias that can influence the empathetic engagement with the research participants.

Mexican community:

The Mexican inhabitants of Cabo Pulmo have been in the area for many centuries. Four individual families were granted land in Cabo Pulmo during the 18th century, giving them legal rights to construct properties in this particular area. The parents of these four influential families founded their initial fishing enterprises in Cabo Pulmo prior to the establishment of the National Park. The majority of the individuals belonging to these families are familiar with Cabo Pulmo primarily as a sport-fishing village and/or for its commercial fishing activities. Currently, the majority of local commercial establishments, such as diving schools, snorkelling excursions, restaurants, and souvenir stores, are managed by the offspring of the families. The social and interpersonal relations within the clan³ of the four families are founded around the principles of respect, affection, and concord. This implies each individual family member provides assistance within their own family clan. For example, working and participating within the family business in the commercial area of Cabo Pulmo.

Family orientation serves as the main social motivator in this community; however, it is crucial to explore the additional aspects of strong family ties beyond social connections. Within the hamlet of Cabo Pulmo, there exists a notable degree of competition amongst the families. Based on participant observation, it is evident that competition is a dominant factor in the local living and working environments. This competitive environment not only challenges the settler migrant community from innovation but also fosters competition within the Mexican community itself. Moreover, the family dynamics are greatly impacted by the business. The children were very inclined to assume control of their parents’ local enterprise.

The current owners of the local establishments are typically in the age range of forty to fifty years old.

3: The concept ‘clan’ is often used in the discipline of Anthropology to address a kinship group who originally come from the same family and share a same set of beliefs including the surname. The kinship patterns within the families in Cabo Pulmo are represented biologically (parents, children and ancestors), and-or by degrees of social relationships (marriage) (Klassen 2024).

When their parents initially manage the family enterprises, the children now impart their own unique touch to their parents' company. This community primarily consists of married couples and their children who come from either the dominant families in Cabo Pulmo or from beyond the area. Their children primarily relocated to La Paz or La Ribera for the purpose of studying or attending school, as these are the nearest cities that offer such educational support systems.

Settler migrant community:

For the settler migrant community, it is hard to pinpoint the exact size of the population because residents live in a "highly fluid, mobile lifestyle" (Anderson 2019). For the documentation of the fieldwork, I have opted to employ the word 'settler migrants' to specifically denote the American, Canadian, West-European, and other non-native individuals residing in Cabo Pulmo. I have contemplated use alternative designations such as 'foreigners', 'gringos', 'non-Mexicans', and 'expats'; but all of these labels are inherently restrictive for various reasons⁴. For the settler migrant community, it is hard to pinpoint the exact size of the population because residents live in a "highly fluid, mobile lifestyle" (Anderson 2019). For the documentation of the fieldwork, I have opted to employ the word 'settler migrants' to specifically denote the American, Canadian, West-European, and other non-native individuals residing in Cabo Pulmo. I have contemplated use alternative designations such as 'foreigners', 'gringos', 'non-Mexicans', and 'expats'; but, all of these labels are inherently restrictive for various reasons⁴. One of the main reasons to choose for the term 'settler migrant' is that it provides the most inclusive understanding to suit this community. Regardless of social classification or driving forces for this migration group, the term 'settler migrant' describes people living in a foreign country, where their passport and citizenship do not necessarily define their home. Piperoglou (2023) defines settler migrants as individuals who have already established themselves in their original habitat and choose to emigrate to new destinations. Settler migration refers to the movement of a group of people who relocate to newly acquired territories that are un-

der the control of their own people or their original country's authorities. The term 'settler' here is used to describe an individual who intends to permanently reside in a new location. consistently refers to their residences in Cabo Pulmo as their 'home'. However, in this specific community, the concept of 'home' is flexible because the length of real residence varies during the year.

Prior studies have indicated that the overall population of settler migrant residents falls within the range of around 190 to 228 individuals (Anderson 2019). During the summer months, the population of residents significantly decreases to a maximum of approximately twenty-five individuals, while the overall population reaches a high of seventy-five to hundred people. The settler migrant community in Cabo Pulmo comprises international residents, whose presence in Cabo Pulmo is rarely, if at all, acknowledged in mainstream media. However, it is important to mention this community because the residents within this community constitutes a majority of over fifty percent of the total population in Cabo Pulmo. The absences pose a concern because the settler migrants present an incomplete portrayal of Cabo Pulmo that fails to encompass its intricate histories, realities, and politics. In the following text, I shall provide a detailed account of the settler migrant community in Cabo Pulmo. I specifically selected the term 'settler migrant' to refer to residents who have been residing in Cabo Pulmo for a period of one to thirty years, since it also signifies their social connections with others. The majority of these inhabitants have resided in the area for more than 17 years, although a few recently relocated and are adapting to the community. The majority of the migrant settlers view Cabo Pulmo as a means of escaping from the realities of their hometowns and cities in the United States, Canada, South America, and Europe. They reside at Cabo Pulmo for the majority of the year, with most of them staying for roughly 9 months. During the sweltering summer months and the period of heightened hurricane activity, these inhabitants are most inclined to temporarily return to their homes.

The predominant demographic of the migrant community of Cabo Pulmo consists of individuals who are classified as 'seniors', typically aged 65 and above. They have established their enterprises in

their hometowns, allowing them the opportunity to unwind and enjoy themselves at Cabo Pulmo. The majority of the residents in this community are not fluent in Spanish. The linguistic barrier serves as the foundation for the marginalisation of both communities. While their social interactions with the Mexican community are minimal, their interpersonal relationships with one other are highly robust. During one of the semi-structured interviews, a research participant emphasised the following point:

D⁵: "I prefer not to refer to this segment of the population as the foreign community, as I consider my neighbours here to be like my own siblings. We have a genuine concern for one another. Referring to us as foreign residents may imply a sense of separation, but in reality, we have a strong bond and are closely connected".

This remark alludes to the robust connections within the settler migrant community, which evoke a sense of familial kinship despite not being biologically related.

The inhabitants of the settler migrant population of Cabo Pulmo range from individual males to couples. They have been married for an extended duration and currently live in a serene location, free from the hustle and bustle of urban areas. Cabo Pulmo is perceived by them as a pristine location where nature thrives in perfect balance. However, inside this community, there is also disagreement among its residents. Several locals I met expressed a strong interest in ecological living and resource conservation. Some of the residents I met did not mention any of these topics. There are diverse perspectives regarding the experience of residing in an uninhabited terrain characterised by scarce local resources and inadequate infrastructure. The ownership of property is causing political interference in the social connections among the population. I will elucidate the phenomenon of friction as it pertains to the water infrastructure in Chapter 2 of this thesis.

METHODOLOGY

Prior to my arrival to the field, I consciously made the decision to not book an accommodation in advance. It would potentially limit me in the flexibility to move around the site throughout my research period. Be-

sides, being in Mexico for the last ten months made me realize that being there and 'on-site' always benefits in terms of finding the best spots, for the best prices. Not being bound to one particular place from the very beginning of the research process allowed me to meet and stay at the 'rancho' of one of my 'gatekeepers' (O'Reilly 2012) whom I met on the first day in Cabo Pulmo. My gatekeeper himself was born and raised in the Netherlands but has lived in Cabo Pulmo for the last seventeen years. Within these years he worked and resided in the local village together with the Mexican community and the non-settler community. Whereas the majority of the residents in both communities live separated from the other community, my gatekeepers both shared a mediating positioning in between both communities. In this way, my gatekeeper was able to allow me access to both residents of the two communities. For the past two years, H has lived further away from the local village. He now runs his own 'permaculture' ranch in 'care' for the local environment and its resources is the core of his everyday practices. Besides, my gatekeeper is chairman of the water committee of Cabo Pulmo. Due to his positioning, I was able to conduct preliminary insights about the water situation in Cabo Pulmo. Meeting my gatekeeper, unconsciously resulted in a snow-ball effect (O'Reilly 2012), for meeting more and more people in the settler migrant community. However, my gatekeeper's partner P was able to help me get access in the Mexican community. Due to her positioning as a board member in the NPCP committee, I was able to engage with the Mexican key participants that are represented in this thesis.

The insights represented in this thesis are based on 18 semi-structured interviews of approximately 1 to 1,5 hours. I made sure I interviewed a representative mix of respondents: Mexican residents in the local family, and residents who are not from the local family. Additionally, settler migrants who are relatively short living in Cabo Pulmo along settler migrants who have been living in Cabo Pulmo for more than fifteen years. Next to these semi-structured interviews I also had numerous of informal conversations with day visitors of Cabo Pulmo, residents within the Mexican community and residents of the settler migrant community.

Besides the semi-structured interviews, I made use

4: A minority of research participants from this specific community exhibited a notable level of skepticism when referring to individuals as 'foreigners'. For many research participants, the phrase 'foreigner' signifies a sense of separation between the locals, making the settler migrants feel more like 'strangers' rather than non-blood-related 'family'. Moreover, the usage of the term 'gringos' would be deemed unsuitable due to its potential pejorative connotation. Additionally, it would narrow the demographic reach of the research exclusively to American residents. While the majority of individuals in this community are American citizens, there are also non-citizens that dwell here. 'Non-Mexicans' is a term I have attempted to use, but using it to describe the core research population would imply the absence of something that is missing. In this particular case, this phrase did not align with my own preference.

5: Quote from Semi Structured Interview with D. Date: March 12th 2024, Cabo Pulmo, Baja California Sur, Mexico.

of preliminary observations and participant observations. These forms of observation allow me to naturally observe and engage with the day-to-day activities in the naturalness of the local residents' environment. According to Malinowski (1922): "It is about being there, talking and listening to the people you are researching as they experience things and as they go about their daily lives, that you can get them to tell you about how they feel and think" (in O'Reilly 2012, 14). For the research it is of high importance, to get a deep understanding of how local society organizes themselves around and with water.

For the research it is of high importance, to get a deep understanding of how local society organizes themselves around and with water.

