

CULTURAL ANALYSIS

AN INTERDISCIPLINARY FORUM ON FOLKLORE AND POPULAR CULTURE

VOL. 21.2

APPROACHING CLIMATE CHANGE ADAPTATION: KNOWLEDGE, POWER, COMMUNICATION



GUEST EDITORS

Sophie Elpers, Arnika Peselmann,
Silja Klepp & Domenica Farinella

Cover image by Laura K. Otto

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Approaching Climate Change Adaptation: Knowledge, Power, Communication

Special Issue
Vol. 21.2

Guest Editors

Sophie Elpers, Arnika Peselmann, Silja Klepp & Domenica Farinella

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Introduction – Approaching Climate Change Adaptation: Knowledge, Power, Communication

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The consequences of human-induced climate change are as diverse as the adaptation strategies people have started to develop. Approaches to climate change range from local initiatives to national and global programs and are embedded in various knowledge systems and partially contesting world views. This special issue aims to improve the understanding of those dynamics that are linked to knowledge, power, and communication when adapting to the diverse repercussions of climate change. The communication and integration of this situated knowledge are considered crucial for fair and transparent climate change adaptation measures. However, this integration is also described as problematic, highlighting different epistemologies, competing political agendas, societal and economic inequalities, and clashing ontologies. The impact of climate change on society is currently discussed mostly in terms of adaptation, resilience, and vulnerability. Ideas of adaptation are often regarded as “neutral” drivers of action and seem to be “the only viable option for survival” (de Wit 2014, 57). However, the rationalities which characterize current adaptation concepts are criticized because they have been shaped predominantly by the natural sciences and ignore aspects of climate justice as well as social, cultural, political, and economic conditions on the ground (Nightingale et al. 2020).

Scholars from the environmental humanities, including folklorists, who focus on knowledge-power relations, diverse actors, and the different crises narratives which

shape the development, communication, and application of adaptational strategies, have underlined the need to overcome the naturalizations and depoliticizations of climate change adaptations (Klepp & Chavez-Rodriguez 2018). These scholars demand a critical examination of the biopolitical implications of adaptation concepts (Taylor 2015), such as inclusion and exclusion processes, and call for approaches sensitive to cultural diversity, power relations, economic interests, and rationalities in adaptation settings which include postcolonial and decolonizing research perspectives (Chakrabarty 2012). These kinds of research approaches are also meant to enforce the use of local environmental knowledge (Barnes et al. 2013; Eriksen 2021; Klepp & Fünfgeld 2021)—often expressed in agricultural heritage, traditional craftsmanship (Bakels & Bisschop 2023), or particular modes of storytelling (Hermann & Kempf 2018; Fatorić & Egberts 2020)—and transcend dichotomies between humans and their environments. Thus, they also open up to different ontologies regarding nature(s) and new emerging rights discourses (Burgers & den Outer 2021). An increasing number of “natural entities”—forests, rivers, mountains – are recognized globally as legal entities with enforceable rights.¹

Nevertheless, the recognition of legal subjectivity and consequent legal rights over natural entities is not sufficient, because it does not question the principle behind the capitalist accumulation mechanism that first made nature separate and appropriable, which is the same mechanism now making it an object of protection. This is a classic analysis of capitalism: nature is described and produced as an entity external to society, either in terms of objective reality and, therefore, commodifiable, or insurmountable limits that require the recalibrating of optimistic and unilinear models of economic growth within the new oxymoron of sustainable development. This nature/society dichotomy, from Descartes and Bacon onward, has been the basis of Western capitalist ontology (Patel & Moore 2017). This also implies a hierarchy of power in which the human dominates nature, and what is, occasionally, described as natural is, by subtraction, defined by what is not human, following specific strategies of domination and subalternization:

The human ‘separation from nature’ took shape around a truly massive exclusion. The rise of capitalism gave us the idea not only that society was relatively independent of the web of life, but also that most women, Indigenous Peoples, slaves and colonized peoples everywhere were not fully human and thus not full members of society. These were people who were not – or were only barely – human. They were part of Nature, treated as social outcasts – they were *cheapened*. (Patel & Moore 2017, 24)

Cheapness, depreciation being the core strategy of capitalistic accumulation, through the relationships of life is made into the circuits of production and consumption at “as low a price as possible” (Patel & Moore 2017). However, the ecological crisis and climate change prove dramatically, now more than ever, that nature is never cheap (Moore 2014, 2015). One cannot address climate change without questioning capitalism as a specific ecological regime (cheap nature, Moore 2011) and its reductivist dualistic ontology.

This special issue aims to improve the understanding of those dynamics that are linked to knowledge, power, and communication when adapting to the diverse repercussions of climate change. The contributing authors focus in their ethnographic case studies on the producing, distributing, communicating, and contesting of knowledge in different geopolitical and social contexts, ranging from dealing with the spreading of algae on Mexican beaches to the increase of ticks in Finland, and from participatory energy practices in Italy to the unexpected results of climate change adaptation workshops in Vanuatu.

Different questions are addressed in the contributions corresponding to broader discussions of climate change adaptations we, as editors, would like to take up in this introduction. We will refer to discussions on different engagements with climate change policies, the use of cultural heritage and traditional knowledge in climate change adaptation, and the necessity of developing more-than-human research and policy perspectives to decenter and enrich human-centered approaches in climate adaptation research.

Engaging with Climate Change Policies

The fight against the repercussions of anthropogenic climate change has taken shape in diverse forms of legal and political instruments: extending from the United Nations Framework Convention on Climate Change, to the Green Deal of the European Union and its implementations on the national level of the member states, and to communal or local instruments. Instead of an evaluation on how the projected aims of these policies have been achieved, our contributions, in the spirit of an anthropology of policies, instead ask: “How do people engage with policy and what do they make of it?” (Shore & Wright 2011, 8). This question implies further questions relating to the appropriation of climate change policies and how they are framed in different settings.

Vanuatu is a Small Island Development State (SIDS) in Oceania which is severely affected by the consequences of climate change. In his article, Arno Pascht discusses the effects on Ni-Vanuatu communities that are in the focus of many international climate change policies, including on the ground, climate change workshops. These are often organized by mobile international consultants that follow a rather Western service and profit-oriented logic. The workshops are meant to deliver visible outcomes within a short time (Klepp & Fünfgeld 2021) working with what Keele calls “actionable climate knowledge” (2019, 9), which is based on a classical dichotomy between nature and culture. Pascht discusses how well the villagers link their traditional knowledge and practices of diversifying their livelihoods to the new challenges of climate change—modifying or neglecting the knowledge offered by the climate change adaptation workshops based on Western knowledge that does not fit their needs and socio-ecological imaginaries.

