ORIGINAL ARTICLE

Safe from what? Understanding environmental non-migration in Chilean Patagonia through ontological security and risk perceptions

Hanne Wiegel[1,2] · Jeroen Warner[2] · Ingrid Boas[1] · Machiel Lamers[1]

Abstract

Why do communities prefer to stay in place despite potentially dangerous changes in their environment, even when governmental support for outmigration or resettlement is provided? That is the key question this paper seeks to answer. Voluntary immobility is a burgeoning research topic in environmental change-related migration studies, although the role of local sense-making of perceived risks and migration pressures has received only little attention. In order to examine decisions for non-migration, we argue that we need to consider people's ontological security, or subjective sense of existential safety, which shapes risk perceptions. We apply this to the case of Villa Santa Lucía in Chilean Patagonia, where the local population has rejected relocation policies after the village was severely damaged by a mudslide in December 2017. We show how this rejection is not based on the lack of abilities to move, but on a fundamentally different risk assessment grounded in locally specific social representations of nature and human-nature relations. This alternative understanding of environmental risks allows the local population to uphold their sense of ontological security while remaining in Villa Santa Lucía, and renders relocation to avoid exposure to natural hazards futile or even inconsistent with local identities. We conclude that local sense-making of environmental risks is an important component of a more fine-grained understanding of environmental non-migration decisions.

Keywords Environmental change · Non-migration · Ontological security · Risk perception · Chile

✉ Hanne Wiegel
hanne.wiegel@wur.nl

Jeroen Warner
jeroen.warner@wur.nl

Ingrid Boas
ingrid.boas@wur.nl

Machiel Lamers
machiel.lamers@wur.nl

[1] Environmental Policy Group, Wageningen University, Hollandseweg 1, 6706, KN Wageningen, The Netherlands

[2] Sociology of Development and Change Group, Wageningen University, Wageningen, The Netherlands

Introduction

Academic, media, and policy debates on climate change-related migration have long focused on the problems of projected displacements. Increasingly, however, migration is more positively recognized by researchers and policy-makers as a strategy to reduce risks, either by moving from 'dangerous' places or by diversifying family income through the (temporary) migration of household members. As such, it has become regarded as an important alternative to adapting in place (Adger et al. 2018; Black et al. 2011; Foresight 2011; Klepp 2017; McLeman and Smit 2006; Sakdapolrak et al. 2016; Wiegel et al. 2019).

However, policies promoting outmigration as adaptation to climate change are not always accepted by those they address. Empirical evidence shows that many communities prefer to stay in place despite adverse changes in their environment, even when governmental support for outmigration or resettlement is provided (Mortreux and Barnett 2009; Adams 2016; Farbotko and McMichael 2019).

This article will delve into the motives why communities may reject such migration-as-adaptation strategies, by examining local interpretations of environmental change-induced migration pressures.

In doing so, this paper contributes to academic research that has only recently started to engage with the theme of non-migration in the context of climate change (Black et al. 2013; Adams 2016; Zickgraf 2018, 2019; Wiederkehr et al. 2019; Mallick and Schanze 2020). Theoretical approaches to 'environmental non-migration' have so far focused on migration decision-making, drawing for example on behavioural theory (Adams 2016; Adams and Kay 2019) and socio-cultural dimensions of place attachment (Mortreux and Barnett 2009; Farbotko and McMichael 2019). Yet, it remains largely unexplored how local populations perceive and make sense of the changes in their environment and how their perceptions of these changes as new migration pressures might differ from official assessments.

To address this gap, we combine research on environmental non-migration with insights on risk perception from the emotional turn in natural hazards research. We focus particularly on how perceptions of risks and suitable adaptation measures are influenced by the need for maintaining *ontological security*, or the belief in the continuity of one's self-identity and environment which allows for a sense of existential safety (cf. Harries 2008, 2017). We analyse how this sense of safety by a community may be different from scientific and governmental risk assessments. Our main argument is that in order to understand (non-)migration decisions, we need to get a better understanding of people's *perceived risks* and thus their *perceived need* to migrate or not migrate. We illustrate this with empirical data collected in the village of Villa Santa Lucía in Chilean Patagonia, which in December 2017 was seriously damaged by a mudslide that has been attributed to the effects of climate change. Even though in this rural context migration for work and education is common, the local population resists the option to relocate from the village that is considered by the authorities to be at risk of future mudslides.

The remainder of the article is structured as follows: We start with a review of the literature on environmental non-migration as well as the socio-cultural and affective dimensions of risk perception. Following a description of the case study and research methodology, we present our analysis of local risk perceptions in Villa Santa Lucía. We outline how these are informed by the need to maintain ontological security, which shapes the population's resistance to adaptation policies. In the concluding discussion, we reflect on the relevance of ontological security and risk perceptions for environmental (non-)migration scholarship, which impels us to rethink the dichotomy between migration and non-migration.

Understanding non-migration in the context of environmental changes

The concept of non-migration entered the academic field of environmental migration research first as the involuntary immobility of those who lack the means to move out of harm's way when slow- or rapid-onset disasters strike. The 2011 UK Foresight Report 'Migration and Global Environmental Change' (Foresight 2011; Ayeb-Karlsson et al. 2018) coined the concept 'trapped population' to describe the involuntarily immobile. This concept is an important correction to the 'sedentary bias' in (environmental) migration research, i.e., the tendency to normalize non-migration (Black et al. 2013; Zickgraf 2019), due to which academia had long neglected the complexities relating to staying in place in the context of environmental changes.

While thus addressing a long-neglected topic, the concept of 'trapped populations' has also received much criticism. A major point of critique is its limited focus on economic obstacles, disregarding socio-cultural and emotional factors which may prevent migration and (emergency) mobilities (for a detailed critique, see Ayeb-Karlsson et al. 2018). Furthermore, the focus on involuntary immobility does not resonate with the growing empirical evidence that some populations may not *want* to move away from their homes as a measure of adaptation, despite recognizing the negative impacts of climate change on their homes. This 'voluntary immobility' is found in climate-affected areas around the world (Adams 2016; Ayeb-Karlsson et al. 2018; Zickgraf 2018; Mallick and Schanze 2020) and is central to recent research on low-lying Pacific island states affected by sea level rise (McNamara and Gibson 2009; Mortreux and Barnett 2009; Farbotko 2018; Farbotko and McMichael 2019). Consequently, several scholars have argued for the need to move beyond the normative terminology of 'trapped populations' and to attend better to the choices and constraints involved in all (non-)migration decision-making (Ayeb-Karlsson et al. 2018; Zickgraf 2018).