ETHICS & POSITIONALITY

Reflecting on my own position as a Western European scholar, the site's informal settings were somewhat puzzling. In the beginning, I struggled with the questions: "To what extent am I already interviewing a specific informant or am I now just casually talking?" Often, a 'casual' conversation with a specific informant yielded valuable insights for the research topic. Then I followed up with additional detailed inquiries about their responses. As a researcher from the Netherlands, you are used to a more formal setting with precise planning and organisation. Semi-structured interviews, on the other hand, occasionally occurred spontaneously at Cabo Pulmo. In all semi-structured interviews and unstructured interactions, I requested oral consent. To ensure the privacy of the research participants, all names mentioned in this thesis have been anonymized and replaced with a random selection of initials (O'Reilly 2012).

Another critical feature to reflect is that Cabo Pulmo is a popular place for researchers from the University of Baja California's marine biology and geography departments. As a result, the locals in Cabo Pulmo may be hesitant to participate in 'another' research. At times, I felt a little sense of "Oh here you have another researcher" amongst the local population. However, participant observation allowed me to establish (furthering) rapport with my research participants, particularly in the Mexican community. Cabo Pulmo does not have a 'public' location in the hamlet where you can meet possible research participants while doing observations. Instead, I chose to participate on trips organised by the local diving businesses in the hamlet, which are owned and operated by Mexican residents. This not only assisted the community's residents, but it also helped me establish myself as an

'ethnographer' in Cabo Pulmo. It also aided me in establishing 'groundwork' within ethnographic research. Groundwork includes observing, contacting possible research participants, and determining the contextualization of your study area.

Being an 'outsider' in the community impacted my research process, presenting benefits and challenges. As a researcher from a Western country conducting fieldwork in Cabo Pulmo, I recognise the influence of my background and identity on my research interactions and the rapport I build with various residents of the local population. Upon reaching Cabo Pulmo, I discovered that establishing rapport with the migrant people living there was quick and easy. A significant number of these inhabitants, who had personal encounters with migration and assimilation, appeared to be more receptive and approachable towards a fellow non-native. The collective encounter of adapting to a novel cultural environment expedited the development of trust and communication. Besides, I could approach this part of the community in Cabo Pulmo with the English language. The settler migrants, who have frequently resided in many surroundings, seemed more open to share their problems and experiences with someone who, similar to them, was adapting to a new social situation.

Conversely, establishing confidence and rapport with residents from the Mexican community necessitated a longer duration of interaction. This discrepancy emphasised the complex levels of social interactions within Cabo Pulmo. As a Western researcher, I was viewed from a perspective influenced by historical, socio-economic, and cultural factors. The Mexican community's encounters with other influences, such as researchers, developers, and tourists, might have led them to adopt a careful and deliberate attitude in their dealings with me. I had to actively work on overcoming my outsider status by making a deliberate effort to connect with different cultures, showing respect for local traditions, and genuinely striving to comprehend the perspectives of the community. Upon reflection, I acknowledge that my personal perspective not only influenced the speed at which I established a connection with others but also shaped the type of information I gathered. The comparatively quicker connection with the settler migrant community facilitated a more prompt and potentially more honest understanding of their experiences with water infrastructure and care methods. Conversely, the slower establishment of a close relationship with the Mexican community, despite its initial difficulties, ultimately resulted in a more profound and sophisticated comprehension of their enduring issues and

concerns.

I am well aware that the current population density in Cabo Pulmo is a major issue. Many research participants shared the concern that the increasing population in Cabo Pulmo might lead to greater depletion of local water resources. However, this thesis does not attempt to reflect on Cabo Pulmo as an idyllic eco-tourism destination, but rather to highlight the double bind of their successes. As a result, I did not choose to anonymize the location of this ethnography because several research participants voiced: "It is time to change the narrative for Cabo Pulmo, after twenty years talking of the successes it is now crucial to reflect on the consequences, we face in our everyday lives. Really, we are dying of our own success. In this approach, I can reflect on a more critical method of 'caring' for anything other than human life and how it affects human life among the Cabo Pulmo locals living in an environment where 'care' for water forms the norm in everyday life.

STRUCTURE

In this thesis, I will engage with different forms of care within the discipline of anthropology and how care should be considered within future conservation strategies. To start, I will first contextualize the case study that I will address in this thesis revealing how Cabo Pulmo transitioned into a National Park that became protected, and how resource grabbing resulted into an unequal allocation of local land tenures and the water infrastructure. In the second chapter of this thesis, I will discuss how care reflects particularly concerns, and how care moves beyond the limitation of technology and innovation. Lastly, I will demonstrate how tinkering could be seen as an additional form of care and how this is crucial to incorporate in future infrastructural strategies.

CONTROLLING CABO PULMO

1.1 ANTHROPOLOGY OF CARE

Water is the foundation of historical progress and future prospects in Cabo Pulmo (BCI 2021). In 1995, Cabo Pulmo was officially declared as a marine park by the national Mexican government under the administration of Ernesto Zedillo. Through the work of Reyes-Bonilla (1997), the marine park of Cabo Pulmo was promoted as a ‘paradise’ for ecotourism (Reyes-Bonilla 1997). After Reyes-Bonilla published his work, Cabo Pulmo caught international interests. Later, in 2000, the marine park changed to become a National Park, known as ‘NPCP’ (Anderson 2019; Conanp 2006; Weiant 2005). For the sake of conciseness, I will refer to the National Park of Cabo Pulmo as NPCP throughout this entire thesis.

Throughout the initial phase of NPCP, only minimal progress was made. The tangible outcomes of conservation efforts became evident mostly after a period of fifteen years dedicated to protecting the reef. The local reef required restoration with small fishes and small-scale predators before the large-scale predators could re-establish themselves.

In 1970, the local inhabitants of Cabo Pulmo relied on extensive sportfishing and commercial fishing activities for their sustenance (Anderson 2019; Castro 2019; Weiant 2005). Although there was no formal governing body or regulations in place for the local sportfishing industry, it still offered the residents of Cabo Pulmo a reliable source of economic stability. However, the increasing profits of the sportfishing and commercial fishing industries resulted in a substantial decline in the population of underwater species over a period of time (Alvarez-Filip et al. 2007; Anderson 2015). As a result, in 1990, fishing activities were halted in order to safeguard the local reefs of Cabo Pulmo from the detrimental effects of overfishing and potential extinction (Anderson 2015; Alvarez-Filip et al. 2007; Bobadilla 2017).

Following the prohibition of sport fishing and commercial fishing in Cabo Pulmo, the creation of NPCP took place. The establishment of this park led to a fourfold increase in the overall fish population, which included the reintroduction of sharks and other significant predators (Anderson 2015; Alburto-Oropeza 2011; Alvarez-Filip 2006). During the park’s creation phase, there was a lack of governmental and finan-

cial support (Anderson 2019; Weiant 2005). Although community involvement was a primary objective in managing the park, the level of support from local residents in Cabo Pulmo was frequently marked by disagreement, division, and inconsistency (Anderson 2019). The conflicting perspective behind this was that certain individuals within the community perceived NPCP as being enforced by external entities. External entities refer to the perception amongst the Mexican residents that the transitioning to a protected National Park was fuelled by ‘outsiders’ interests, people outside the community who did not only seek private-cum interest and control within the park, but also in the surrounding territories (Anderson 2019).

Upon the establishment of NPCP, there were initial apprehensions throughout the first decade over the park’s ability to attract a sufficient number of tourists (Anderson 2014, 2017, 2019). After three decades, the park is currently grappling with a significant issue concerning the escalating influx of tourists, not only during specific seasons but throughout the entire year. In 2011, the annual number of tourists was 8638. In 2017, Cabo Pulmo saw a thriving commercial environment. By 2018, this figure had tripled to around 22348 travellers each year (Conanp 2018). “The number of divers entering the water is excessive, but there are numerous other issues.” The park staff is rarely there and there is still a lack of water services. We don’t get very little support and government action to support these issues” (Anderson 2019, 151).

According to a semi-structured interview I had with one settler migrant who works within the Advisory Board of NPCP, ‘care’ is a concept that is often used as a tool of governing the place and population of Cabo Pulmo. Therefore, care can be inherently political because it involves the power over decisions about whose needs are prioritized (Bellacasa 2017; Ticktin 2011). In the case of Cabo Pulmo, this means that decision-making processes are dominantly based on ‘care’ and its influences on the local reef and species below water. Contextualizing ‘care’ within the transitioning to NPCP, shifts the focus of ‘care’ to the species below water, by leaving out ‘care’ for the human life above the water in the local village. A reflection of this situation is quoted by one resident of the local Mexican families (2019): “The park is a success, but now the community is what needs a lot of support”. Caring for and the actual affectivity of care can be

therefore tricky. Questions such as ‘who and what to care for’ have the ambition to control and or judge what or who we should care for (Haraway 1997 and Deleuze 1989).

Historically seen, the concept of ‘care’ in the ecological environment of Cabo Pulmo, enabled marine systems to be restored and therefore the local inhabitants could economically better benefit from a growing eco-tourism industry instead of a fishing industry. During some informal conversations I had with the Mexican residents in the local village of Cabo Pulmo (part of phase 1, see figure 1.3), they expressed that the transitioning to NPCP was undertaken in the name of ‘care’ for the reef. I decided to use ‘care’ here in brackets because according to some Mexican residents this transition is considered as an attempt to seek control over Cabo Pulmo which was, and still is, fuelled by external parties and international interests, people from outside. One way of analysing the experience of the transitioning amongst Mexican residents, can be therefore understood from the perspective of ‘care’ which is shaped as ‘political act’ and ‘power control’.

While Cabo Pulmo may seem like a paradigm of environmental conservation, ecotourism, and sustainable development to an external observer, it actually presents a more intricate narrative. During my fieldwork, I spoke with several settler migrants and Mexican residents who are working and residing Cabo Pulmo who consistently referred to the following: “We are dying of our own successes, after thirty years it is time to shift away from the successes of NPCP but really shed light on all the challenges we are dealing with on an everyday base”. During my interviews this saying kept being particularly mentioned, referring that the local population who is working and residing in Cabo Pulmo is confronted with substantial challenges on daily base and in future prospects. These challenges mainly revolve around the power of the allocated resources (Bellacasa 2017) water and land. Although the water situation will be the main subject that will be addressed in this thesis, it is essential to understand how the allocation of land shaped the allocation of the local water infrastructure and how this had influenced different power dynamics within the Mexican and settler migrant communities. To critically understand this, I will describe a small introduction about how tensions over land and water were historically developed and how this, eventually, delineates the different approaches to care for ‘water’ amongst both communities.