On the contrary, in a case study illustrated by Laura K. Otto, climate change adaptation policies in Mexico follows the logic of capitalism and commodification, and is far away from activating local or traditional knowledge. The regional and national government’s response to the harmful coastal Sargassum algae bloom prioritizes the

whims of the tourism industry instead of focusing on the needs of coastal communities and their livelihood securities as much as on the environment. It becomes obvious that policies of climate change adaptation or so-called “second-order effects” of climate change regarding the effects of climate change policies bear the great risk of creating new vulnerabilities and injustices for these already marginalized communities.

However, while the insight into the necessity of climate protection policies and adaptation efforts is growing, the design and goal of these politics and measures are contested, also in societies of the Global North (Adloff & Neckel 2020). The question of which structural changes and social innovations are required, or whether only minor changes in (environmental) policy and the use of technical solutions are sufficient, is disputed (Nightingale et al. 2020). The contribution of Monica Musolino, Fabio Mostaccio, Erika D’Aleo, and Agatino Nicita regarding two communities in Northern and Southern Italy where cooperative cohousing management practices promote the emergence of shared energy consumption shows how initiatives for climate mitigation, energy independence of communities, and a deeper, structural transformation can trigger social innovation dynamics. Based on the idea of sharing and caring, we can learn from this case study that climate change might also work as a resource and a catalyst for desirable social innovation.

Approaching and Coping with Climate Change through Storytelling, Narratives, and Cultural Heritage

Scholars from different disciplines (Nisbet 2018), and surely, not least, folklore scholars, ethnologists, and anthropologists, have broadly investigated how climate change is communicated, narratively framed, and translated: for instance, from metric data into societal discourses calling for action (Becker 2020), in terms of climate knowledge and climate justice (Flor 2020), or with reference to different climate change temporalities (Kverndokk et al. 2021). Storytelling is considered an adaptation strategy to bring forward local ecological knowledge and support communities affected by severe impacts of climate change leading to migration and a tearing apart of social and cultural relations.²

The Ni-Vanuatu create new local ontologies of climate change speaking of *klaemet jenj* and *envaeromen*. Pascht argues that these should not be understood as literal translations into the local Bislama language but rather as ontological innovations more apt to their holistic world view. Here, the Western concept of climate change, which is linked more to natural science explanations of changing environments, is altered and narratively linked to social degradation and capitalist lifestyles – what could better illustrate the socio-ecological crisis of our times than such a relational socio-ecological concept of climatic change?

The building of cohousing/energy communities looked at by Monica Musolino, Fabio Mostaccio, Erika D’Aleo, and Agatino Nicita centers on mutual trust. The authors show how trust is established in this community by cocreating a “suitable language” that enables all of the heterogenous community members to follow and participate in the learning of ecologically as much as socially more sustainable ways of living, and

goes far beyond the simple employment of new technical reconfigurations.

Changing environments can be fundamentally distressing and emotionally harmful—an emotional state that philosopher Glenn Albrecht calls *solastalgia* (2005). Sanna Lillbroända-Annala, in her Finnish case study on human-tick relations, employs this term to describe people’s perception of nature and their behavior in the outdoors, which has changed dramatically due to the increase of ticks because of climate change. For many people fearing diseases transmitted by ticks, carefree days in the garden or the forest belong in the past. When discussing the narratives of loss and pain over a “risk-free” nature she finds in newspaper articles, social media entries as much as in the results of questionnaires, Lillbroända-Annala demonstrates how the “new risks of nature” have led to certain novel habits as a form of adaptation.

Intangible cultural heritage (ICH) operates through the awareness of local knowledge and skills as well as connected traditions, customs, stories, and narratives (UNESCO 2022). The knowledge and skills expressed in intangible heritage provide its practitioners with a sense of identity and continuity. Taking place in the present, ICH has relationships with the past, but is, above all, understood as a practice of future-making (Harrison 2020). The ICH bearers transmit their knowledge and skills to future generations. The potential of intangible heritage, and heritage in general, as a resource for climate change management and sustainable futures is well-documented (Bakels & Elpers 2021; Ballard et al. 2022, 16), however, it seems to be relatively underutilized by policymakers (Fatorić & Egberts 2020, 1 and 6; Wagner 2023). UNESCO’s strong emphasis on intangible heritage as a source of community-based resilience which can drive climate change adaptation and mitigation, and the organization’s call to state parties to “promote access to and transmission of knowledge concerning the earth and the climate” should lead to communication and coordination between all relevant sectors (culture, environment, climate) and foster inclusive policies that link ICH and climate action (UNESCO 2022, Chapter VI.3).

Those policies should also recognize the passive components of intangible heritage: as ICH is linked to specific ecosystems, it can contribute to a more resilient approach to climate change, but, at the same time, is at risk of being lost if climate change affects the environment (e.g. Wagner 2023 for the South Pacific region).

The 2023 multinational nomination of the traditional sustainable agricultural technique of grassland irrigation for the UNESCO *Representative List of the Intangible Cultural Heritage of Humanity* is presently receiving a lot of attention. This under-acknowledged method used in Austria, Belgium, Germany, Italy, Luxembourg, the Netherlands, and Switzerland involves a sophisticated system in which grasslands are irrigated by water from rivers, streams, and springs. It uses gravitational force and relies on manually created constructions, such as channels and ditches, to distribute water from naturally occurring water catchment points closer to the fields. The nomination file describes the traditional irrigation as “a community-based, sustainable, adaptable, energy-independent and biodiversity-minded water supply solution in agriculture that is of great importance to the practitioners themselves and the wider communities of people collaborating or profiting from its impact on the environment” (Nomination file no. 01979). Anthropologists, ethnologists, heritage experts, and others will have to

explore how the UNESCO instrument of listing grassland irrigation as ICH will have effects in the future: which knowledge resources will be mobilized, and in which way this intervention of heritage policy may have an impact on climate change policies and the further development of climate adaptation measures (SIEF 2021).³

Climate Change Adaptation in More-than-Human Entanglements

It goes without saying that changing climate conditions do not affect humans alone but all living beings and their environments; starving polar bears losing habitat and hunting grounds due to melting ice caps are by far the most iconic image of the climate crisis. Even though these multiple “others” experience severe harm and existential threats (e.g. Bastian & Hawitt 2023), besides some charismatic animals, they have received little attention in current Western discussions on climate justice. In order to enrich and decenter this human-centered approach, calls for multispecies justice have become louder, demanding climate-just futures with, for, and beyond humans (Celermajer et al. 2021); a perspective that also seems much more in line with non-Western and nondualistic perceptions and ontologies of nature and culture.