To study environmental non-migration as a phenomenon broader than the lack of (economic) means, a first approach is often to distinguish between (non-)migration aspirations and abilities (Zickgraf 2018; Wiederkehr et al. 2019; Wiegel et al. 2019; Mallick and Schanze 2020). This distinction emphasizes that 'migration first involves a wish to migrate', or not to migrate, 'and second, the realization of this wish' (Carling 2002: 5). It thus encompasses both aspirations to migrate and not to migrate (i.e., to stay in place), as well as the ability to fulfil these aspirations. It thereby moves beyond purely outcome-oriented approaches in migration theory that tend to focus only on accomplished acts of migration (Carling and Schewel 2018).

Aspirations and abilities are each shaped by both internal and external factors on various scales. In the case of

aspirations, these might range from societal norms and values around migration to personal preferences for adventure or security. Factors influencing abilities may range from the restrictions posed by international migration regimes and societal gender roles to family migration history as well as own economic and social capital (Carling 2002; de Haas 2014; Carling and Schewel 2018). Farbotko (2018) for example finds that several indigenous communities from sea-level rise-affected Pacific island states aspire to stay on ancestral land for cultural and spiritual reasons, such as being close to ancestral burial grounds and upholding custodial responsibilities, and therefore do not consider outmigration. Conversely, studies applying behavioural theory on non-migration decisions of drought-affected Peruvian farmers have found that it is not solely a lack of aspirations, but in many cases a lack of migration abilities (including both economic restrictions, high place attachment and local obligations) that lead to non-migration (Adams 2016; Adams and Kay 2019). While both are cases of environmental non-migration, the aspirations-abilities framework highlights how they differ significantly in the underlying reasons for staying in place.

Local perspectives on risks and the perceived need to migrate

While a growing body of research thus engages with various types of aspirations and abilities in the context of environmental non-migration, an element that is rarely explicitly defined or examined in relation to environmental changes is the *perceived need to migrate*. Although it was recognized early on as a central factor for understanding decision-making on (not) migrating in the context of environmental changes (Black and Collyer 2014; Zickgraf 2018), the need to migrate is often simply equated to externally observed environmental changes, such as sea level rise or droughts. One of the few studies aiming to conceptualize non-migration in relation to the aspirations-abilities framework defines the need to migrate as a function of vulnerability, i.e. a person's risk exposure, sensitivity and adaptive capacity (Wiederkehr et al. 2019). This approach focuses on important external or structural determinants of migration needs but does not provide insights into local sense-making of environmental changes and arising migration pressures.

Yet, as a growing body of research shows, people's interpretations of environmental changes and their potential effects on local livelihoods are increasingly considered central to studying the impacts of climate change on everyday realities (Arnall and Kothari 2015; Parsons 2019) and particularly to (non-)migration decision-making:

[I]ndividuals and communities *respond* to events and information, things do not just happen *to* people.

[S]ocial responses to climate change are fundamentally mediated by perceptions of the problem and of the benefits and costs of responses, which themselves are contextualised by the larger social milieu. People filter information, shaped by their multiple experiences, values and observations, and respond in ways that reflect their diverse experiences and circumstances. This has a direct impact on people's decision making processes and therefore needs to be closely considered in assessments of population movement with regard to climate change (Mortreux and Barnett 2009: 111, italics in original).

To understand the perceived need to migrate from the perspective of local populations, we propose the subjective dimension of *risk perception* as a suitable lens. Risk perception has been described by a wide array of authors as an important driver of adaptive behaviour (Arnall and Kothari 2015; Zickgraf et al. 2016; Farbotko and McMichael 2019; Schewel 2019)—but to date, it has rarely been included in research on environmental (non-)migration. A recent exception is Parsons and Østergaard Nielsen (2020), who approach the topic through a quantitative approach. Therefore, we turn to literature on disaster risk reduction and climate change adaptation, where the emphasis is increasingly shifting from *objectivised* expert- or government-determined risk assessments to *subjective* risk perceptions of affected communities (Artur and Hilhorst 2012; Adger et al. 2013). In particular, we focus on insights on the affective and socio-cultural dimensions of risk perceptions (Harries 2008, 2017; Ayeb-Karlsson et al. 2019; Parsons and Chann 2019). These, we argue, can deepen our understanding of non-migration decision making beyond the aspirations-abilities framework.

Risk perception through the lens of ontological security

Perceptions can be defined as 'views and interpretations based on beliefs and understanding' within their specific context of material and immaterial structures (Wolf and Moser 2011: 2). People do not act 'in direct response to the aggregated geophysical phenomena by which climate change is measured, but rather [to] local weather events, as they are socially, culturally and economically articulated in place' (Parsons and Chann 2019: 2-3). Independent of their actual exactness, perceptions often define environmental stressors more than 'objective' data, and shape local decision-making on coping mechanisms (Harries 2008; Mortreux and Barnett 2009; Niles and Mueller 2016). Consequently, a focus on perceptions calls for a people-centred methodology which allows to understand and interpret individual accounts, particularly through the lived experiences of the everyday (Artur and

Hilhorst 2012; Abbott and Wilson 2015; Arnall and Kothari 2015; Ayeb-Karlsson et al. 2016; Kothari and Arnall 2019; Parsons 2019).

In this research, we specifically draw on the recent emotional turn in human geography and hazard research, which accommodates a keen interest in ontological security. As Harries (2017:26, emphasis added) notes: 'People not only want to *be* safe from natural hazards; they also want to *feel* they are safe' (see also Harries 2008; Harries et al. 2018; Hawkins and Maurer 2011). This perspective holds that 'the ability to live without threat to familiar assumptions about time, space, identity, and wellbeing is as important to humans as the ability to live without threat to material prosperity, physical safety, and physical health' (Harries 2017: 16).