6: A semi-structured interview with L, a Mexican resident who has been living in Cabo Pulmo for his entire life. His father was a former fishing man which served for the main financial income in his family. Conducted: February 30th 2024, Cabo Pulmo, Baja California Sur, Mexico.

1.2 LAND GRABBING

An imminent danger within the current living conditions amongst the local population of Cabo Pulmo is in the increase of population growth a continuation of international real estate projects. To critically understand this particular danger, it is important to provide a socio-historical analysis regarding land grabbing in Cabo Pulmo.

International interests and real estate investment resulted into an increase of land tenures that served as a preliminary set of social, economic and political dispraises in the local living environment of Cabo Pulmo. In the late 19th century, the Mexican government granted the first landowners concessions. In the second half of the 20th century, this land was transferred, given as a gift, and exchanged among four prominent Mexican families (Anderson 2019). Consequently, this particular trade led to the initial escalation of hostilities over one specific transaction. An individual settler migrant originated from the United States, and subsequently his family, acquired a property from a Mexican landowner near Cabo Pulmo in 1980. The land tenure acquired by the initial settler migrant extends to a width of one-fourth of a mile and a depth of two and a half miles in phase two and phase three. The purchase reveals that the extent of ownership over the acquired land by this specific settler migrant, surpasses that of the entire original village of Cabo Pulmo. So far, this deal has caused significant uncertainty and tension between the settler migrant community and the Mexican community. The purchase of this land served as the entry point of international real estate investors, leading to the rapid growth of a settler migrant population in Cabo Pulmo. Anderson (2017,17) outlined this situation in his work back in 2017:

“L⁶: In 2009, a group of approximately 40 people descended upon the small coastal community of Cabo Pulmo. Armed with wire cutters, they were there to take possession of a small parcel of highly disputed land on Cabo Pulmo Point. Residents in the local community, armed with machetes, shovels, and Molotov cocktails, quickly organized and confronted the invaders. The confrontation didn’t last long. One vehicle was smashed. Heated words were exchanged. But the invaders finally backed down and left.

Interviewer: Why do you took place in the land grab?

L: Because there’s no work left here, so it all comes down the value of land. People are fighting, because they are seemingly walking on money. Who would have thought that it would become so worthy over time”

During the dialogue with L, a reflection was discussed on how land includes a broader framework of control and possession. Cabo Pulmo underwent a conceptual transformation from a small, desolate, and secluded settlement, known only to a handful of Mexicans, to a town that attracted global attention (Anderson 2014). As the number of visitors to Cabo Pulmo increased, the value of land in the area began to rise significantly. ‘Land’ became a resource to fight for (Falcon et al. 2021; Nipiraji 2020). Several local inhabitants and families were no longer able to afford to continue residing in the area. Neighbours got engaged in conflict, cars were set on fire, and fences were being erected. Prior to 2005, Cabo Pulmo was devoid of any enclosures and fences. The construction of residential areas that are enclosed by walls, fences and a secured entrance represents the beginning of a series of significant social tensions related to controlling purchased land and ownership (Anderson 2017).

Several socio-political imbalances have been formed in Cabo Pulmo as a result of the historical setting of land grabbing and international real estate interests. The presence of global interests and investments has led to a division of local land between the Mexican population and the settler migrant community, both geographically and socially. The transfer of land from notable Mexican families to a settler migrant from the United States resulted in the displacement and marginalisation of the local Mexican community. Consequently, the rise in land value has resulted in economic disparities, making it challenging for the local population to afford housing in Cabo Pulmo, ultimately resulting to their forced relocation. The land deals have resulted in persistent tensions and conflicts between the Mexican community and the settler migrants, as seen by confrontations and acts of violence arising from land disputes. The influx of foreign real estate investors has transferred authority over local land from the native population to external groups, undermining the community’s self-governance and control over their territory. The implementation of residential zones reinforced with walls, fences, and secured gates has resulted in heightened social conflicts and isolation, thereby transforming the formerly inclusive and communal character of Cabo Pulmo. Finally, the conversion of land into a highly esteemed asset has influenced the livelihoods of local residents, leading to disputes among community residents on the value and accessibility of land, hence intensifying social disparities.

1.3 WATER GRABBING

Another immediate danger that the local community of Cabo Pulmo is exposed to is an increase of fresh

water consumption, which is closely interlinked to human expansion and population growth described above (Falcon et al. 2021; Nipiraji 2020). After the majority of land in Cabo Pulmo was purchased and allocated to one specific settler migrant which served as the base for the expansion of the settler migrant community (mentioned in the abovementioned section), the need and care for a well-functioning water infrastructure became essential. Before Cabo Pulmo caught international interest from real estate projects and global tourism, the Mexican families made use of 4 family-owned water wells and a well that was controlled by the government. However, the well that was managed from a governmental system, was limited to non-functioning. Besides, the family-owned water wells only granted limited access to family members. For that reason, not all residents who were living and working in Cabo Pulmo were able to make use of that particular water supply.

As soon as the demand on the local water supply became increasingly higher due to international investors and global tourism, the Mexican government sold the permit to build a well-functioning water infrastructure for the settler migrant residents who were purchasing land in phase one, two and three and Cabo Pulmo Norte. The system entailed the development of a dedicated water well for storage, along with pumps, pipes, and ‘pila’s (water towers that utilise gravity to propel the water through phase one, two, and Cabo Pulmo). This permit was granted to the first settler migrant who owned local land in Cabo Pulmo, with the stipulation that once the system became fully operational, it would be lawfully returned to the Mexican government. By adopting this approach, the water infrastructure could be restored to a system that is accessible to all inhabitants in Cabo Pulmo, including both Mexican and settler migrant communities. Although this agreement was made, multiple interviews indicated that the transfer of the privatised water system back to the Mexican government did not occur because of persistent conflicts between the two communities and inside the communities themselves regarding control and ownership over common resources.

Due to the reason that the developed water infrastructure in Cabo Pulmo never legally returned as governmental-owned property, the water infrastructure that was created operates as a ‘privatized’ system. Due to the geographical and political outline of this water infrastructure, it only grants access to the settler migrants residing in phase one, two, three and Cabo Pulmo Norte. This results in a deficit of water distribution that creates unequal water availability and accessibility amongst Mexican residents and the settler migrant residents.

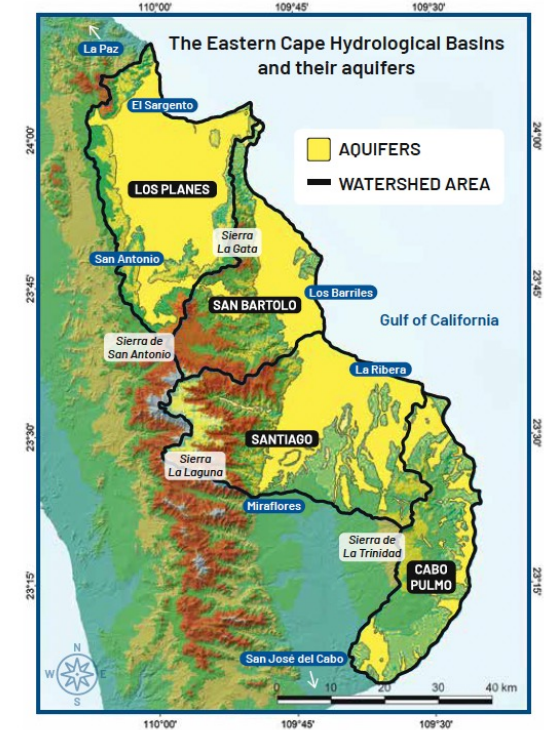
The privatized system built for settler migrant residents in Cabo Pulmo grants unrestricted water access to all residents in phase one, two, and Norte. Every user is billed on a quarterly basis. This stimulates an excessive and significant difference in usage between the settler migrant community and the Mexican community. Compared to family-owned water wells that the Mexican community uses, this privately owned water well is the largest and most significant water supply in Cabo Pulmo. Due to its large size, infrastructure, and operational capability, this water well has the greatest water amount of all five water wells in Cabo Pulmo. It pumps the majority of the water quantity that is available in the local aquifer in Cabo Pulmo. However, It is crucial to note that the entire water supplies for both communities in Cabo Pulmo are contingent upon the shared local aquifer.

The situation of Cabo Pulmo exemplifies notable socio-political disparities resulting from water grabbing practices. The privatised water infrastructure predominantly favours the settler migrant community by granting them unlimited access to water, whereas Mexican residents experience limited access due to their reliance on less efficient, privately-owned wells. This disparity highlights the economic inequalities caused by the billing system of the privatised water supply, which promotes excessive water usage among settler migrants. This situation further marginalises Mexican residents who face difficulties in affording an adequate water supply. Besides, the privatised system has not been turned back to government hands due to conflicts around control and ownership of water resources. This sustains the existence of inequality, since settler migrants maintain dominance over the most crucial water source. Furthermore, the spatial arrangement and political structure of the water infrastructure intensify social segregation, providing exclusively to specific zones inhabited by settler migrants and further widening the disparities between communities. The unequal allocation of water supplies increases tensions and disputes between the two populations, even though they both depend on the same local aquifer. This exacerbates the marginalisation of the Mexican community and adversely affects their sustenance, as they encounter difficulties in obtaining sufficient water for their daily need. As a result, the uneven allocation of water worsens socio-economic disparities and social turmoil, sustaining a pattern of inequality and conflict in Cabo Pulmo.

1.4 OVEREXPLOITATION AQUIFER

Cabo Pulmo region’s arid climate and the overexploitation of the local water infrastructure, reflect

water as a precious resource which requires careful management amongst all users in both communities that use water from this aquifer. As stated in the introduction, Cabo Pulmo is situated in the Eastern Cape region which includes four main watersheds: Los Planes, San Bartolo, Santiago, and Cabo Pulmo (see Figure 1.4).



(FIGURE 1.4. BCI 2021).