However, there are also species which adapt and gain from changing weather conditions as they can increase their reproductive cycles or expand their habitat. The contributions of Sanna Lillbroända-Annala on ticks moving increasingly towards northern areas and of Laura K. Otto on the propagation of Sargassum algae landing on Mexican beaches demonstrate this vividly. These new multispecies relations are anything but welcome: in both case studies, there are worries about health risks, even though in the case study of Mexican coastal communities, these are overshadowed by an outcry of the tourist industry losing attractive destinations. Another realm severely affected by new more-than-human entanglements promoted by climate variabilities is agriculture, where the spreading of pests has increased (Peselmann 2023). These harm vegetal, animal, and eventually also human life by putting food security and economic survival of particularly small-scale farmers at risk (FAO 2022). Animals and particularly plants can develop strategies to adapt to new climatic conditions – usually over a longer period of time. These processes are often enforced and accelerated by human intervention, such as the breeding of new and more resistant varieties (with or without the assistance of biotechnology). The development of modified plant varieties can still lead to a maladaptation if political structures and economic conditions do not support a transition: the introduction of new plant varieties with their specific needs might also increase the dependencies of growers and, thereby, their vulnerability, as is shown in the fight against coffee leaf rust in Mexico, a fungus which profits from climatic variabilities (Ruiz-de-Oña & Merlin-Urbe 2021).

Attempts have been made toward an allyship with plants to support the mitigation of climate change repercussions. In Pascht’s article, participants of a workshop on climate change adaptation are encouraged to collaborate with *gliricidia sepium*, a tree meant to fix nitrogen in the soil and, thus, fertilize the surrounding ecosystem. This experiment failed, but there are other more successful approaches that include the planting of trees and other vegetation to reduce surface and air temperatures by

providing shade and through evapotranspiration—an effect used especially to deal with heat islands in urban environments (e.g. Dümpelmann 2020).

To summarize, this collection of articles demonstrates the potential for developing more effective and just climate change adaptation policies and interventions through the utilization of ICH, traditional knowledge, and localized multispecies relationships. To put these concepts into practice, we must explore, analyze, and scrutinize climate adaptation as a powerful tool of governance and future-making. Heritage expert Janna oud Ammerveld responds in her article to the contributions of this issue and questions the concept of adaptation as a human challenge. She calls for humanities scholars to develop their core concepts and research methods to address these issues. Adaptation seems to her to be referring to a seemingly well-balanced past that we need to give up and, instead, accept a changed future we do not feel comfortable with nor ready for. She suggests replacing the concept of adaptation with *solastalgia* as it contains, in her understanding, more of a much-needed awareness and sentiment of the presence. Furthermore, she proposes looking for a *solastalgia* for the future, asking the question of “what’s ahead that we desire?” The humanities have a crucial role to play when looking for answers to this question for a desirable world under the conditions of climate change. The humanities, with their epistemological heritage, methods and analytical frameworks, are key to understanding people and their cultural resources in changing ecological times. We should make the discipline’s expertise and resources accessible and jump deeper into the messy realities, normative discussions, and political struggles for a just transformation.

Notes

- 1 One example is the Whanganui River, one of New Zealand’s longest rivers. After the Māori struggle to save the Whanganui for more than a century, the courts in New Zealand ruled in 2017 that the river was a separate entity, with the Māori and the New Zealand government as guardians. Such legal decisions are no longer isolated cases. The Spanish inland sea Mar Menor was the first European ecosystem to become a legal entity in 2022.
- 2 Maida Owens from the Louisiana Folklife Program argues in her workshop “Climate Change Needs Folklorists” that folklorists should employ their skills to engage with policymakers and participate in community resilience conversations (see: <https://american-folkloresociety.org/resources/climate-change-needs-folklorists-a-workshop-with-maida-owens/>).
- 3 It can only be mentioned briefly here that museums also play a central role in the documentation and communication of climate change knowledge and skills attached to diverse cultural heritage elements. Scholars and museum experts, such as Fiona Cameron (2015) and Rodney Harrison together with Colin Sterling (2021), strongly emphasize that museums

should use their transformative potential and adopt activist approaches. To achieve this, museums need a new vocabulary and new knowledge practices, and they must present the complexity of our world in a differentiated and self-reflective way. In many respects, museums are, therefore, in a state of change and rediscovery regarding the question: What do the museums of the present and future look like?

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Whose Beach Paradise? Tourism and the Governance of Sargassum Algae Along Mexico's Caribbean Coast

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Abstract

The Mexican Caribbean is often viewed as “paradise.” Since 2015, massive landings of brownish Sargassum algae, a form of anthropogenic environmental change, have, however, begun changing the long-established imaginary. Although the algae massively change and endanger the vitality of the ecosystem, they are primarily framed and governed as a tourist problem. Based on ethnographic fieldwork in Mexico (2019–2022), I show that adaptation measures are not aimed at adapting to climate change but at adapting to tourist desires, illustrating how tourists' expectations are entangled with the everyday governance of Sargassum. Measures were undertaken to stabilize tourist paradise led to its long-term destabilization, which calls into question the sustainability of local communities.

Keywords: anthropogenic environmental change; tourism; algae bloom; Mexico; ethnography

Hello Maya—Goodbye Beaches? An Introduction

It is a cold, gray November day in 2019 in my hometown in Germany. I am well over 8,000 kilometers away from my research field in the Mexican Caribbean as I walk through town and stumble across an advertisement. My attention is immediately drawn to a colorful, bright poster: “Hello Maya,” the advertisement reads. An international airline offered flights from Germany to Cancún in Mexico for 329,99EUR. The poster shows a young woman wearing a green sweatshirt and accessorizing herself with feather earrings. She reminds me more of tourists I knew from field research than of my research partners belonging to the Mayan community. However, using constructed and over-emphasized “Mayaness” (Juarez 2008; Dürr 2012; Brown 2013; Dürr et al. 2020;) to attract travelers from Western Europe surprises me little. I find it striking as an anthropologist working in the Mexican Caribbean that the airline no longer makes use of its display of world-famous pristine beaches and turquoise waters the Riviera Maya is famous for. In the past, it would have been much more likely that I would have encountered an airline poster stating “Hello Paradise” along with a photo of the Caribbean on my walk. Why the change?