Central to this approach is *ontological security*. Coined by psychologist Laing in 1960, it has been defined as the 'confidence that most human beings have in the continuity of their self-identity and in the constancy of the surrounding social and material environments' (Giddens 1991: 92). This confidence is central to human agency as well as to building and maintaining relationships with others (*ibid.*). In natural hazards research, ontological security has been applied to study how the anticipation of risk can challenge people's understanding of their physical environment, which diminishes their feeling of ontological security. As Harries (2008, 2017) argues, this explains the seemingly counter-rational behaviour that communities might be very reluctant to acknowledge or act upon environmental changes (see also Harries et al. 2018). Appealing to fear to induce adaptive responses therefore is often counterproductive (Wolf and Moser 2011; Warner and Boas 2019). Below, we elaborate on three factors important for analysing risk perception through the lens of ontological security: social representations based on socio-cultural contexts, religious contexts and past experiences.

Factors influencing ontological security

Central to upholding a feeling of ontological security are shared understandings, so-called social representations, of grand concepts like 'nature', 'home' and 'society', which people rely on to make sense of potential risks (Harries 2017). Shaped by socio-cultural contexts, these representations serve as interpretative frameworks people rely on to interpret their observations of events and changes in their surroundings. This insight into ontological security draws on the socio-cultural theory to risk perception (coined by Douglas and Wildavsky 1983), which claims that communities, with their shared meanings and beliefs, create a context-specific view of the natural environment. This affects which sources of information on risks are trusted (Adger et al. 2013; Salite 2019), how the generative mechanism behind environmental changes or

natural hazards is interpreted (Ayeb-Karlsson et al. 2019) and how people react to them (Harries 2017; Salite 2019).

Religion is strongly interlinked with the socio-cultural context, but it is often singled out in risk perception research as providing populations with explanatory mechanisms of natural hazards or environmental changes (Artur and Hilhorst 2012; Ayeb-Karlsson et al. 2019; Salite 2019). As Wolf and Moser write, '(b)elief in a higher spiritual being plays an important role in determining whether people believe that human action can influence the climate' (Wolf and Moser 2011: 14), how this should be done and who is to be held responsible.

Lastly, past experiences are an important factor shaping feelings of ontological security. The repeated experience of natural hazards, for example, can over time change social representations of 'nature' and 'authorities' for better or for worse, depending on the impact and management outcome of previous events (Harries 2017; Harries et al. 2018). With regard to authorities, this is particularly relevant for the reliability of the government as a source of information and the trust in its power to protect their citizens (Artur and Hilhorst 2012; Ayeb-Karlsson et al. 2019). Thereby, personal and collective past experiences shape perceptions of risks, adequate responses and responsibilities.

Overall, the work on the affective and the socio-cultural dimensions of risk perception strongly reflects a 'cross-cutting tendency that institutions and people alike tend to seek continuity', and thus to maintain their feeling of ontological security, 'by explaining natural hazards and climate changes according to pre-existing beliefs, structures, norms and practices' (Artur and Hilhorst 2012: 535; see also Ayeb-Karlsson et al. 2019; Harries et al. 2018). Changes tend to be accepted only if people are confident of the continuity of their identity and their wellbeing (Flockhart 2016). Hence, people's actions and responses tend to reinforce the continuity of (social) life, avoiding wherever possible a disruption of their self-understanding, environment and world view. This approach to risk perception through the lens of ontological security will be applied to the case study of Villa Santa Lucía introduced in the next section.

The research

The mudslide in Villa Santa Lucía, Chile

The village of Villa Santa Lucía is located in northern Patagonia, Chile, roughly 1300 km south of the capital, Santiago. It is located along the Ruta 7 (the so-called *Carretera Austral*), the single north-south road connection in Patagonia, at a crossroads with a local road leading to the tourist destination Futalefú and two border crossings to Argentina (see Fig. 1). Its geopolitically strategic location led to the construction of a military camp and village at this crossing as the *Carretera Austral* was constructed during the military

Fig. 1 Fieldwork location (own elaboration based on Google Maps)

dictatorship. The village was inaugurated in 1982. Most families first settling in the village were descendants of the early settlers who came to the area between the 1930s and 50s, moving to Villa Santa Lucía from farms and hamlets in the surrounding valleys attracted by the village school and health post.

The population reached around 200 in 2017, with elderly residents constituting 65% of the total population. Many residents are self-employed, engage in small-scale cattle breeding or forestry activities and gain their income through temporary government projects. Stable employment opportunities are scarce, and labour and educational mobility are common especially among the younger population. From December until March, national and international tourism is a major source of income in the village, which is an important place of transit though lacking tourist attractions of its own.

On Saturday, December 16, 2017, around 9.20am, the village was hit by a mudslide of locally unprecedented

magnitude. It destroyed the Northern half of the village, holding around 50% of the houses and the majority of stores, tourism facilities and public buildings; 22 persons died and many more were left homeless. The National Service for Geology and Mining (*Servicio Nacional de Geología y Minería*) later concluded that the mudslide was caused by the coinciding of unseasonably heavy precipitation in the preceding two days and a high 0 °C isotherm, both of which they associated with the effects of climate change (Sernageomin 2018). In a context of steep slopes and weak volcanic rocks, the strong rainfall in areas typically only receiving snow caused a rockslide hitting an already weakened glacial layer, which broke off. This created a mudslide with a volume of 7.2 million m^3 that descended 8.5 km into the valley at an estimated speed of up to 72 km/h, following the course of a small river. The mudslide reached a maximum height of 20 m above river level and buried the Northern half of the village under a

Fig. 2 Aerial view of the extent of the 2017 mudslide (own elaboration based on Google Earth)

layer of mud 1 to 5 m deep (Mella et al. 2018; Sernageomin 2018; Duhart et al. 2019) (see Fig. 2).

As a first response, the village was immediately evacuated. Most residents found shelter with family or friends in the surrounding towns and villages. Soon after, the National Office for Emergencies (*Oficina Nacional de Emergencia*) declared the village uninhabitable, as it was found to be located in an alluvial plain and thus prone to such events, particularly under conditions of advancing climate change. Consequently, all residents (i.e. those who had lost their homes as well as those who were materially unaffected) were directed to abandon the village through self-organized outmigration. The outmigration was enabled by the provisioning of social housing, which the majority were eligible to apply for. With this being a lengthy process, in the meantime, they received a monthly rent subsidy for 2 years.