Nevertheless, the amount of water being replenished in the aquifers is inadequate to satisfy the water needs of the entire Eastern region. It is worth noting that two out of these four basins experience water shortages. Cabo Pulmo is located in a watershed that experiences a water shortage of 1.33 million cubic metres. This represents approximately fifty percent of the existing aquatic volume present in the local watershed. Based on the data extracted from a report published in 2021, future forecasts suggest that Cabo Pulmo’s deficit will be twice as large by the year 2040. Based on this data, it is projected that the Eastern Cape region will have a water shortage of 21.58 Mm³ in the next twenty years. This is a 46% increase compared to the current pace at which the aquifer is replenished (Falcon et al. 2021).

The shortfalls in the local aquifer of Cabo Pulmo also reflect in the overexploitation of the local water resources. During the semi-structured interviews that I conducted with residents of the settler migrant community, gardening was mentioned as the main activity in daily routines that required most of the water supply. In contrast, the Mexican community expressed that the major water quantity that they use is used for business purposes: cleaning boats, diving equipment,

toilets and showers. Although, water has become a scarce resource to care for in contemporary contexts, other everyday activities require a significant amount of water. For instance, laundry, cooking, caring for pets and livestock, pools, jacuzzies etc. Therefore, excessive usage continues to stress the local water supply.

1.5 WATER SCARCITY

The southern part of the Baja California state experiences the majority of its rainfall during the hurricane season, as supported by empirical data from an interview. The duration of this season is restricted to the period between July and October, with a critical moment occurring in September. Approximately 47.1 million cubic metres (Mm³) of fresh water is annually replenished in the aquifers of the Eastern Cape during this period. Nevertheless, this quantity is insufficient to fund the water grants and save the ecosystem of the Eastern Cape. In the Eastern Cape region, there is an allocated volume of 50.94 square metres every year. This leads to an annual deficit of 3.84 million cubic metres.

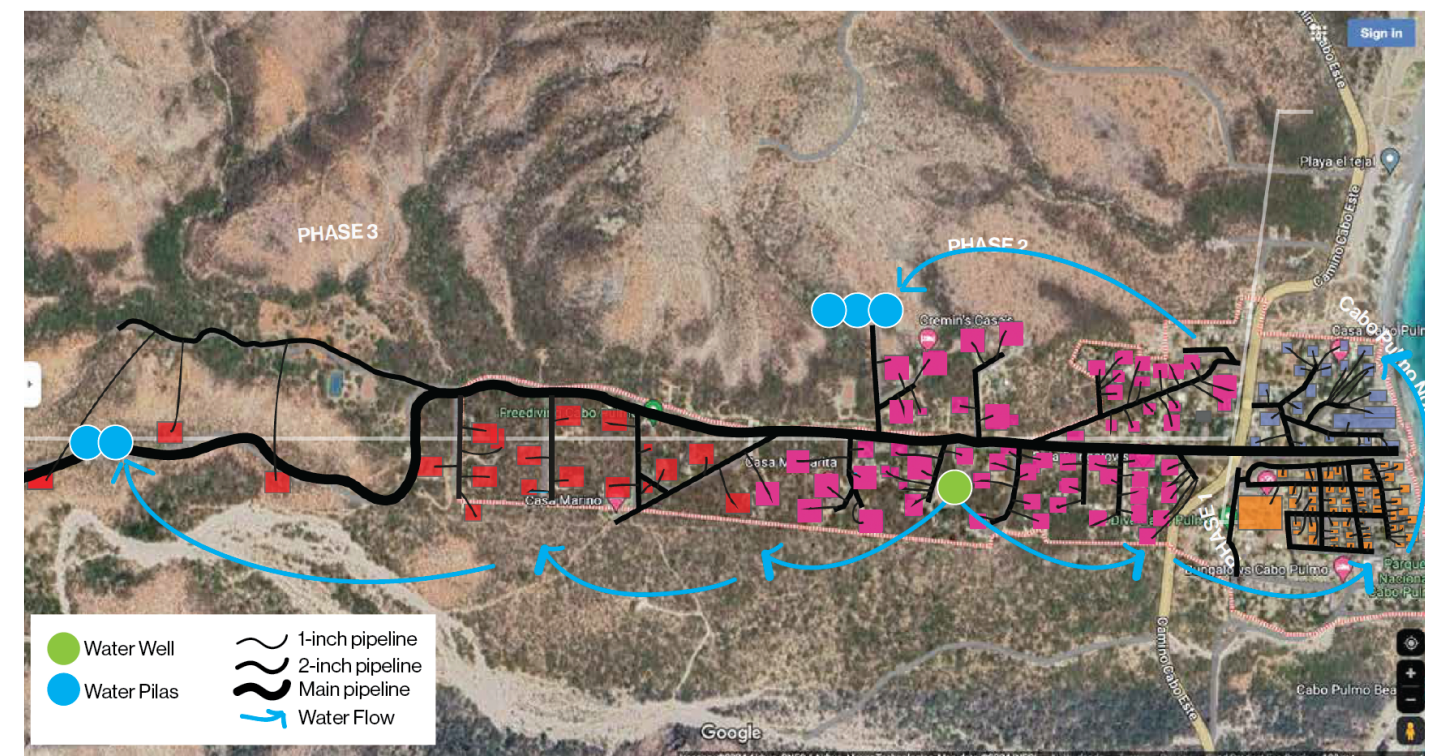
While the current water supply in local towns is not immediately depleted, the combination of rapid growth and drought in this region poses a future concern. This deficiency is evident in the regional water reservoir in Cabo Pulmo. Essentially, the Cabo Pulmo aquifer has a deficit in water availability due to excessive withdrawal that exceeds the natural recharge rate. Figure 1.6 illustrates the geographical layout of Cabo Pulmo, which includes Cabo Pulmo Norte, phase one, phase two, and phase three. Each of these separated phases is distinguished by its own distinctive geographical location and demographic mix. For instance, Cabo Pulmo Norte is situated in close proximity to the oceanfront at Cabo Pulmo, at a lower elevation. Phase three is distinguished by a gust of wind due to its proximity to the elevated mountain ranges.

When assessing the consumption patterns of Cabo Pulmo residents, it is crucial to take these variations in geographic location and demographic makeup into account. For instance, Cabo Pulmo Norte and phase one are located at the lower end of the water flow, leading to increased water pressure in the nearby residences. This phenomenon can be ascribed to the gravitational movement of water from areas of higher altitude to areas of lower altitude. As a result, settler migrant residents living in these areas may unintentionally consume a greater amount of water because it is easily available, and the water pressure is higher. Anand (2011) engages with the importance of ‘wa-

ter pressure’ in the debate of ‘care’, as it reflects that water accessibility does not merely limit the physical action but encompasses both physical and social relations. Besides, he argues that politics have the same power to restrict a certain water supply as much as topography does. Therefore, issues with water pressure are not just technological problems, but are deeply linked with governance, power dynamics in the local infrastructure and how this eventually impacts the everyday activities of local residents. The various means of exerting pressure and the resulting social and ecological linkages explain how particular residents within a community are able to colonise a certain water infrastructure. As water is transmitted to and distributed through a particular place, it produces and requires regimes of management and marginalization (Swyngedouw 2004). In order to understand how these regimes of management and marginalization reproduce socio-political inequalities in the locality of Cabo Pulmo, I first outline how the local water infrastructure is mapped out (see figure 1.5) and managed amongst both communities in Cabo Pulmo.

1.6 WATER INFRASTRUCTURE

The geographical layout of Cabo Pulmo’s water infrastructure is illustrated in Figure 1.6, which includes Cabo Pulmo Norte, phase one, phase two, and phase three. The water in the illustration originates from the nearby aquifer in Cabo Pulmo and flows into the water well, represented by the green colour. The water initially activates all the water pipelines in phase one and phase two. Then, the water ascends to the three reservoirs (“pila’s”) located on the elevated hill (coloured blue). The local population consider this infrastructural design as ‘poor’. One primary factor is the distribution of chlorine, which requires it to remain in the water for a certain period to effectively disinfect it. Future plans made by Cabo Pulmo’s Water Alliance should incorporate the installation of an additional water pipeline connecting the well directly to the pilas, which can then be used to distribute water to the entire neighbourhood. The water that reaches phase three follows a similar pattern, where it is supplied to the houses before being sent to the pilas. The solar pump at the well is controlled by a radio frequency telemetry-controlled float switch, which shuts off the pump when the phase two pilas reach their maximum capacity. Regrettably, phase three lacks automated monitoring and requires manual supervision, with valves being manually adjusted at the well as needed to distribute water.



(FIGURE 1.5, ZANDT 2024).

In conclusion, this chapter has explored a critical approach to the creation and establishment of NPCP. I have shown that the transitioning to NPCP was undertaken in the name of ‘care’ for the reef, but some Mexican residents in the community argue that this transition is an attempt to seek control over Cabo Pulmo, fuelled by external parties and international interests. Although Cabo Pulmo is a community known for environmental conservation, ecotourism, and sustainable development, it faces significant challenges on an everyday basis. These challenges revolve around the power of allocated resources, particularly water and land. This chapter has explained that the allocation of land has shaped the local water infrastructure and influenced different power dynamics within the Mexican and settler migrant communities. Showing that the privatized water infrastructure favours the settler migrant community by granting them unlimited access to water, while Mexican natives experience limited access due to their reliance on less efficient, privately-owned wells. This disparity highlights socio-cultural and economic inequalities caused by the privatized water system, promoting excessive water usage among an exclusive part of Cabo Pulmo’s population: settler migrants. The uneven allocation of water supplies worsens socio-economic disparities and social turmoil, sustaining a pattern of inequality and conflict in Cabo Pulmo. This excessive water usage results in the overexploitation of the local aquifer in the Cabo Pulmo region which requires careful management among all users, including the

local communities that use the water. In the following chapter, I expand upon the concept of care by elucidating the transformation from a passive form of ‘care’ to a more proactive state of ‘care’. This is exemplified through the case study of Cabo Pulmo, which illustrates how the excessive exploitation of the local aquifer motivates residents to devise sustainable alternatives to enhance water availability.

CARE AS CONCERN

H⁷: “It is eleven in the morning, I am waiting for H to meet us in the village, the road to his ranch appears to be a little complex for someone that has only been to Pulmo once. From a distance I see a grey ‘pick up’ truck appearing. Although the dusty clouds, I guess this must be him.