The poster I came across during my walk in 2019 was an advertisement at a time when the tourism industry along Mexico's Caribbean coast had already faced significant, threatening anthropogenic environmental change for several years. Warming ocean temperatures, increased input of fertilizer in the Atlantic Ocean, and deforestation along the Amazon River (Hu et al. 2015) have contributed to the atypical influx

Cultural Analysis 21.2 (2023): 11–34
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of *Sargassum natans I* and *VIII*, and *Sargassum fluitans III* (hereafter Sargassum). It is a brownish pelagic alga that floats on the ocean's surface, which can grow to a length of several meters and act as a natural habitat for several species in the ocean (Hu et al. 2015; Milledge and Harvey 2016).



The photo shows *Sargassum natans VIII*, which I collected on a beach in Mexico in order to analyze it in a lab. Like other species of Sargassum, the aerocysts are filled with air which enable the algae to float on the ocean's surface. Photo credit: Laura Otto.

Since 2011 Sargassum has arrived in atypical amounts on Caribbean shores. It was first noted in Barbados, and significant landings in Mexico followed starting in 2015. Once it arrives on shore, it poses severe problems and challenges to humans, flora, and fauna. Turtles hatching on beaches can no longer reach the ocean because the algae constitute an impenetrable barrier, making their “march” into the sea impossible. Underwater corals do not obtain enough sunlight to photosynthesize because Sargassum covers huge parts of the ocean's surface (Lopez et al. 2008). Humans face a more pronounced risk of respiratory problems due to the hydrogen sulfite released during decomposition. Moreover, the algae impact and change the tourism industry—as the advertisement, I came across in Germany indicates—with local tourist operators facing a decrease in tourism and associated financial burdens.

This article, based on ethnographic fieldwork in the Mexican Caribbean (2019–ongoing; McAdam-Otto 2022), analyzes how Sargassum is primarily framed as a tourist problem, discussing how the notion of a “tourist paradise” makes these algae governable in specific ways. To demonstrate practices of everyday governance, I examine the relationship between Sargassum and tourism in the Mexican Caribbean, with a geographical focus on the world-famous Riviera Maya, which stretches 160 kilometers

from Cancún to Tulum in the federal state of Quintana Roo. Tourism accounts for 80% of annual economic performance (Arce-Ibarra et al. 2017, 60). The tourism industry and the government made efforts to reinvent itself in the past years, of which the advertisement I came across is one example. There are numerous attempts to shift the tourist product to appeal to travelers in different ways: smaller cities such as Valladolid or Celestún are increasingly being promoted, amusement parks have been built, and not least, the controversial construction of the *Tren Maya*, a railway project which aims to connect the coast with archaeological sites, has begun. Despite all these investments and creations of new activities and sights, it is still the case that most vacationers in the Mexican Caribbean are in search of beach paradise. However, what do actors on the ground—such as hoteliers, tourist operators, or restaurant owners—do once the long taken-for-granted “paradise” is threatened? How do actors affected by Sargassum in Mexico adapt to a situation natural scientists consider as the new normal? And whose beach paradise is (de)stabilized in light of environmental transformation, and under which conditions?

My analysis, congruent with the theme of this Special Issue, is based on a notion of adaptation to climate and environmental change that not only takes situated knowledge seriously but, above all, recognizes that competing political agendas, social inequalities, and different interests come into play once anthropogenic environmental change, like Sargassum, surfaces. To contribute to this debate with my empirical case, I discuss how Sargassum is viewed and interpreted among different actors in the Mexican Caribbean. I show how tourism and the notion of the Caribbean as a “beach paradise” are entangled in the everyday governance of algae. Carving out how Sargassum is framed—predominantly as a tourist issue and not an environmental concern—helps reveal the complexities and contradictions in adapting to and governing the situation. I argue in this article that the framing of Sargassum as a tourist issue is employed to justify the measures taken to address its arrival. In addition, if Sargassum is not framed and dealt with as a tourist issue, almost nothing is done to address it. However, that leads to a situation in which the tourism-induced stabilization of the present and near-future “paradise” leads to its long-term destabilization at the same time, which calls into question the sustainability of local communities.

To bolster my arguments, I first situate my research within debates on climate change governance, framing, and adaptation. While adaptation to climate change is often viewed to be something neutral or positive, the case of Sargassum shows that adaptation measures are often characterized by specific interests, post-colonial relations, and ambivalences that may well intensify the consequences of environmental change. After all, concerns on site have consisted less of adapting to a changing climate or an increasingly damaged environment than to adapting to tourists’ expectations of a once-constructed paradise. Second, I demonstrate how the Mexican Caribbean was transformed into a tourist paradise and reflect on my fieldwork within this setting. The third part of the article is empirically oriented, and I engage with Sargassum’s arrival in non-touristified areas to discuss that adaptation measures are mostly non-existent if tourism is similarly absent. What follows is an analysis of tourists’ expectations in the area, and I show that tourism makes algae governable in a specific way. The conclusion offers thoughts about tensions arising among locals and tourists,

economy and ecology present and future in adaptation to climate and environmental change. The case discussed here reveals that the measures taken are not aimed at adapting to climate change, but are mainly ad hoc measures to save tourism, which may lead to further environmental damage.

The Riviera Maya is not the only place in the world where the environment has been transformed and commodified into a tourism product now threatened by climate change. For example, ski areas in various parts of the world are losing their snow guarantee due to climate change, and some species can no longer be observed on safaris. In regions where tourism is the main economic driver, climate change has disproportionate effects on the livelihoods of local people, reflecting power relations within these dynamics: While, for example, Mayan communities in Mexico (Leatherman & Goodman 2005) formerly had to make place for the construction of tourist infrastructure, some Mayans later found work in tourism, which they are now at risk of losing due to the threats to the tourism sector. Efforts to maintain the Mexican Caribbean as a popular tourist destination, such as algae control, are underway. I argue that these measures are directed at the short-term stabilization of the tourist dream; long-term ecological destabilization, at times exacerbated by measures directed at stabilizing tourist paradise, occurs concurrently, impacting local communities' livelihoods. Governance of climate change phenomena in regions dependent on tourism thus raises questions of climate justice in Mexico and beyond.