The institutional response to the event was met with fierce opposition from the local population, which eventually prompted a change of policy to relocating the village to flood-proof terrain 400 m east of its current location. At the moment of writing, however, the municipality has only acquired the land for a new school, as the steep terrain has complicated the acquisition of more land. Independent of the village relocation, the Ministry of Public Works is pushing plans for rerouting the *Carretera Austral* through flood-proof terrain,

potentially leaving the village in the future without direct access to transit tourism as a source of income.

Research methods

Fieldwork in Villa Santa Lucía was conducted between January and March 2020 by the first author of this paper. Given the potentially traumatic experiences of the respondents (*n*=26), rather than conducting formal interviews, we chose a more conversational approach focusing on trust-building and repeated interactions over the course of the fieldwork. Due to the sensitivity of the research topic, snowball sampling, based on introductions by earlier respondents, was the preferred sampling method. While both current residents of the village and those who moved to the municipal capital of Chaitén after losing their houses in the mudslide were approached, this paper draws predominantly on conversations with current residents and their perspectives on outmigration policies. Respondents were sampled purposefully to represent a wide array of perspectives (differing in age, gender, location of house in the village, direct experience of mudslide or not). Of the 26 respondents, 70% were female[1], and the age groups

---

[1] Due to the gendered distribution of work, women were more accessible to the female researcher as they were more prone to stay and/or work within the village during the days, while men tended to spend more time outside of the village for work.

20–40, 41–60, and 60+ were equally represented. The mudslide had destroyed or seriously damaged the houses of 19 (73%) research participants, and 17 (65%) research participants still remained in Villa Santa Lucía (for more details, see Table 1 in the Electronic Supplementary Material). The respondents engaged in various professions and diversified income strategies; household income was gained from pensions, professional work, forestry activities, temporary state-funded work programs, and as owners of, or employees in, tourism facilities. The majority can be considered as poor according to Chilean standards, which enabled them to apply for social housing after the mudslide. However, many respondents also own large tracts of land in the surrounding areas, which shows that statistical indicators do not necessarily fully reflect their socio-economic status.

For a clearer understanding of the authorities' perspective on the case, ten semi-structured interviews were conducted with government officials, working in a variety of departments at municipal and provincial levels. This was complemented with two expert interviews to gain an understanding of the events and decisions during the first 2 years after the event.

The analysis is structured in three parts: First, we focus on the evolving policies promoting migration-as-adaptation, whose rejection by the local population, we argue, cannot be sufficiently explained by a focus on place attachment and material factors, or aspirations and abilities. In the second section, we analyse social representations of 'nature' in relation to respondents' self-representation to understand local risk perceptions through the lens of ontological security. The third section zooms in on the respondents' strategies for maintaining ontological security by rejecting official risk assessments.

Rejecting relocation policies

The mudslide that hit Villa Santa Lucía on December 16, 2017, was a traumatic event for the local population and brought village life to an abrupt halt. Already within a short time after the event, the National Office for Emergencies communicated that the village was at risk of future mudslides and should therefore be abandoned permanently. From the start, however, the policies of emergency evacuation and subsequent self-organised outmigration were met with strong opposition by the population from the materially unaffected southern half of the village. The earliest residents opposing evacuation orders returned to the village at the end of January 2018, not seeing the need to abandon their homes any longer. Most residents whose houses had not been destroyed in the mudslide had returned to Villa Santa Lucía by July 2018, without plans of leaving the village. The majority of those who lost their houses in the mudslide moved to Chaitén, some also to Futalefú, Palena and the villages south of Villa Santa

Lucía (see Fig. 1). In early 2020, the permanent population of the village varied between 80 and 100 persons.

Around 1 year after the December 2017 mudslide, it had become clear that the initial plan of enabling self-organised outmigration of the remaining population of Villa Santa Lucía through the provisioning of social housing was locally not accepted. Officials reckoned that this rejection was due to strong place attachment and social networks among the remaining village population. Adapting to this rejection, the policy shifted from outmigration to a relocation of the village centre to flood-proof terrain ca. 400m east of its current location. The new centre would consist of public buildings, such as a village school, health post and municipal office, as well as social housing for the current residents. This new policy, the authorities considered, would allow the villagers to maintain their social networks and place attachment.

However, even before its implementation, also this adapted plan was rejected by the local population. Due to the planned provisioning of social housing, which most of the remaining village population were eligible to apply for, it was not a question of lacking abilities or resources for this village relocation. While for several villagers relocating to social housing would be financially disadvantageous (their current houses in the village being more valuable than the State-provided ones), this alternative would allow them to move away from the alluvial plain to avoid future disastrous repetitions of the December 2017 mudslide. The local rejection of this relocation policy, adapted to safeguard the villagers' social networks and place attachment, left several interviewed government officials puzzled. As one asked during the interview: 'How can we make them understand that they have to move?' [2] The way to approach the local resistance to outmigration policies, we argue, can be found in gaining a deeper understanding of how the residents of Villa Santa Lucía make sense of the December 2017 mudslide and of possible future risks. In the following section, we focus on two elements shaping local identities and self-understanding in relation to nature.

Understandings of 'nature' and 'self' shaping local risk perceptions

While recognizing the extraordinary volume and timing of the December 2017 mudslide, mudslides in themselves are not considered exceptional in this area. As all respondents emphasized during the conversations, landslides and river flooding are common in the area of Villa Santa Lucía, particularly in winter when they frequently block roads and isolate the village for several days. Even some of those who lost homes and

---

[2] Interview province-level official, March 3, 2020, Chaitén.

family members in the mudslide did not emphasize the event itself, but rather the protracted and conflict-ridden recovery period as the 'real' disaster[3].

Such remarks reflect how the population of Villa Santa Lucía has accepted Chile in general, and Patagonia in particular, to be an 'extreme zone' inherently prone to volcano eruptions, earthquakes, floods and landslides. The common social representation of 'nature' in this northern Patagonian context is characterized by unpredictability and hazardousness. Consequently, the December 2017 mudslide was not considered as adding a novel threat to their lives in Villa Santa Lucía—also for a lack of safe alternatives. Frequently, the interviewer's inquiries as to whether the respondents had considered moving 'out of harm's way' were met with the rhetorical question: 'Which place in Chile is safe?'[4]. According to this widely shared social representation of 'nature' as inherently hazardous, outmigration or village relocation is not considered an effective strategy for mitigating the risks of natural events.