A warm welcome was given by H and his four barking dogs and not to forget, 17 goats. When I listen carefully, I hear a lot of chickens somewhere on the background. I guess they are situated in the back of the ranch. What an interesting place.

I see a typical ‘palapa’. Palapa is a Spanish word that refers to a canopy, it is used to protect people from the sun. Among residents in Cabo Pulmo these palapas are from great importance due to the crazy heat all year round. H explains me that, also for him, the palapa was the first thing he needed to build when he moved to Cabo Pulmo. “When we moved here, there was literally nothing, we were forced to live with the resources that nature provided for this deserted place. H continues; “don’t get me wrong, that’s the reason why I came to Pulmo. But, it does require me to optimize our usage of the local resources: water and electricity”.

Water becomes a vital resource in these extreme temperatures, he continues. H has tried to develop his own water system over the last year. A system that captures water in the hurricane season and from the clouds, then store it for the other months to use the water in the months that are more dry. Unfortunately, the system is not working yet, but he explains me why he tried to develop his own water system.

“Water is a very very scarce resource here in the State of Baja California Sur, Mexico. H explained me he has been the chairman of the water committee here in Cabo Pulmo. “I know too much, and we all together make a very big mess.”. He refers to the decreasing water quantity in the local aquifer. “I will have another meeting coming up next week to address the current panic amongst the residents in the settler migrant community. Right now, the groundwater level had dropped to such an extent that the pump of the water well could no longer be reached. It is crazy, no water could be pumped and therefore, be delivered to the households. Since the time that I live here, which is now more than 17 years, this is at least the third time the pump has been placed deeper in the well, due to the decreasing groundwater level due to overexploitation. I already told the settler migrant residents multiple times that with irresponsible water

usage, there will be a moment in time when no more water can be pumped; that time is getting progressively closer, if it is not already happening.

The water that is being pumped right now contains a high concentration of contaminants and heavy metals. The reason for this is that these heavy metals and contaminants such as ecocline always sink to the bottom of the water basin. So, the deeper you pump, the more contaminants in the water. But now that water is flowing through the residents’ pipes again, a part of the residents is happy again. For very few residents, there is a concern though”. [Fieldnotes, March 12th 2024].

The abovementioned vignette examines the ongoing scarcity of water among the local residents in Cabo Pulmo. This story is derived from the fieldnotes I wrote during a participant observation. The notes address a specific issue about the water pump’s inability to reach the current water level in the aquifer. However, H elucidates the connection between ‘irresponsible usage’ and the ongoing depletion of the local aquifer, which is relied upon by the residents of both communities in Cabo Pulmo. This vignette serves as an opening piece to the second chapter of this thesis, where I elucidate the interconnection and formation of the concepts of ‘care’ and ‘concern’. I shall begin by elucidating the social integration of ‘concerns’ inside the local livelihood in Cabo Pulmo. Later on, I will move beyond the passive form of being ‘concerned’ excessive usage and a depleting aquifer, into actual care practices such as desalination, separation and recycling systems to maximise the amount of water availability in the arid climate of Cabo Pulmo. In conclusion, I will discuss how these well-intentioned projects have the capacity to perpetuate and initiate inequalities in the social, political, economic, and ecological aspects among the residents of Cabo Pulmo.

2.1 ANTHROPOLOGY OF CARE AS CONCERN

Care relationships transform over time in ways that are often unpredictable, complicated, or conflicted (Cook and Trundle 2020). Therefore, thinking of care is contradicting and disruptive in its essence due to its omnipresence, even though the effects of care are often absent (Bellacasa 2017). For instance, to care can either feel good or awful. To care can do good or it oppresses. In a world that is constantly changing around us, common resources get privatized, overused and, ultimately, depleted. How do we care about such big events, and can we actually transform this passive form of caring; being concerned, into an attentive form of care by actually doing something about it?

Although the concepts of ‘care’ and ‘concern’ are often addressed as two separated terms within the anthropological debate, the attention to concern brings us closer to understand the notion of care (Bellacasa 2017). Let’s consider the distinction between stating: ‘I am concerned’ versus ‘I care’. The first refers to a state of concern and contemplation over a matter, as well as the condition of being part of the group of individuals who are impacted by it. The second element fosters a profound feeling of connection and dedication towards something. One can get concerned about matters, but ‘to care’ implies a stronger emphasis on taking tangible action (Bellacasa 2017).

In the abovementioned vignette, we can analyse that H refers to a particular concern about over-usage in relation to a depleting aquifer. This concern interacts within a complex web of relationships, influences and interests amongst those affected by it (Latour 2004). After my interview with H, I spoke more in-depth about this concern with other residents in the settler migrant community. The way how settler migrants and Mexican residents in Cabo Pulmo relate to the water scarcity is differently perceived. Some residents I spoke to indeed expressed concerns about the overexploitation of the local aquifer. I quote an interesting conversation I had with a settler migrant who has been living with her husband in Cabo Pulmo for more than twenty years. Whereas their visit to their home in Cabo Pulmo was more sporadically, they now permanently live there. “She stated, living in this area permanently requires you to really care for the

place and the resources you are choosing to live in” We do, but unfortunately not everybody thinks in this way. Below I outline an interesting section of our talk together:

S⁸: There are people that care like we do, in both communities, and there are people that couldn’t care less about it. The only care about their own needs in the moment, and they don’t have any foresight. As far as water usage goes, I feel that it is probably a minority of people here that concerns themselves with water usage. I just think people in general, and most people they don’t really understand that the water level that goes down when so much is being used. If you would care, you could understand it.

But, as far usage goes, when I talk about the water usage to other residents in the community, I get responses: ‘Oh no, I don’t take that much. People are just denying it, and that is the alien in society: when you try to reach out to people they just don’t want to hear it. But what do we do when people don’t want to be truthful about their own existence. It’s hard, we have approached the subject, but most people don’t want to hear it. I guess, it is a whole ego part to it, that people don’t want to get told what to do. Okay, but do you care?’

That’s so scary, when people don’t care...They supposedly good-hearted people, that don’t really care beyond their own existence. Because, I do believe or maybe I want to believe, that more people in this world don’t necessarily think in that way. However, in this particular community it also reflects a more cultural complexity. At least ‘gringo’s’ societies are more self-centred oriented from an individual perspective. But, this is not the case in all other cultures; because in some other cultures people grow up with the concept of ‘care’ and being ‘concern’ for others; caring for family, care for the elderly, caring for the children. In contrast to the American cultures, they do care beyond their individual self only”.

In the abovementioned section is interesting to outline because it reflects how a matter of concern regarding over-usage within a depleting aquifer is either present or absent in other minds of the local population of Cabo Pulmo. It explains how expressing a concern within the local society includes double-edged risks (Bellacasa 2017). For example, when S was stating: “I feel that it is only a minority of people here that concerns themselves with the actual water usage. But people are just denying their actual usage, and that is the alien in society: when you try to reach out to people they just don’t want to hear it”. The informa-

7: Section from Semi Structured Interview with H, a settler migrant resident who has been living in Cabo Pulmo for over seventeen years. He served as my gatekeeper in the field. He works as a chair man within the Water Committee of Cabo Pulmo.

8: Semi Structured Interview conducted with one resident of settler migrant community in Cabo Pulmo. March 24th 2024, Cabo Pulmo, Baja California Sur, Mexico.

tion that S is giving in our interview corresponds with other settler migrant and Mexican residents I spoke with during the fieldwork. The capacity of the word ‘concern’ in this context, moves more in the direction of ‘interest’ as it effectively engages with connotations, notably those of trouble, worry and care (Latour 2004). The living concern about water usage shows a contradicting relationship among the settler migrants in Cabo Pulmo. Whereas I spoke with numerous settler migrant residents who are concerned about water usage through the minimalization or optimisation of water in their daily activities, other settler migrants expressed their concerns about the excessive water they need for sustaining their palm trees and flowers in their gardens.

Another interesting element that S refers to in the abovementioned dialogue is how cultural complexity might influence the relationship between concerning and caring for water usage in Cabo Pulmo. She explains how a more individualised American culture influences how settler migrant residents relate to issues regarding water availability. Below I will outline different methods of water optimization amongst both communities in response to the growing concern of a depleting aquifer. Besides, I will mention how social relations and cultural backgrounds might influence the way how these methods are addressed and enacted and how this reproduces disparities in social-ecological and political realms.

2.2 SEPARATION SYSTEMS

R⁹: “Fundamentally seen, the first thing you should do when you start building your property here in Cabo Pulmo is having a grey water system, a good functioning and approved grey water system. In this way, you can recycle the water that you are using. This is something everybody (see: in the settler migrant community) needs to have it anyway. Although, up here, when constructors were building our house, we asked for a grey water system. But, we did not get it. They never put a grey-water system, they just ignored it. When all the plumbing was done, there was no grey-water system. And what do you do? We could invest some money, in tapping catching water from the kitchen, bathroom etc. I think we could, probably, going through the wall, but that should have done been earlier. We need to do exterior plumbing, to get the grey water system. It cost a lot of money plus the thing is, we don’t use that much water though.

It is for us, not for our purposes, not an issue to live with less water”.

P¹⁰: “When I take a shower, u know, I run the water, get my hair wet, I turn it off, and then I turn the shower on to rinse, and then I turn it off again. I just don’t run a shower for ten minutes. But most people do”.

The abovementioned conversation reflects on care practices that concerns the optimization of water usage through different methods. One example is the greywater system that R mentioned. The majority of the settler-migrant community in Cabo Pulmo have incorporated a built-in water system in their dwellings to maximise water efficiency and recycling. Grey water refers to the wastewater produced from household activities such as showering, using sinks, and operating washing machines. This system purifies the grey water and recycles it for irrigation in the garden. The settler migrants favour this technique due to the fact that all respondents emphasised the need for a substantial amount of water for their plants and gardens. While this technology optimises water usage, it poses a threat to biological organisms. Due to the presence of soap, the water is not suitable for drinking.