What is Sargassum? Governing and Framing algae in the Mexican Caribbean

Some say Sargassum is an alien. Some say it is an invasive species, others say it is harmful algae bloom, some say it is marine litter, some say it is nothing but nature. [...] If you declare Sargassum to be invasive, the changes to receive funding are much higher. Also, it influences the response of officials, politicians, and the tourism sector. So, there is politics within the classification of algae.

The quote above stems from Arturo,¹ a marine biologist and reef expert who has worked in the beach town of Puerto Morelos for several decades. As a biologist, he was first and foremost concerned with what Sargassum does to flora and fauna along the coast, rather than primarily with the impact the algae have on the tourism industry. However, it was clear to him, as it was to many of his colleagues, that attention to the algae problem could be generated much more easily if the landings were discussed primarily as a threat to the economically important tourism industry. The argument that local ecosystems are under threat, Arturo reported, had significantly less clout with the travel industry and policymakers to invest in addressing the problem.

His account is revealing in that it illustrates that different interests, political agendas, and world views play a crucial role when discussing what to do with Sargassum. While different actors in the field I worked with—such as hoteliers, restaurant owners, tour guides, environmentalists, and scientists—agreed that something must be done, their motivations differed. My observation resonates with Artur and Hilhorst's (2012) argument that interests, conceptions of workable solutions, and power imbalances

shape climate change governance. Rittel and Webber (1973) have argued that environmental change is a “wicked problem.” Thus, it comes as no surprise that Sargassum is a complicated issue to adapt to and govern. I learned during fieldwork that the rules and views on what to do with Sargassum change with every election. CONAPESCA, the national fisheries’ commission, for example, gives permits to companies who wish to collect Sargassum at sea (“Permisos de Fomento de Pesca”); they view the algae as a marine resource. SEMAR, the Mexican navy, on the other hand, collects Sargassum at sea, predominantly treating it as a residue that is dumped at disposal sites on land. The “Lineamientos Técnicos y de Gestión para la Atención de la Contingencia ocasionada por sargazo en el Caribe Mexicano y el Golfo de México” (Technical guidelines to address and manage Sargassum contingency in the Mexican Caribbean and the Gulf of Mexico, translated by the author) are non-compulsory guidelines which offer suggestions on how to harvest, contain, remove, and treat Sargassum.

Even though legislation regulating its handling is absent and guidelines are non-compulsory, I witnessed different actors develop manifold ways of dealing with Sargassum in everyday life. I observed beach clean-ups, algae removal in the shallow and near-coast waters, and people who buried Sargassum under the sand. Some loaded the algae onto their boats and dumped it in the sea. The situation in Mexico is a prime example to show that designated authorities like nation-states or municipal governments cannot necessarily cope with the complexity of environmental change through top-down solutions. I am thus not interested in how policies or laws are implemented but in the “making” of governance (Cruikshank 2005; Krauss 2009) in everyday life. Following this approach, I acknowledge that various forms of societal self-regulation performed by diverse actors play an important role in negotiating and handling the complex issues of environmental change (Ostrom 1990; Rhodes 1997; Benz et al. 2007; Fröhlich and Knieling 2013, 17). I, therefore, interpret environmental governance as a perspective with which I analyze my material (Benz 2004; Benz et al. 2007; Morin and Orsini 2015). It enables taking seriously frequently contradictory and ambivalent decision-making processes in Sargassum handling, resonating with Fröhlich and Knieling’s (2013, 11; see also Börzel 2016) call for taking different actors—be they governmental or not—seriously in one’s analysis. Several of my interlocutors, including Arturo, repeatedly complained that the state and federal government were inefficient and non-reliable when it came to Sargassum management, and they emphasized that it was predominantly actors from within the tourism industry who were involved in managing Sargassum arrival.

Following the perspectives introduced above, governance is by no means apolitical or neutral. Arturo’s account quoted at the outset of this section already indicates that how phenomena are framed plays a crucial role in how they are governed, and actors from within the tourism industry who invested in Sargassum management share one overarching interest: They want to stabilize “beach paradise” so that the region remains attractive for tourists. From the travel industry’s perspective, it only makes sense to understand and address Sargassum primarily as a threat to tourism. In the interviews I held with hotel managers, tour guides, and restaurant owners, they repeatedly stated that “Sargassum ruins my business,” “the tourists really hate Sargassum,” “more algae less tip, less algae more tip,” or “Sargassum is a nuisance.” These

snippets hint at the acknowledgment that Sargassum is predominantly framed as a tourist issue, which is employed to justify the measures in play.

Not least has it been folklorists who have argued that how phenomena are framed, narrated, and represented is decisive for how they are dealt with. In other words, framing co-constitutes specific ways of dealing with “problems.” Bronner has noted that frames help to explain “how categories of action [...] arise and engage” (2010, 275). Frames, he further argues, are never determinate but can be negotiated and contested. Analyzing how different actors frame phenomena of environmental change has recently gained more attention in anthropology. Some studies are interested in discussing how people make sense of and interpret a changing environment (e.g., McQuaid et al., 2018). Others argue that frames construct specific narratives that guide and lead to action (e.g., Flottum and Gjerstad 2016). It was useful for me to analyze the framing of the algae to better understand its entanglement with tourism. If Sargassum is not framed and dealt with as a tourist issue, action to address the phenomenon is broadly absent. In contrast, its framing as a tourist issue mobilizes actors and resources. This observation resonates with Cameron’s (2012, 103) observation that certain forms of environmental change are problematized and thematized in specific ways, and how they are framed co-constitutes their governance.

My conversations with Eva, who, like Arturo, is a highly regarded marine biologist, were essential to understanding how the framing of Sargassum has shifted in recent years and how its current dominant framing as a tourist issue makes the algae governable in specific ways. Eva conveyed that when Sargassum first arrived in Mexico in atypical amounts in 2015, residents and locals were concerned with what the algae were, if it would keep returning in the future, whether it was harmful, etc. At the beginning of Sargassum’s arrival, people were concerned with the environment and sought her expertise. Eva recalled that initial enthusiasm for protecting the environment against Sargassum faded quickly. Instead, concerns about the future of tourism became dominant. What followed was not a search for solutions on how to succeed in protecting the ecosystems of the Mexican Caribbean but a search for measures to maintain tourist travel. As mentioned above, I observed several of these measures: beach clean-ups either by hand or with heavy machinery, the dumping of algae in the jungle or the ocean, and the burying of Sargassum underneath the sand, to name a few. In the context of this Special Issue, discussing these practices in terms of everyday governance and adaptation is compelling. Recent scholarship in cultural anthropology calls for a critical analysis of adaptation (Cameron 2012; Smucker et al. 2015; Klepp and Chavez-Rodriguez 2018; Nightingale et al. 2020). The case at hand contributes to this call as it enables us to understand that while adaptation to climate change is often viewed to be something neutral, positive, or “the only viable option for survival” (de Wit 2014, 57), it is instead characterized by specific interests, post-colonial relations, and ambivalences that may well intensify the consequences of environmental change. After all, my field was less concerned adapting to a changing climate or an increasingly damaged environment than with adapting to tourists’ expectations of a once-constructed paradise. The following charts the development of the area as a global tourist paradise, embedding algae arrival within the context of international mass tourism.