This social representation of 'nature' also relates to the historical roots of the population of Villa Santa Lucía, which influence the local understanding of human-nature relationships. Most research participants are direct descendants of *colonos*, the settlers who arrived at the valley from central Chile or abroad between the 1930s and 1950s. Although some *colono* families received large tracts of land from the government, they often lived in poor circumstances and worked on their own land under rough environmental conditions to sustain themselves. This was amplified by the large distance from the centralized Chilean government, which among the population has caused a general feeling of abandonment by the State that still persists today (cf. Rodríguez Torrent and Sáenz Passaron 2017). These historical roots were referred to by many research participants, several of whom shared their memories of life in isolated hamlets before the foundation of the village in 1982. Character traits such as autonomy, versatility, self-sufficiency and resilience were described as necessary for living in, and mastering, the harsh environment of Northern Patagonia—then as now.

The *colono* background as well as the social representations of 'nature' are important factors shaping the interpretative framework (cf. Harries 2017) through which the villagers make sense of the December 2017 mudslide and acceptable responses, and on which their feeling on ontological security is constructed. According to this widely shared perspective, nature is inherently hazardous and unpredictable, but as long-term residents and descendants of *colonos* the residents of Villa Santa Lucía have acquired the necessary skills and character traits needed to live in this area. From this perspective, the December 2017 mudslide did not create a perceived need to migrate among the population. This was even more strongly expressed by several male respondents of *colono* descent, who particularly emphasized their settler identities and described themselves as accustomed and well-equipped to manage this rough natural environment, disparaging those neighbours they considered as having become 'too soft' or 'comfortable'[5] to live in this area. For these research participants, permanently leaving Villa Santa Lucía would be not only futile, but would in fact constitute a retreat from the dangers of nature, which is not compatible with their self-understanding.

In the following section, we focus on several strategies through which the local population maintains these interpretations of environmental risk as well as their feeling of ontological security in Villa Santa Lucía, despite the official discourse regarding the village as uninhabitable.

Maintaining ontological security

An ontological security approach to risk perceptions rests on the basic premise that the perception of safety from natural hazards can be more important than factual safety in inducing adaptive behaviour (Harries 2008, 2017; Hawkins and Maurer 2011; Harries et al. 2018). In the context of Villa Santa Lucía, where the residents are confronted with a discourse of danger and policies promoting the abandonment of the current village, research participants (inadvertently) resort to three 'strategies' of evading and contradicting the official risk assessment that allow them to maintain their feeling of ontological security: (1) dismissing the official narratives, (2) emphasizing distrust in official sources of information and (3) proposing alternative explanatory mechanisms grounded in place identities and religion. Below, we discuss in turn how these provide the respondents with justifications for continuing their lives in the village (relatively) untroubled by fears of future mudslides.

Evading official risk narratives

During the first 2 years after the event, many residents refrained from attending meetings with authorities who emphasized the continued danger of mudslides and the need for relocation. In retrospect, these meetings were generally described as highly unpopular and even 'useless', as they were 'not leading to any outcomes'[6] the local population could agree with. It was also reported that external experts, such as a government-sent mental healthcare team, were initially

---

[3] Conversations with Respondents 5, 12, 13, 14 and 16, Villa Santa Lucía and Chaitén.
[4] Conversations with various current and former residents of Villa Santa Lucía.

[5] Conversations with Respondents 11 and 23, Villa Santa Lucía.
[6] Conversations with Respondents 2, 8, 21 and 22, Villa Santa Lucía.

suspected of promoting the outmigration and therefore were at first unpopular with part of the village population.

Many residents thus 'voted with their feet' by non-attendance, discrediting outsider experts or ignoring narratives conflicting with their own sense-making of the December 2017 mudslide. As one research participant succinctly expressed it: 'making us afraid of the place is doing more damage to our mental health'[7] than past or any future mudslide could do. This demonstrates an intuitive understanding of how the anticipation of risk can negatively impact the feeling of ontological security (Harries 2008, 2017).

Discrediting official risk assessments

A second common argumentative strategy for maintaining ontological security consisted of challenging the trustworthiness of the official risk assessments and the policies of village relocation. Experience with previous natural hazards, particularly with how government institutions communicated and managed risks in these occasions, were emphasized in many conversations as reasons for distrusting authorities as reliable sources of information on risks. Most respondents referred to a 2008 volcano eruption 80 km north of the village to justify their doubts whether Villa Santa Lucía was indeed permanently unsafe and uninhabitable: the eruption led to the partial destruction of the municipal capital of Chaitén, which was then declared uninhabitable and was planned to be relocated. This relocation, however, was never implemented and after 2 years the town was declared habitable again. This experience of ambiguity and inconsistency in the management of a previous disaster had a lasting negative impact on the locally shared social representation of 'authorities' as competent and trustworthy disaster managers. This was expressed by some research participants as open criticism, by others more subtly as doubts about the accuracy of official risk assessments, and explains the local reluctance to act on them.

This lack of trust in outmigration policies was reinforced by some internal contradictions in the authorities' response to the December 2017 mudslide. Several decisions were not in line with the official discourse of continued danger from mudslides, which undermined the effectiveness of risk communication. For example, although Villa Santa Lucía is, at the time of writing, considered uninhabitable by the authorities, for various political reasons the village has never been officially declared uninhabitable. This means that, although public spending is limited, private investment and construction are still possible. Some residents interpreted the policy of treating the village as uninhabitable without an official declaration as an unjustified cut of public expenditure. Others considered it as a valid reason to believe that the village would

soon be officially declared inhabitable again, as was the case with Chaitén 2 years after the volcano eruption.

Alternative interpretations of local risks and suitable responses

Respondents also resorted to different justifications to explain why they themselves did not perceive a risk of similar events in the future. Firstly, all respondents believed that the December 2017 mudslide actually diminished the probability of such events happening again because it changed the landscape, reducing the river flow and vegetation cover[8]. This was reflected in frequently used phrases such as 'now that it happened, it won't happen again' or 'the worst has already happened, now there is no need to move away'. To support their assessment, several respondents also referred to their own superior knowledge of the local environment, grounded in their long experience of living in and moving through the rough terrain.