Septic tanks are an additional illustration of a cleansing system that enhances the longevity of water. These subterranean reservoirs gather and purify wastewater (originating from the toilet) by employing natural mechanisms to break down the microorganisms present in the water. Thus, the primary sewage is unaffected by the hazardous substances present in this water. This approach is frequently utilised by the settler migrants community in Cabo Pulmo. However, contextualizing septic tanks in Cabo Pulmo is also differently used amongst both communities and could potentially trigger social, political, economic and ecological inequalities in Cabo Pulmo:

B¹¹: “We have a regular septic tank here in phase three. We either use the water from the septic tank to water our plants, the rest will go back into the aquifer. So far I know, this water that comes from the septic tanks that are placed in phase two and three are not doing any harm to the aquifer. However, the type of septic tanks in the Mexican village is different. They might be on the edge right now of polluting the aquifer with the water that is being recharged from the septic tanks. I understand though, the Mexican community does not have the access to educational support about these kind of investments. And then

I am not even talking about money, because financial resources are needed. This kind of system require a lot of electricity and pumping to make this system work”.

2.3 DESALINATION SYSTEMS

Besides separation systems, another method for maximising water availability in areas with limited resources is by implementing a desalination plant (Canteiro Hernandez 2024; Zwarteveen et al. 2024). A desalination plant is a facility that employs a filtering system and electricity to remove salt from saline water, thereby converting it into freshwater. In 2019, a solar system provider came to Cabo Pulmo and conceived the concept of a desalination plant. An owner of a large commercial property recognised the potential of this design and assumed control of the idea. Due to the substantial size of his property, he required a greater quantity of water to adequately irrigate his garden and nourish the plants. “It is imperative that everything appears aesthetically pleasing when my guests arrive.” He collaborated with a desalination provider based in The Hague, Netherlands. The supplier provided reassurance that there would be no harm inflicted upon the reef within the National Park Conservation Programme. By what means?

Unlike other suppliers, this desalination facility extracted water from the lowest stratum of the aquifer rather than pumping it up from the ocean. Saline water, being denser than fresh water, tends to accumulate predominantly towards the bottom of the aquifer. The desalination plant was designed to extract water from the deepest layer of the aquifer and pass it through a filtration system to eliminate salt and other minerals. Following this procedure, the water becomes appropriate for human consumption, irrigation, or industrial use. Installing such projects in NPCP necessitates a consensus and comprehensive involvement from all communities in Cabo Pulmo. The Mexican community plays a crucial and influential role in driving innovation and change within NPCP. To gain support for the desalination plant, the owner made a commitment to provide the Mexican community with desalted water for their local water infrastructure.

The project came to an end in 2023 due to a lack of communication and involvement between the owner and the two communities. A substantial sum of mon-

ey was expended on the installation of this plant. “All installations have been completed and are now ready for use.” However, due to legal restrictions, I am unable to activate it. This comment is extracted from an interview I had, showcasing the dedication that was devoted to this project. Regrettably, the project was further hindered by the absence of a permission, which had a detrimental impact.

At the commencement of the project in 2019, it was necessary to submit applications for multiple permits. Despite the COVID-19 pandemic causing delays in the permission application procedure, the owner, driven by impatience, proceeded with the construction and installation. This was regarded as something ‘malicious’ by the Mexicans. Engaging in such project organisation implies the presence of wrongdoing, where actions are being undertaken that are prohibited. It appears that this individual is concealing something, as they failed to communicate and commence construction without obtaining a collective agreement from the local community, let alone the necessary permit that has not been granted. This really highlights the obstacles faced by this project. Due to a lack of transparency surrounding this initiative, the individuals mostly from the Mexican community but also from the settler migrant community remained ignorant. Consequently, the majority of people in Cabo Pulmo’s National Park had limited awareness regarding the advantages and disadvantages of desalination and its impact on the local ecology.

Over the course of five years, this initiative generated significant conflict within both communities. However, considering the establishment of a desalination facility in the midst of a desert, what impact does that have on our water consumption? The opinions of the respondents I have spoken with differ:

Z¹²: “It really could have been the solution for the community, generating more water amongst more all residents in Cabo Pulmo. It would create, finally, an equal distribution. Enough water for everyone”

C¹³: “No, I don’t know anything about it. Maybe if I did I would know more... because now I just assume it is bad for the park”.

W¹⁴: “No never heard anything from it. But I guess the wastewater would be negatively affecting the reef. Imagine turning so much salt into the ocean. We will have a dead sea”.

“Y¹⁵: We live in a desert here, but then you want to use a lot of water. It is like having New York in the middle of the desert.

9: Quote from Semi Structured Interview with R, a settler migrant resident in Cabo Pulmo. Date: March 29th 2024, Cabo Pulmo, Baja California Sur, Mexico.

10: Quote from Semi Structured Interview with B, a settler migrant resident in Cabo Pulmo. Date: March 29th 2024, Cabo Pulmo, Baja California Sur, Mexico.

11: Quote from Semi-structured interview with settler migrant resident B. March 15th 2024, Cabo Pulmo, Baja California Sur, Mexico.

12: Quote from Semi-structured interview with settler migrant residents Z. March 15th 2024, Cabo Pulmo, Baja California Sur, Mexico.

13: Quote from Semi-structured interview with settler migrant residents C. March 13th 2024, Cabo Pulmo, Baja California Sur, Mexico.

14: Quote from Semi-structured interview with Mexican residents W. March 15th 2024, Cabo Pulmo, Baja California Sur, Mexico.

15: Quote from Semi-structured interview with settler migrant residents Y. March 15th 2024, Cabo Pulmo, Baja California Sur, Mexico.

Also, I do agree with the Mexican community that it is so outraged and out of this context”.

2.4 RECYCLING SYSTEMS

Unlike the settler migrant community, the Mexican community has a distinct and unique daily system for organising water outside technologically advanced systems. Based on the responses obtained from several interviews, it was found that the majority of the water is utilised by the local businesses operated by the Mexican respondents. The primary economic activity in Cabo Pulmo amongst the Mexican community are predominantly centred around water pursuits, for example, diving, boat tours, snorkelling etc. When the National Park Conservation Programme NPCP was established, the number of dive shops increased from two to over 70, resulting in a significant increase in the number of boats operating in the park. The number of dive shops in the park has expanded from two to ten shops and each of these dive shops own its own vessels to transport guests for snorkelling or diving excursions at NPCP’s renowned dive locations. The rapid expansion of NPCP had noticeable implications on the utilisation of water resources.

According to the semi-structured interviews I had with owners from several dive shops in Cabo Pulmo, the primary utilisation of water by the Mexican community is for the purpose of cleansing vessels that have been exposed to saltwater. This activity necessitates the greatest volume of water. Currently, there is no published data that precisely quantifies the amount of water used for this activity. However, the Mexican community employs their own methods to efficiently manage water consumption in their local houses and domestic settings that move beyond the technological separation systems that the settler migrant residents use. During several conversations I had with long-standing family members residing and working in Cabo Pulmo, they conveyed their concerns about the insufficient water supply and their lack of expertise in utilising recycling systems, which is unlike the foreign residents. The participants in my research repeatedly showed a notable lack of knowledge and financial resources, which was an intriguing component of our conversations. “Over there, the ‘extranjeros’ (framing of settler migrants from a Mexican per-

spective) make use of all these recycling systems, but you know how much money that costs. We don’t have that”. I will explain this by highlighting one informal conversation I had during a participant observation.

P16: We have a small reservoir, which we fill with water. Initially, we thoroughly cleanse the regulators and masks. When the water is very clean, it is advisable to prioritise washing the masks and regulators first, as these are the items that come into direct contact with your mouth and face. The next user requires the items to be impeccably clean. Next, we proceed to submerge the bcd’s (buoyancy control devices) in the same water reservoir. These vests are typically exposed to salty water, thus the salt needs to be rinsed off. Once that task is completed, we proceed to cleanse the wetsuits within the identical basin. It is possible that some individuals may have urinated in it. Therefore, we prioritise washing the wetsuits as the final step. We consistently strive to utilise the identical water for all purposes. To minimise usage as much as feasible. However, some individuals prefer to utilise their personal equipment and rely on the water from the shower for its cleansing purposes. However, it is exasperating to me because you are squandering a significant amount. It is evident that you are utilising shoes and various other items. These are the final items to be removed. Indeed, that is the standard procedure followed by every shop in this location. That is consistent throughout the entire hamlet. Everyone adheres to that approach. That is the location where fresh water is available, either in a tiny reservoir or by the use of buckets. However, while you are waiting for the boat to arrive after diving, a client suddenly appears and immediately proceeds to rinse their shoes in the water. These shoes are filled with sand, causing a significant disruption in the water that we are attempting to organise with maximum efficiency. It is exasperating and bothersome. However, they are unaware. Not everyone comprehends its functioning”.

The abovementioned conversation elucidates that the practice of water reuse in the Mexican community of Cabo Pulmo does not necessarily rely on costly separation systems. It demonstrates how simple and practical methods can efficiently optimise water usage without requiring significant financial investment. The conversation highlights the efforts of diving schools in the commercial area of Cabo Pulmo to protect water resources by actively reducing water waste on a daily basis.

Optimising water quantity to extend its lifespan is crucial in the Mexican community of Cabo Pulmo.

Consequently, water becomes a scarce commodity in the daily lives of Mexican inhabitants that requires efficient (re)use.

M17: “There is just not enough water that we get supplied. Which means, we have to do it with the water that we receive on Mondays and Wednesdays. I am lucky, because my family has a water well that was owned by my grandparents. In emergency situation I can make use of that water well, however, that usage is exclusive for my own family members”.

In conclusion, this chapter examined how care is closely intertwined and constituted from matters of concern. It has shown that a living concern interacts with a complex web of relations, influences and interests by those who are affected by, in this case, water scarcity in a deserted environment. Through ethnographic material, I have shown that cultural complexities might affect the way how residents relate to the actual concern and care for water usage. While the settler migrant community tends to rely on technologically advanced systems to optimize water availability such as grey water systems, septic tanks, and desalination projects, these methods often remain inaccessible to the Mexican community due to financial

and educational constraints. This technological divide exacerbates existing socio-political and economic inequalities, as the Mexican community resorts to more rudimentary and labour-intensive methods of water conservation, which, although effective on a small scale, lack the systemic support to be sustainable long-term solutions. Furthermore, the reliance on advanced water management technologies among the settler-migrant community does not necessarily translate into reduced overall water usage. Instead, it often perpetuates the over-extraction and depletion of the aquifer, highlighting a critical flaw in assuming that technological solutions alone can address environmental challenges without considering broader socio-cultural impacts. The next chapter moves beyond ‘care’ as an individual act, by introducing a more social and collective approach to care in Cabo Pulmo.