The Mexican Riviera Maya and its Construction of a Tourist Paradise

In May 2022, I attended a conference that covered numerous anthropological themes. The first evening of the conference was informal and began with a dinner to facilitate participants' getting to know each other. We introduced ourselves, and I informed the colleagues I shared a table with about my fieldwork in the Mexican Caribbean, mentioning that I study anthropogenic climate change. None of the people present had heard about Sargassum. I revealed that my research had commenced in February 2019, that I had carried out several months of in-person fieldwork in 2019, 2020, and 2022, and that I had conducted participant observation and 26 in-person interviews with different actors involved in algae management or are affected by its arrival. In 2021, due to COVID restrictions, I interviewed nine more people online. I noted at the conference dinner that the algae brought together several actors with whom I work: marine biologists, policy advisors, governmental representatives, villagers, fishermen, NGO coordinators, environmentalists and volunteers, hoteliers, hotel association representatives, entrepreneurs, tourists, even bloggers and local tour guides.

My research is informed by Marcus' (1995) idea of "following", and my empirical material is enhanced by reports, newspaper articles, and scientific publications from the natural sciences. Other documents, such as round table papers, leaflets, and white papers, expand my corpus of material. The conversations I had at various sites during fieldwork took place either in Spanish, English, or German. I have also collaborated with scientists from CONACYT (Consejo Nacional de Ciencia y Tecnología) in Mexico. Our joint work includes 83 further interviews and conversations we held with different stakeholders in Mexico and Florida in the United States, where Sargassum also beaches. The material was collected between January and March 2022 and provided additional insights into how actors deal with Sargassum. The empirical and ethnographic body of material is supplemented by numerous informal conversations I had with beach clean-up crews, tourists, politicians, army officers, hotel and restaurant owners, and their staff.

Over time, I became both an observer and participant in the field. I was invited to Sargassum conferences and workshops concerned with finding solutions for the algae problem, gathered experiences as a beach cleaner, and gained insights into governmental organizations responsible for the safety and cleanliness of beaches in the area. I told the researchers at the conference dinner that I spend a lot of time at the beach during fieldwork. One colleague sitting beside me at the conference dinner laughed and said: "You know how to choose your field wisely." Laughter among the group. Then, people wanted to see photos of Sargassum, and how the beaches I work at look like. My phone circled the room, displaying a photo slideshow documenting my experiences. The faces contorted, I heard terms like "ugly" or "disgusting", and the colleague made a further statement: "You *don't* know how to choose your field wisely. You didn't end up in paradise." How come my colleagues immediately associated the Mexican Caribbean with paradise, a place to which they had never been?



This is not how my colleagues had imagined the beach—and thus my field—in Mexico. Photo credit: Laura Otto.

As early as 1974, the Mexican government selected Cancún to become the country's first planned-out tourism resort area, with Vassallo-Oby (2010) stating: "Cancún represents hyper-commodification of space and culture." In only forty years, Cancún, a former isolated fishing village with about 430 inhabitants in the early 1970s, developed from a rural area into an international, well-known mass tourism spot with 630,000 permanent residents and 15 million international tourists in 2019. The area's economic stability attracted national and international investors, and Cancún's successful industry model is used for large-scale tourism across the globe. The production of a mass tourist zone along the Mexican Caribbean results from multinational corporations' investment, tourist travel, and national government planning, funding, and regulation. These dynamics are further entrenched through tourists and their visits, their consumption of both "Mayaness" as the manifestation of the "exotic," as well as of beaches as "paradise." The spaces between the mega-resorts are filled with restaurants, tour operators, shops, and nightclubs.



Picture perfect! The white sand and crystal-clear water attract millions of tourists to the Mexican Caribbean every year. Numerous travelers consider pictures like this to be paradise. Photo credit: Laura Otto.

Spring breakers, retirees, honeymooners, and families seek adventure, relaxation, and fun when traveling to Mexico's beaches. Cancún, as we know it today, was, as Vassallo-Oby (2010, 39) highlights, created as a "playground of indulgence." Sun, sea, and sand are sold here—with Drew Foster, former Chairman of Caribbean Connection, a leading UK tour operator, stating in 1995 (Mowforth & Munt 1998, 64) that the "Caribbean is a great product." It is not only Cancún, however, which has been commodified, reproduced, and promoted for large-scale, global tourism consumption: the much smaller towns of Puerto Morelos, Akumal, and Tulum, farther south in Quintana Roo, have also attracted growing numbers of tourists and turned from villages into consumable "paradises" and 'places of fun and relaxation,' with the latter two attracting a younger, health-conscious and Instagram-savvy crowd of tourists in search of Yoga retreats, white sandy beaches and the opportunity to disconnect from busy lives at home.

The commodification of the environment and local cultural habits went hand in hand with the production of the Caribbean as a "great product." National and international agencies and institutions, local people, and resources—such as Maya ruins, beaches, and cultural traditions—were all managed and made saleable to tourists (Pisunyer & Daltaubuit 1990). These dynamics coincided with an urbanization and infrastructure boom (Manuel-Navarrete and Redclift 2012), and different types of (spatial, social, and socio-spatial) segregation ensued (see Carranza-Edwards & Rosales-Hoz 2018; Urrea-Marino 2018). It is predominantly tourists who have gained access to the coast through their resorts, and are now understood as Quintana Roo's new colonizers (Juarez 2008; Brown 2013). In this vein, Manuel-Navarrete and Redclift (2012, 177) have shown how the consumption of space along the Mayan Riviera has led to specific

patterns of access and exclusion, with Torres and Momsen depicting that locals refer to the area as “Gringolandia.” Cancún, consequently, is “neither Mexican nor American” (2005, 68). Tourism is a powerful and effective force in the region, and the Riviera Maya is a contact zone (Pratt 1991) between the global North and South. Since 2015, the contact zone is not only negotiated among humans, but Sargassum has entered the scenario, too.