Secondly, the timescale employed in the respondents' risk assessments differed significantly from the official discourse (cf. Arnall and Kothari 2015): several respondents disapproved of the vagueness in the risk assessments by external experts, criticizing the latter for their inability to tell them if such an event would happen again in 'one, ten, fifty or a hundred years'[9]. External experts and authorities' long-term and rather abstract understanding of risk did not resonate with the respondents, who prioritized short-term risk assessments in their interpretations of the mudslide and their perspective on the future of the village. The uncertainty about the timescale strengthened the opinion among respondents that drastic risk adaptation measures, such as abandoning their village, were unwarranted.

Thirdly, perceptions of future risks were also impacted by the strongly religious context of Villa Santa Lucía, particularly the evangelical community. Two distinct ways in which religion was applied as an argument for staying in the village were found: The majority of respondents ascribed the mudslide, and especially the chance of it happening again, to God's will. Corresponding to the findings of Artur and Hilhorst (2012) and Ayeb-Karlsson et al. (2019), this reliance on higher power(s) leaves humans both with reduced agency and responsibility. The local residents holding this view argued that they could only 'wait and see'[10] what would happen in the future, which renders preventive outmigration ineffectual to them. Other families attributed not the mudslide itself, but their own survival to God's will and concluded from it their obligation to remain in Villa Santa Lucía as a testament

---

[7] Conversation with Respondent 19, Villa Santa Lucía.

[8] Conversations with current and former residents of Villa Santa Lucía.

[9] Conversation with Respondent 20, Villa Santa Lucía.

[10] Conversation with Respondent 24, Villa Santa Lucía.

to God's power. Both explanatory structures based on religion thus contradict the official risk assessment and promote stability and continuity in place (cf. Artur and Hilhorst 2012).

In summary, we conclude that respondents generally did not consider mudslides as exceptional or dangerous, based on interpretative frameworks shaped by shared representations of 'nature', 'self' and *colono* heritage. Official risk assessments emphasizing the danger of a repeated event of similar magnitude were avoided, contested and distrusted. The alternative interpretations of local risk and suitable responses contain the continuity of village life as previously known as a central element. By resorting to pre-established interpretative frameworks to make sense of changes in their environment, these three 'strategies' provide the respondents with tools for discrediting, in their perspective, the validity of the discourse of danger, tallying with a desire to uphold their sense of ontological security in Villa Lucia.

For now, Villa Santa Lucía remains in a legal limbo. The resettlement plans are not advancing as envisioned by government officials, yet the municipality is also limited in its means for necessary public investments in the current village due to its status of uninhabitability. Nevertheless, the local population is convinced that Villa Santa Lucía will remain where it is, and that eventually, the reconstruction of its earlier village character will be possible. The development of nature-based tourism attractions, currently in the planning stage, can be considered as an indicator of this conviction.

Discussion

With this paper, we have aimed to contribute to academic debates on why some communities choose not to move away from environmental pressures in the context of a changing climate. We have argued that understanding local perceptions of environmental risks and migration pressures through the lens of ontological security is a promising approach to understand non-migration behaviour, complementary to the aspirations and abilities model established in the literature on environmental non-migration (Carling 2002; de Haas 2014; Carling and Schewel 2018).

Community resistance to external messages of existential environmental threats are not novel to academic literature (Harries 2008, 2017; Artur and Hilhorst 2012; Ayeb-Karlsson et al. 2019). Contributing to this body of work, our case study of Villa Santa Lucía has shown that the local resistance to outmigration and village relocation policies is neither irrational, purely economically motivated or nostalgic behaviour, but grounded in complex and profound considerations of maintaining people´s identity and relationships with their natural environment. Accordingly, local interpretations of the December 2017 mudslide and risk perceptions render leaving Villa Santa Lucía unnecessary. To the local population—in contrast to experts and authorities—the risk of another mudslide simply does not constitute a 'migration pressure' warranting the abandonment of their village.

These findings have important implications for both environmental migration and non-migration studies: Firstly, this study has demonstrated that for understanding (non-)migration decisions in response to environmental risks, it is promising to broaden the analysis beyond mobility-related factors (such as economic or policy limitations to moving) by considering local realities and people's self-identity in relation to their natural environment. The lens of ontological security, in relation to perceptions of risks and 'migration pressures', can thereby complement and deepen the analysis of migration abilities and aspirations that has in recent years become established in environmental non-migration research (Harries 2008; Hawkins and Maurer 2011; Harries et al. 2018; Wiederkehr et al. 2019; Wiegel et al. 2019; Mallick and Schanze 2020). In the present case, this approach has helped to explain why the local population has rejected not only the initial outmigration policy, offering social housing and temporary rent subsidies, but also the subsequent relocation policy that ostensibly accounted for the local aspirations of maintaining social networks and place attachment. Our results are in line with Salite's recent finding that people's reliance on beliefs in making sense of their surroundings 'precedes fact in risk perception, and risks may therefore be dismissed if they do not fit cultural values and beliefs' (Salite 2019: 428). This focus on local risk perceptions, borrowed from natural hazards research, can thereby deepen our understanding of the complexities involved in (non-)migration decision-making (cf. Farbotko and McMichael 2019; Mortreux and Barnett 2009; Parsons and Østergaard Nielsen 2020).

However, in Villa Santa Lucía, rejecting outmigration and relocation policies on the basis of local identities and interpretations of nature does not necessarily imply a return to an immobile village life. Instead, the village community, particularly the younger generation, continues to engage in frequent and long-established labour and educational mobilities that are part and parcel of living in this peripheral area with education and employment opportunities few and far between. The community's strong local commitment to staying in place in a context of normalized mobilities, despite potentially hazardous environmental changes, echoes what Farbotko, Stratford and Lazrus (2016: 535) have termed a 'sedimentation of sedentarist feelings' in their work on the non-migration preferences among residents of sea-level rise-affected Pacific island states.

This commitment to non-migration in a mobile context, we argue, challenges the dichotomic understanding of migration and non-migration. While households and communities might engage in what we consider as environmental non-migration, they should not be regarded as immobile per se. Rather than a general preference for non-migration, the lens of ontological security foregrounds that in the case of Villa Santa Lucía the *reason* for migration and its coherence to local customs, values and identities is crucial to understanding the rejection of outmigration and relocation policies. Certain environmental risks, such as mudslides, are rejected as reasons to migrate, or even just to relocate several hundred meters—while at the same time routine labour and educational migration are considered normal, necessary and even positive mobilities in the isolated village (cf. Farbotko and Lazrus 2012).