16: Conversation from informal conversation during participant observation with P. February 30th 2024, Cabo Pulmo, Baja California Sur, Mexico.

17: Quote of Semi-structured interview with M. March 27th 2024, Cabo Pulmo, Baja California Sur, Mexico.

CARE AS TINKERING

3.1 ANTHROPOLOGY OF CARE AS TINKERING

“Caring for our water is not something we should do once, it will be something we will need to continue doing.”

This final chapter moves beyond the controlling and concerning facts within care practices by introducing the concept of ‘tinkering’. I will do this by explaining a lawsuit that occurred during the research period in Cabo Pulmo, where grassroots activities were initiated to regain and reimagine ‘care’ over the malfunctioning and limited management of the local water infrastructure. This example shows that a dynamic water system should surpass a techno-managerial framework, by incorporating notions such as experimenting. In this chapter, I argue that ‘care’ is not a stagnant process, but rather ongoing, which should be adaptable and flexible regarding unforeseen situations to bring about change in water quality. Therefore, the ability to explore, improve and adapt is crucial to the essence of care, encompassing not just its controlling and concerning aspect but also efficacy, perseverance, and resilience. This can be linked to the process of ‘tinkering’ within care practices.

Tinkering is understood as the need for improvisation and experimentation in managing water and groundwater conditions (Zwarteveen et al. 2024). Tinkering is, the same as caring and concerning for, a continuous process in which flexibility and adaptation are always deeply embodied, experimental, contingent and relational, as well as the ability to take action on evolving systems in order to bring about a change in water quality (Cook and Trundle 2020; Mol et al. 2010; Melly 2020; Zwarteveen et al. 2024). Whereas traditional methods of care often prioritize efficiency and control, which overlooks the nuanced and personalized nature of care, tinkering acknowledges the ‘learning from mistakes’, and the ongoing experimen-

tation that are inherent in providing ‘care’.

Care, in its essence, is an act of tinkering (Cook and Trundle 2020). Cook and Trundle (2020, 255) argue: “In the realm of care, there are no definitive solutions or one-size-fits-all answers. Each caregiving scenario is unique, requiring a tailored response that is sensitive to the specific context and individuals involved. This is where the concept of tinkering becomes particularly valuable”. Trundle invites us to rethink traditional notions of care, advocating for a model that embraces the adaptability and creativity inherent in the act of care as tinkering. We see this in the case of Cabo Pulmo where grassroots activities lead to an alternative way of caring for the local water infrastructure that failed to properly function.

During a participant observation in the local market where a lot of settler migrants gather every week, I heard a lot of frustrations around ‘care’ for water usage, the current water quality, and the management of the water that they use. Along was rapport built with my research participants in the settler migrant community, some interlocutors opened up about what was currently happening in the community.

W¹⁸: “It is so crazy, for years we are fighting already. Nobody seemed to care, but back in 2018 residents started to feel sick. Don’t you see, there is no water in this environment, meanwhile we were making use of a water infrastructure full with leaks in the pipes. It is insane how much water was lost. Water that we don’t even have. Besides the leaks, their was also this whole thing about the quality of the water that was running through our taps. No tests were done in the last twenty years, we were using water full with toxifies. Really, the owner of the water infrastructure never seemed to care, that’s the reason why teamed up with some other residents in this community, people who also care”.

During my conversation with W and other residents in the settler migrant and the Mexican community, it became clear that the water situation in Cabo Pulmo, has been an area of conflict for many years. In the first

chapter of this thesis, I explained how the water infrastructure is managed for both communities in Cabo Pulmo. Although the privatised management of the water infrastructure for the settler migrant community was intended to enhance access and reliability for all residents in Cabo Pulmo, it ultimately resulted in a gradual disregard for infrastructural maintenance. Over the past two decades, inadequate maintenance and insufficient investments in the infrastructure have resulted in the deterioration of the water system. This includes the occurrence of leaks, cracks, and construction failures in the water well, pipelines, and pila’s. The dysfunctions in the infrastructure have an impact on the water quantity that is delivered from the water well to the local families in Phase one, two, three, and Cabo Pulmo Norte.

The deterioration of the water system inside the settler migrant community in Cabo Pulmo has not only impacted the amount of water available but also the overall quality of the water. This presents considerable health hazards for the people who rely on the water system. As a result of poor management and lack of attention to faults in the water system over the past two to two and a half decades, insufficient supervision has allowed contaminants to build up in the system, leading to elevated levels of toxins and bacteria, including coliform. This issue was also a result of the water well being obstructed by wooden materials and being poorly constructed, as depicted in the pictures 1 and 2. The proliferation of waterborne pathogens in this well poses a significant risk to public health, particularly among children and elders, resulting in various ailments such as abdominal pain, vomiting, and fever (Gruber et al. 2014)



PHOTO 1: THE COVER OF THE WATER WELL BEFORE RECONSTRUCTION



PHOTO 2: THE WATER WELL BEFORE RECONSTRUCTION

Multiple interviews that were conducted uncovered that the water pollution situation and infrastructure deterioration in Cabo Pulmo are not solely technological problems, but rather indicate a more extensive failure in management and disparities. Therefore, the care that was enacted to build a well-functioning water infrastructure for the community in Cabo Pulmo, as explained in chapter one of this thesis, was practised from a more fixed and stagnant perspective. Once the infrastructure was built, no additional care was added to enhance the water infrastructure which suited new circumstances in which it needed to operate. The previous infrastructure lacked adjustments that were made to adapt the infrastructure to, for example, the increasing scarcity of water or the over-exploitation due to human expansion in phases two and three in Cabo Pulmo. This refers to what settler migrants were expressing during the semi-structured interviews that were conducted:

T¹⁹: “He is the main guy, that is kind of responsible for everything here, but he is not, and he there is no desire to be. Me, money, greed, lies and deception are part of his norm”.

Therefore, care for an infrastructure cannot be retrieved from a fixed or uniform practice but should incorporate a rather a dynamic and iterative process that resembles tinkering (Cook and Trundle 2020; Mol et al. 2010) Tinkering often includes non-modern skills and modern forms of scientific expertise, by showing that also supposedly modern technologies and institu-

18: Casual conversation with W, a settler migrant who has been living in Cabo Pulmo for twenty years. W is a member of the Cabo Pulmo Water Alliance. March 8th 2021. Cabo Pulmo, Baja California Sur, Mexico.

19: A quote retrieved from a Semi-Structured interview I had with T: a settler migrant who has been purchasing land and water from the first owner of Cabo Pulmo. Conducted April 7th, 2024, Cabo Pulmo, Baja California Sur, Mexico.

tions rely on in-situ adjustments and hands-on forms of experimentation- those that may involve embodied and experimental forms of knowledge (Zwarteveen et al. 2024). The tensions around the maintenance of the local water infrastructure for the settler migrants, resulted into the development of Cabo Pulmo's Water Alliance. This informal, and non-profit organization was built from local initiatives of the settler migrant community. I spoke with S about the driving force behind the creation of Cabo Pulmo's Water Alliance. Below I outline a section of the conversation we had during a semi-structured interview:

S²⁰: “Actually me and my partner had never heard from this community that gathered before. But I was told, that they needed my administration skills. In that time, I never expected to be involved to the extend I do right now. We united skills and professions such as engineering skills, administration skills, lab skills etc, and ultimately we formed Cabo Pulmo Water Alliance”.

The deterioration of the local water infrastructure and the declining water quality resulting from insufficient testing have left residents in the settler migrant community misinformed and vulnerable. The settler migrants who expressed severe concerns regarding the current conditions in which the water infrastructure was operated for many years, were prompted by a call to action to demand accountability, transparency, and action from those responsible for water management. This particular circumstance prompted a collective of migrant settlers to assert their authority over their water resource and created the Cabo Pulmo Water Alliance.

Renovations were made for the water well, pipelines, and pila (see to photos 3 and 4). In addition, water tests were conducted quarterly to enhance the water quality. Besides, fences were erected to safeguard the integrity of the water well infrastructure. The entire water infrastructure was renovated and adapted to the new circumstances that were needed to ensure water quality and functioning pipes. As S said in the abovementioned conversation we had: “We united skills and professions such as engineers, organizers, administrators, and advocates, to enhance the infrastructure”. The unity of skills, knowledge and professions within the informal organization of Cabo Pulmo's Water Alliance, can therefore be seen as care of tinkering. The fact that these residents of the com-

munity tinker, does not in itself mean that they care, but effective groundwater care always hinges on the ability of those involved to tinker (Dominguez-Guzman et al. 2017; Zwarteveen et al. 2024). Appreciating the importance of tinkering care means being alert, supple, attuned attentiveness (Mol et al. 2010). Frequent encounters with the aquifer, wells, and pumps help such attentive.



PHOTO 3: COVER OF THE WATER WELL AFTER RECONSTRUCTION



PHOTO 4: WATER WELL AFTER RECONSTRUCTION

3.2 THE LAWSUIT

Although well-intended prompts and care adjustment to the local water infrastructure, this project of the Cabo Pulmo's Water Alliance was being conducted without the legal consent of the actual owner of the water well. However, through grassroots activities and community initiatives, Cabo Pulmo's Water Alliance was able to operate under the name tag of an 'emergency task'. During the period that I was doing my fieldwork, this situation led to a lawsuit in which topics surrounding ownership and future management were being discussed. This case provided a unique opportunity to examine the emotional connection between water and the local community of settler migrant residents in Cabo Pulmo. However, it did pose a potential challenge to my role as an anthropological researcher, as my focus is mostly on the social aspects of the research. This occurred because certain research participants with whom I had conversations were directly engaged in the legal proceedings. Furthermore, in light of the ongoing case, certain essential information cannot be disclosed since it has the potential to impact the integrity of the legal investigation. When examining the nature of this lawsuit from an anthropological perspective, it is crucial to consider the mobilisation of settler migrant residents. This not only led to a division between Mexican residents and settler migrant residents in Cabo Pulmo, but also created a division within the community itself. The cause of this is a persistent dispute concerning the optimal administration and therapy of this well. The dispute, as indicated by several interviewees I consulted, centres on the question of 'who is correct and who is incorrect', so deviating from the fundamental nature of the issue. "Ultimately, pointing fingers will not solve the problem. This issue is not isolated to any individual; it affects all of us because we all rely on the same water resource." Moreover, several residents emphasise the adverse consequences of improving water quality by using hazardous substances in the cleaning system. Residents contend that while chlorine effectively cleans the water and pipes within, it has detrimental effects on all other living organisms both above and below the ground.