When Sargassum and Tourism (do not) Meet

When residents along the shores of the Mexican Caribbean noticed Sargassum’s first arrival in atypical amounts in 2015, nobody expected it to become a serious and long-term phenomenon along the white beaches of the Caribbean. As I was told during fieldwork, many people believed that “what comes by itself goes by itself,” and that the massive arrival was an aberration and marked a one-time event. Ultimately, Sargassum cannot be considered an invasive species in the region: Many interlocutors told me that “it had always been there in small amounts,” and that they used to play with the algae in the water when they were children—most of them referring to the 1970s and 1980s. Over the decades, however, Sargassum densities increased. Between 2003 and 2011, about one million tons of Sargassum were approximated to be present in the Caribbean each year. By 2011, the number had risen to 200 million tons. While estimating exact amounts of Sargassum in the ocean and on beaches is difficult, 2022 has become known as the new “peak year” of Sargassum presence. On some days, three-meter-high algal mountains piled up overnight on the Mexican coasts. “Sometimes,” as Marianna, an environmental manager at a resort in Playa del Carmen, reported, “you enjoyed sunset at the beach, you go to bed, you sleep. You wake up in the morning, and you cannot see any sand. The day before, then, felt like it was only a dream.” Some of the natural scientists among my interlocutors emphasize their inability to predict future Sargassum beach landings but stress that the conditions for further reproduction and landings on shore are optimal. It is thus likely that the scenario of intense beaching events will be the “new normal” in the Mexican Caribbean. However, the “new normal” is not uniformly interpreted and addressed. There are stark differences between areas made accessible to large-scale tourism and areas in which tourism does not contribute significantly to economic output.

“Nobody Sees it, Nobody Collects it”—Algae Arrival in Non-touristified Areas

While, as described above, the Riviera Maya is a famous tourist destination, not *all* coastal villages and beaches have become touristified areas. In the southern part of Quintana Roo, where I spent several weeks at the beginning of 2022, fishing villages devoid of tourists still exist. The absence of tourists does not, however, imply that there is also an absence of Sargassum arrival. I had learned from discussions I had with my interlocutors back in 2020 that its arrival had an impact on less-touristified regions that was quite different from the way in which tourist areas dealt with the algae. I had heard reports about how it piled up several meters along the outskirts of villages, that the rotting smell of decomposing algae could be detected from several blocks away from the shore, and that villagers were saddened by the ecological

transformation Sargassum implied, such as that recently hatched turtles could no longer make their way into the open ocean and perished in the algae mats. During my fieldwork, I also often wondered what the atypical amounts of Sargassum meant for fishermen and rural communities.

The trip I embarked on early in 2022 to the south of the federal state was revealing: I learned from fishermen and their families about the algae's ability to cover the shallow waters. While they had been able to 'fish their breakfast' without effort in front of their houses for decades, they now needed to go out farther by boat because the algae covered the surface of the water, contributing to the absence of small fish nearby. Taking the boat out to go fishing requires more time and, more importantly, additional financial resources for extra fuel to go out into deeper waters. In poorer communities, that is not necessarily possible, and people are at risk of food insecurity and malnutrition, as Júan told me:

Sargassum has made my life so much more difficult. No one likes the algae. Fish will not eat it, and also the birds avoid it. So it is everywhere in the shallow water and on the coast. Sometimes my boat gets stuck. The algae get caught in the propeller. Then, I have to call a friend to help me. On days like that, I do not bring food home.

Nevertheless, these were not their only concerns: Communities south of the Sian Ka'an Nature Reserve also live from lobster farming, among other activities. The lobsters live in cages in the waters near the coast. The massive accumulation of algae extracts oxygen and nutrients from the ocean, which are essential for the lobsters' survival. In addition, the algae carpets lead to a precipitous increase in water temperature—to such an extent that lobster farmers occasionally find their lobsters cooked in their cages. Their central source of income is threatened by Sargassum's arrival.

Repeatedly, people who live in the southern part of Quintana Roo told me that they used to live in paradise when they grew up. They spoke of the joy they had when they swam in the crystal-clear waters, told me about how they harvested fresh coconuts from the palm trees growing along the coast, and how wide the beaches were – not comparable, they said, to what I got to see when I arrived in the Mexican Caribbean. While they told me these stories and shared their memories, I sensed that people were sad: They were mourning the loss of what they considered an intact ecosystem, they were concerned about the future of the area, and they were saddened by having lost, at least in part, what used to be their paradise. Moreover, while they also understood the Mexican Caribbean as paradise—much like international tourists – they were not able to make use of Sargassum's framing as a tourist issue, as tourists did not vacation in their villages. My interlocutors were disappointed by public authorities that they did not receive (or received only little) help in dealing with the problem; their criticism, however, was surpassed by their concern regarding their future as coastal residents. Some of them, I learned, also dreamt of transforming "their" paradise into one for tourists to benefit from tourism economically. Others, however, see the future in the tourism industry as no longer viable due to the vast amount of algae. And some wondered if they might not ultimately have to leave their villages if Sargassum does not stop arriving.



Sargassum accumulates on beaches and in shallow waters. The algae color the water brown, cover the sand, and the warmth generated by algal decomposition processes is noticeable. When decomposing, it releases hydrogen sulfite which makes it smell like rotten eggs. Photo credit: Laura Otto.

Despite the danger to villagers' livelihood, little is done to address the algae issue. A lack of financial resources makes investments in Sargassum removal impossible, and its ever-recurring beaching highlights the difficulty of knowing what is to be done to counter the way in which their way of life is jeopardized. While villagers are aware of the problems Sargassum entails—they feel them every day, after all—they are simply overwhelmed by the volume of algae. Their inaction is by no means rooted in ignorance. The absence of constructive and feasible ways to deal with Sargassum marks the most conspicuous difference compared to regions heavily involved in tourism, where altogether different practices emerge in dealing with the algae. As my interview partner Juan, who works for an NGO and several projects directed towards the integrity of the local environment, told me: "In these areas, where is much less tourism, the Sargasso accumulations are enormous. But nobody [i.e. tourists] sees it there, nobody collects it" (March 2020). His account hints at what I observed many times: If Sargassum is not framed as a tourist issue, measures to address its arrival are largely absent.