Understanding this seemingly paradoxical rejection of migration policies in a mobile context speaks to recent calls for complexifying our understanding of environmental (non-)migration (Baldwin and Bettini 2017; Boas et al. 2019; Parsons 2019; Wiegel et al. 2019). The effects of environmental change on migration decisions need to be embedded in identities and livelihood patterns shaped by historical and present dynamics beyond the case study level. As this paper has shown, the micro-scale analysis of non-migration decisions is a productive application. Such analyses allow for a more fine-grained understanding of context-specific local identities and relationships to the natural environment (see also Kothari and Arnall 2019; Parsons 2019; Parsons and Chann 2019). We thereby support a more intricate understanding of environmental migration and non-migration and argue that the ontological security perspective presented in this paper can guide future studies to better account for the complex, multifaceted and sometimes inconsistent mobility practices that people engage in.

Conclusion

This article has explored the question why some communities prefer to stay in place despite potentially dangerous changes in their environment, even when governmental support for outmigration or resettlement is provided. By combining research on environmental non-migration with scholarship on emotions in risk perception and natural hazards research, this article emphasizes the importance of local perspectives on environmental risks to understanding non-migration decisions in the context of a changing climate. As we have illustrated by the case of the mudslide-affected village of Villa Santa Lucía in Chilean Patagonia, the residents' rejection of outmigration

policies is shaped by the need to maintain ontological security, grounded in social representations of nature and human-nature relationships. Outmigration or village relocation for mitigating exposure to environmental risks are thus rejected, while at the same time, labour and educational mobilities are common in this context. These insights can serve as guidelines for developing climate change-adaptation policies involving outmigration and/or relocation that better account for the subjective dimensions of risk perception.

References

Abbott D, Wilson G (2015) The lived experience of climate change - knowledge, science and public action. Springer, Cham Heidelberg, New York Dordrecht London

Adams H (2016) Why populations persist: mobility, place attachment and climate change. Popul Environ 37:429–448. https://doi.org/10.1007/s11111-015-0246-3

Adams H, Kay S (2019) Migration as a human affair: integrating individual stress thresholds into quantitative models of climate migration. Environ Sci Policy 93:129–138. https://doi.org/10.1016/j.envsci.2018.10.015

Adger WN, Barnett J, Brown K, Marshall N, O'brien K (2013) Cultural dimensions of climate change impacts and adaptation. Nat Clim Chang 3:112–117. https://doi.org/10.1038/nclimate1666

Adger WN, Safra de Campos R, Mortreux C (2018) Mobility, displacement and migration, and their interactions with vulnerability and adaptation to environmental risks. In: McLeman R, Gemenne F (eds) Routledge Handbook of Environmental Displacement and Migration. Routledge, New York, pp 29–41

Arnall A, Kothari U (2015) Challenging climate change and migration discourse: different understandings of timescale and temporality in the Maldives. Glob Environ Chang 31:199–206. https://doi.org/10.1016/j.gloenvcha.2015.01.011

Artur L, Hilhorst D (2012) Everyday realities of climate change adaptation in Mozambique. Glob Environ Chang 22:529–536. https://doi.org/10.1016/j.gloenvcha.2011.11.013

Ayeb-Karlsson S, Kniveton D, Cannon T, van der Geest K, Ahmed I et al (2019) I will not go, I cannot go: cultural and social limitations of disaster preparedness in Asia, Africa, and Oceania. Disasters 43:752–770. https://doi.org/10.1111/disa.12404

Ayeb-Karlsson S, Smith CD, Kniveton D (2018) A discursive review of the textual use of 'trapped' in environmental migration studies: the conceptual birth and troubled teenage years of trapped populations. Ambio 47:557–573. https://doi.org/10.1007/s13280-017-1007-6

Ayeb-Karlsson S, van der Geest K, Ahmed I, Huq S, Warner K (2016) A people-centred perspective on climate change, environmental stress, and livelihood resilience in Bangladesh. Sustain Sci 11:679–694. https://doi.org/10.1007/s11625-016-0379-z

Baldwin A, Bettini G (2017) Life adrift - climate change, migration, critique. Rowman & Littlefield International, London

Black R, Adger WN, Arnell NW, Dercon S, Geddes A et al (2011) The effect of environmental change on human migration. Glob Environ Chang 21S:S3–S11. https://doi.org/10.1016/j.gloenvcha.2011.10.001

Black R, Arnell NW, Adger WN, Thomas D, Geddes A (2013) Migration, immobility and displacement outcomes following extreme events. Environ Sci Policy 27:S32–S43. https://doi.org/10.1016/j.envsci.2012.09.001

Black R, Collyer M (2014) Populations "trapped" at times of crisis. Forced Migr Rev 45:52–56

Boas I, Farbotko C, Adams H, Sterly H, Bush S et al (2019) Climate migration myths. Nat Clim Chang 9:901–903. https://doi.org/10.1038/s41558-019-0633-3

Carling J (2002) Migration in the age of involuntary immobility: theoretical reflections and Cape Verdean experiences. J Ethn Migr Stud 28:5–42. https://doi.org/10.1080/13691830120103912

Carling J, Schewel K (2018) Revisiting aspiration and ability in international migration. J Ethn Migr Stud 44:945–963. https://doi.org/10.1080/1369183X.2017.1384146

de Haas H (2014) Migration Theory - Quo vadis? Oxford

Douglas M, Wildavsky A (1983) Risk and culture. University of California Press, Berkeley and Los Angeles

Duhart P, Sepúlveda V, Garrido N, Mella M, Quiroz D et al (2019) The Santa Lucía landslide disaster, Chaitén-Chile: origin and effects. In: Debris-Flow Hazards Mitigation: Mechanics, Monitoring, Modeling, and Assessment - Proceedings of the 7th International Conference on Debris-Flow Hazards Mitigation. pp 653–660

Farbotko C (2018) Voluntary immobility: indigenous voices in the Pacific. Forced Migr Rev 57:81–83

Farbotko C, Lazrus H (2012) The first climate refugees? Contesting global narratives of climate change in Tuvalu. Glob Environ Chang 22:382–390. https://doi.org/10.1016/j.gloenvcha.2011.11.014

Farbotko C, McMichael C (2019) Voluntary immobility and existential security in a changing climate in the Pacific. Asia Pac View 60:148–162. https://doi.org/10.1111/apv.12231