For that reason, care can be seen as an act of tinkering because it recognizes the unpredictability and fluidity

of responsiveness. However, this chapter on tinkering in the context of care practices explained how tinkering can be effective in addressing dynamic and complex issues, it can also reproduce and exacerbate socio-political inequalities as discussed in chapters one and two of this thesis. Often, tinkering relies on the accessibility of the resource and expertise. This can lead to the inequalities surrounding financial and educational resources which is closely related to the explanation in chapter two. In order to tinker effectively, one requires access to particular resources, tools, and skills. The formation of the Cabo Pulmo Water Alliance in Cabo Pulmo united professionals with diverse expertise in fields such as engineering, management, and laboratory research. Nevertheless, individuals hailing from disadvantaged socioeconomic situations or lacking educational opportunities may face limitations in terms of the resources and abilities required to actively engage in such endeavours. In addition, possessing knowledge and abilities is essential for successful tinkering. Communities that have improved access to education and technical training are more inclined to cultivate the ability to engage in adaptive management, which puts communities with lower levels of education at a disadvantage. This might result in the marginalisation of specific residents both inside and between communities. This phenomenon is strongly connected to cultural marginalisation, as tinkering techniques and grassroots movements may mirror the prevailing culture and marginalise minority groups. Within Cabo Pulmo, a group of migrants who have settled in the area have established the Water Alliance. However, it is worth noting that this alliance may not completely encompass or accurately reflect the local Mexican community. Consequently, this has resulted in tensions and a lack of cohesive collaboration.

To conclude, this chapter explored the concept of 'tinkering' in the context of water conservation in Cabo Pulmo, illustrating that care is not a static practice but an ongoing, adaptable process crucial for improving water quality. Through the lens of a recent lawsuit, I examined how grassroots activities were initiated to regain control over the malfunctioning local water infrastructure, demonstrating that a dynamic water system must surpass a purely techno-managerial framework and embrace experimentation and adapt-

20: A quote retrieved from a Semi-Structured interview I had with S: a settler migrant who has been a member of the Cabo Pulmo Water Alliance since 2018. Conducted on April 14th, 2024, Cabo Pulmo, Baja California Sur, Mexico.

ability. The lawsuit highlighted the failure of privatized water management to maintain the infrastructure, leading to significant degradation of the water system. Inadequate maintenance resulted in leaks, cracks, and construction failures, which not only reduced water availability but also compromised water quality, posing health risks to the community. This situation necessitated a grassroots response where local residents took matters into their own hands to demand accountability and initiate repairs and improvements. The concept of ‘tinkering’ emerged as essential in this context. Tinkering involves continuous improvisation and experimentation, allowing for flexibility and adaptation to evolving conditions. This process is relational, contingent, and deeply embodied, requiring active engagement with the material world to bring about change in water quality. Unlike traditional methods of care that prioritize efficiency and control, tinkering acknowledges the importance of learning from mistakes and ongoing experimentation, making it a crucial aspect of effective care practices. The grassroots efforts in Cabo Pulmo, exemplified by the formation of the ‘Cabo Pulmo Water Alliance,’ demonstrated that community-led initiatives could successfully address the shortcomings of the existing water management system. This alliance brought together diverse expertise from within the community, combining skills and knowledge to tackle the challenges of water management. This collaborative approach underscores the importance of local involvement and the need for adaptable and flexible care practices to ensure sustainable water management. Linking back to the main argument of this thesis, the case of Cabo Pulmo illustrates how the concept of ‘care,’ if not critically analysed, can reinforce socio-political and cultural inequalities. The disparities in access to resources, knowledge, and decision-making power between different community groups highlight the need for an inclusive approach to care. By embracing the concept of tinkering, care practices can move beyond mere control and concern to encompass a more holistic, adaptable, and equitable approach to environmental conservation and resource management. The ongoing process of caring for water in Cabo Pulmo exemplifies the dynamic and iterative nature of effective care practices. It requires a commitment to adaptability, creativity, and continuous engagement with both human and non-human actors. This chapter reinforces the argument that critical analysis of care practices is essential to prevent the perpetuation of socio-political and cultural inequalities and to promote a more inclusive and sustainable approach to environmental conservation and resource management.

CONCLUSION

In conclusion, this thesis has examined the complex and multifaceted concept of ‘care’ in relation to water management in Cabo Pulmo, Baja California Sur, Mexico. This research has revealed that well-intentioned efforts to provide care might unintentionally perpetuate socio-political and cultural disparities. It critically examines the practices and consequences of care to shed light on this issue. Using ethnographic material, this study offers an in-depth understanding of the dynamics of several types of care—controlling, concerned, and experimental—in a small community that strongly depends on its natural resources.

The initial chapter elucidated the historical transformation of Cabo Pulmo, wherein it evolved from a fishing town to a conservation area under the NPCP. This case serves as a prime example of how the implementation of care may be employed as a means of political control and governance. The creation of the park, although advantageous for marine biodiversity, has also resulted in disputes around land and resource distribution, disproportionately affecting the residents of the Mexican community. This approach to caring placed a higher importance on protecting the environment, even if it had negative effects on the local socio-economic stability. This demonstrates the underlying power dynamics that are involved in managing resources.

The second chapter of this thesis uncovered a notable disparity in the perception and implementation of water conservation among both communities in Cabo Pulmo. The Mexican community and the settler migrant community demonstrate diverse methods of water utilisation and preservation, which are shaped by their socio-cultural backgrounds. The notion of ‘situations of concern’ highlights the intricacy of converting empirical matters, such as water scarcity, into collaborative community endeavours. This care, which is motivated by concerns, encompasses the immediate and long-term difficulties of residing in a resource-constrained area. This chapter presented techno-managerial systems, such as desalination and greywater recycling, to enhance water utilisation within the settler-migrant community of Cabo Pulmo. Although these technologies show potential, they also raise questions regarding care regarding transparency, exclusivity, and equity. In contrast, the Mexican community employs a more communal method to maximise water utilisation.

The third chapter expands upon a “social” approach to “care”, which signifies a transition towards a more adaptable and responsive kind of care. The difficulties encountered in implementing these solutions in Cabo Pulmo emphasise the necessity for a consistent and adaptable approach to management that takes into account the ever-changing and interconnected characteristics of human and environmental systems. The results of this thesis suggest the need for a new and innovative strategy for conservation and resource management that goes beyond conventional strategies focused on control. When it comes to environmental conservation, effective care should give priority to inclusivity, transparency, and adaptability. Furthermore, this encompasses the acknowledgement of power relations. Conservation initiatives must carefully evaluate the beneficiaries and the marginalised individuals affected by caring practices. It is essential to include local communities in decision-making processes to ensure fair resource management. Moreover, future initiatives should prioritise the promotion of collaboration among both communities and the incorporation of local knowledge and experience. It is crucial to have adaptive management strategies that can effectively address changing environmental circumstances and community requirements. In addition, it is crucial to cultivate a thorough comprehension of care. Care should be regarded as a continuous procedure that encompasses not only humans but also non-human things. This more comprehensive viewpoint promotes sustainable actions that protect the welfare of entire ecosystems.

This thesis has shown that care is an essential component of conservation, but it is also a multifaceted and disputed activity. Through a careful examination of the concept of care, we may create better, fairer, and more comprehensive approaches to handling natural resources and bolstering community resilience in response to environmental difficulties. Cabo Pulmo is an intriguing case study that showcases both the possibilities and challenges associated with the pursuit of sustainable development through careful measures. The examination of the notion of ‘care’ in water management in Cabo Pulmo has shown multiple prospects for further investigation. Future research should focus on understanding the long-lasting impacts of privatised water infrastructure on the local community, specifically in terms of ensuring equitable allocation

and accessibility of water resources. It is crucial to evaluate how different approaches to water and land management might be improved to achieve more comprehensive and sustainable outcomes. This involves examining the roles of governments, non-governmental organisations, and local communities in creating innovative and equitable solutions. Moreover, further investigation is necessary to comprehensively analyse the social dynamics between the Mexican community and the settler migrant community, exploring the mechanisms of conflict and partnership. Analysing other areas facing similar challenges may provide a more thorough comprehension of effective underlying issues and governmental solutions. Ultimately, employing participatory methodologies that emphasise transparent communication within both communities can lead to solutions that are more aligned with their needs, thereby fostering more sustainable and fair management practices. By adhering to these study methodologies, academics and policymakers may work together to reduce inequalities and promote a more sustainable and fair usage of resources for Cabo Pulmo and similar communities worldwide.

EPILOGUE

Returning to a highly developed and civilized environment is astonishing. Over the course of ten weeks, I have been residing in a tent and immersing myself completely in an off-grid environment with extremely scarce water resources. Engaging in oceanic dishwashing, utilising dry bathrooms, and operating faucets at only fifty percent of capacity. These care procedures were unfamiliar to me. Having grown up in a country abundant in water, I have never been compelled to consider the question: how can I adapt to a lifestyle with limited water resources?

After a duration of ten weeks, it is remarkable to state that there is no genuine need to make excessive utilisation of water. Living with reduced water consumption is indeed feasible. In reality, there is an adequate supply of water and we must adapt our lifestyles to the quantity of water that is naturally made avail-

able to us. It is noteworthy that the quantity of water did not significantly change over time and space, but the manner in which we use water altered. This thesis serves as an initial step for me, both personally and professionally, to continue my involvement with water-related issues and highlight the importance of adopting care practices that ensure the long-term sustainability of this vital resource for future generations.

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