Farbotko C, Stratford E, Lazrus H (2016) Climate migrants and new identities? The geopolitics of embracing or rejecting mobility. Soc Cult Geogr 17:533–552. https://doi.org/10.1080/14649365.2015.1089589

Flockhart T (2016) The problem of change in constructivist theory: ontological security seeking and agent motivation. Rev Int Stud 42:799–820. https://doi.org/10.1017/S026021051600019X

Foresight (2011) Migration and Global Environmental Change: Future Challenges and Opportunities, Final Proj. The Government Office for Science, London

Giddens A (1991) Modernity and self-identity. Polity Press, Cambridge

Harries T (2008) Feeling secure or being secure? Why it can seem better not to protect yourself against a natural hazard. Heal Risk Soc 10:479–490. https://doi.org/10.1080/13698570802381162

Harries T (2017) Ontological Security and Natural Hazards. Oxford Res Encycl Nat Hazard Sci:1–26. https://doi.org/10.1093/acrefore/9780199389407.013.279

Harries T, McEwen L, Wragg A (2018) Why it takes an 'ontological shock' to prompt increases in small firm resilience: sensemaking, emotions and flood risk. Int Small Bus J Res Entrep 36:712–733. https://doi.org/10.1177/0266242618765231

Hawkins RL, Maurer K (2011) "You fix my community, you have fixed my life": the disruption and rebuilding of ontological security in New Orleans. Disasters 35:143–159. https://doi.org/10.1111/j.1467-7717.2010.01197.x

Klepp S (2017) Climate change and migration. Oxford Res. Encycl. Clim. Sci.:1–37

Kothari U, Arnall A (2019) Everyday life and environmental change. Geogr J 185:130–141. https://doi.org/10.1111/geoj.12296

Mallick B, Schanze J (2020) Trapped or voluntary? Non-migration despite climate risks. Sustainability 12:1–6. https://doi.org/10.3390/su12114718

McLeman R, Smit B (2006) Migration as an adaptation to climate change. Clim Change 76:31–53. https://doi.org/10.1007/s10584-005-9000-7

McNamara KE, Gibson C (2009) "We do not want to leave our land": pacific ambassadors at the United Nations resist the category of "climate refugees". Geoforum 40:475–483. https://doi.org/10.1016/j.geoforum.2009.03.006

Mella M, Duhart P, Garrido P, Vergés A, Fernández J et al (2018) Flujo de lodo turbulento por desagüe explosivo (outburst) de lago proglacial asociado a un deslizamiento en el marco del cambio climático: Desastre en Villa Santa Lucía , Andes del Sur. In: XV Congreso Geológico Chileno "Geosciencias hacia la communidad." Concepción, Chile, pp 7–9

Mortreux C, Barnett J (2009) Climate change, migration and adaptation in Funafuti, Tuvalu. Glob Environ Chang 19:105–112. https://doi.org/10.1016/j.gloenvcha.2008.09.006

Niles MT, Mueller ND (2016) Farmer perceptions of climate change: associations with observed temperature and precipitation trends, irrigation, and climate beliefs. Glob Environ Chang 39:133–142. https://doi.org/10.1016/j.gloenvcha.2016.05.002

Parsons L (2019) Structuring the emotional landscape of climate change migration: towards climate mobilities in geography. Prog Hum Geogr 43:670–690. https://doi.org/10.1177/0309132518781011

Parsons L, Chann S (2019) Mobilising hydrosocial power: climate perception, migration and the small scale geography of water in Cambodia. Polit Geogr 75. https://doi.org/10.1016/j.polgeo.2019.102055

Parsons L, Østergaard Nielsen J (2020) The subjective climate migrant: climate perceptions, their determinants, and relationship to migration in Cambodia. Ann Am Assoc Geogr:1–18. https://doi.org/10.1080/24694452.2020.1807899

Rodríguez Torrent JC, Sáenz Passaron J (2017) De colonos a "vivientes". Una nueva categoría social en la Patagonia rural chilena. Rev San Gregor:20–33

Sakdapolrak P, Naruchaikusol S, Ober K, Peth S, Porst L et al (2016) Migration in a changing climate. Towards a translocal social resilience approach. Erde 147:81–94. https://doi.org/10.12854/erde-147-6

Salite D (2019) Explaining the uncertainty: understanding small-scale farmers' cultural beliefs and reasoning of drought causes in Gaza Province, Southern Mozambique. Agric Human Values 36:427–441. https://doi.org/10.1007/s10460-019-09928-z

Schewel K (2019) Understanding immobility: moving beyond the mobility bias in migration studies. Int Migr Rev 54:328–355. https://doi.org/10.1177/0197918319831952

Sernageomin (2018) Origen y efectos de la remoción en masa del 16.12.2017 que afectó la localidad de Villa Santa Lucía, comuna de Chaitén, Región de Los Lagos. Puerto Varas, Chile

Warner J, Boas I (2019) Securitization of climate change: How invoking global dangers for instrumental ends can backfire. Environ Plan C Polit Sp 37:1471–1488. https://doi.org/10.1177/2399654419834018

Wiederkehr C, Schröter M, Adams H, Seppelt R, Hermans K (2019) How does nature contribute to human mobility? A conceptual framework and qualitative analysis. Ecol Soc 24. https://doi.org/10.5751/ES-11318-240431

Wiegel H, Boas I, Warner J (2019) A mobilities perspective on migration in the context of environmental change. Wiley Interdiscip Rev Clim Chang 10:1–9. https://doi.org/10.1002/wcc.610

Wolf J, Moser SC (2011) Individual understandings, perceptions, and engagement with climate change: insights from in-depth studies across the world. Wiley Interdiscip Rev Clim Chang 2:547–569. https://doi.org/10.1002/wcc.120

Zickgraf C (2019) Keeping people in place: political factors of (im)mobility and climate change. Soc Sci 8. https://doi.org/10.3390/socsci8080228

Zickgraf C (2018) Immobility. In: McLeman R, Gemenne F (eds) Routledge handbook of environmental displacement and migration. Routledge, London and New York, pp 71–84

Zickgraf C, De Longueville F, Ozer P (2016) The impact of vulnerability and resilience to environmental changes on mobility patterns in West Africa. Environ Behav 2:3–31. https://doi.org/10.13140/RG.2.2.23216.76801