What Tourists Want

Júan's statement is emblematic of tourists' expectations when they travel to the Riviera Maya, as he suggests that the algae is removed *when* tourists see it or because tourists *would* see it. What shimmers through is that tourists do not wish to encounter Sargassum, and that actors from within the tourism industry make concerted efforts to remove the algae from their beaches. My fieldwork was revealing in terms of what tourists expect in the Caribbean, as I was able to observe what happens when they "meet" Sargassum. On days when the algae is present in smaller amounts, it is common for tourists to still go to the beach, placing their towels in the sand and bathing in the sunshine and water. On days when the algae is abundant, I observed that many left the beaches right after they arrived; they complained loudly about how dirty the beaches were, and some accused local workers, such as tour boat operators, that they were not working hard enough to maintain the Mexican beaches. When I became part of such a conversation among tourists from the United States and Tiago, who offers sailing trips in Tulum, in February 2022, I realized that he tried to educate the travelers: He emphasized Sargassum's relevance for the ecosystem, argued that algae are a natural phenomenon, and tried to convince his potential guests that a boat trip in the deeper waters farther out would still be enjoyable. The strategy of normalizing Sargassum is one I observed repeatedly: In some places, local governments installed placards stating that Sargassum has always been there and is a phenomenon at *all* coastal destinations, is needed for humans and animals alike, and that the algae contributes to creating dunes and sand. Normalizing Sargassum and the efforts to convince tourists of it not being problematic was largely unsuccessful, as travelers had concrete expectations: white beaches and clear waters. Tourists I interviewed mentioned in our conversations that they, like Anna,

went to Mexico for the really cool beaches. I thought that I would find really white sand, and turquoise waters here. I knew that Mexico is maybe less authentic than other destinations in Latin America, but I wanted that chicness. I had planned to take photos for Instagram, but the algae was everywhere.

Anna's statement expresses what travelers expect in the Mexican Caribbean. The irony here is that Anna, like numerous other travelers I interviewed, was inspired by Instagram, among other sources, to travel to Tulum and the Riviera Maya. They were all magically drawn to the images of inviting water and white sand. In Mexico, upon tourists encountering Sargassum, I kept hearing: "But this beach doesn't look like on Instagram!". Instead of reflecting on how Instagram creates illusions, my tourist interlocutors were primarily interested in continuing to serve the Instagram effect, rather than either not posting or posting a more realistic image. I could see tourists clearing tiny sections of the beach of algae to quickly photograph themselves without Sargassum. These practices perpetuate what has long been observed in the Riviera Maya: Tourists have a considerable power to decide who or what is not seen, thus relegating local actors—be they human or non-human—to places tourists assign to them. The local population repeatedly appears in tourists' photos as proof of "authentic experiences," but they are, much like the algae, not documented in photos of and on the beach. If the algae are depicted in Instagram posts, it is often accompanied by the

accusation that the local population cannot keep the beaches clean. Thus, tourism is not least a “way of seeing” (Urry 1990), or an industry that practices a powerful “making see-able.” These “tourist performances” (Farías 2010) comprise, as is shown here, “manipulations of images” (ibid.).

However, it is not only travelers who continue to reproduce images of paradise. While the earlier mentioned airline advertisement does not try to attract tourists by displaying “perfect” beaches, others still use these pictures. Despite the algae landings, hotels and tour providers still advertise the expectations of travelers that are evident in the quotes, which Omar understood and criticized as a “delusion.” Tadeo is an entrepreneur in the town of Puerto Morelos. He said a more honest approach towards the transformations in the Caribbean should be employed: “Still, hotels and tour operators show their potential guests flyers with all white beaches and blue waters. And then they come here and see something else, they feel like they are ripped off” (February 2020). Tourist numbers have already dropped, and hoteliers and other actors in the industry are concerned with having to deal with tourists’ complaints. Juan reported to me (2020):

The impact on tourism is huge. Because travelers, they upload photos, and others can see it. They will not come here. And they stopped coming already. People say online that our beaches are history [...]. People are looking for sun, beaches, coconut with rum—but they don’t want Sargassum. (March 2020)

In addition, people write about the bad smell originating from Sargassum’s decomposition, and they report nausea and difficulties breathing. In online fora and tourist blogs, Sargassum is repeatedly framed as a nuisance, a photo disruptor, a vacation horror.

Camila, a marine biologist who is one of my interlocutors, mentions that once Sargassum arrives, “the roof is on fire” (February 2022). Stakeholders from the tourism industry then find themselves in a situation characterized by significant pressure. The region’s dependence on tourism creates a situation in which people start to ‘fight’ Sargassum, and I have observed that bombastic vocabulary is used once algae arrives. “There is a war against Sargassum,” Dan, a contractor who cleans the beach for hotels and helps them remove the algae, explained: “We need to work together, otherwise, we will lose this war. Every day, there is invasion” (February 2022). The narration and representation of Sargassum as an ‘invader’ and a ‘destroyer’ is used to justify its removal by different measures, ranging from removal by hand to heavy machinery to address tourists’ expectations. What is striking here is that all the measures employed do not aim at adapting to the changing environment, but they aim at adapting to meeting tourists’ alleged needs: white beaches.

“Playas Limpiezas” – Cleaning Beaches and Stabilizing Tourist Paradise

With Sargassum being primarily viewed and narrated as a threat to the tourism industry, tourists and their expectations play a crucial role in dealing with the algae. While several of my interlocutors viewed Sargassum as a natural phenomenon, and that nature should take care of it, they also acknowledged that hoteliers and tour opera-

tors needed to intervene, as their businesses are under genuine threat. The hoteliers I talked to repeatedly stressed that they have guests who are severely disappointed with Sargassum on the beach and view it as an aesthetic problem. Concern about the impact of tourist dissatisfaction on their continued business practice—would tourists continue to travel to the Mexican Caribbean, or would they abstain from traveling to the region’s coast? —was ever-abundant. Jorge, a manager in a hotel in Puerto Morelos, told me that he and his team “are working on solutions that allow resort guests to use the beach. It is our goal to provide a place tourists can enjoy.” Here, again, the measures undertaken solely aimed at adapting to tourists’ expectations, but a notion of adapting to anthropogenic climate change was absent in his account. The expectations of tourists are powerful in terms of dealing with the algae. Tourists’ expectations not only contribute to making the algae governable in specific ways, but economic concerns about the future of tourism—as opposed to ecological concerns about the environmental well-being of the region—are the primary motivation to deal with and remove the algae from the beaches.

The changes brought about by Sargassum reveal hoteliers’ and the tourism industry’s approach to maintaining and working towards the stabilization of a beach paradise. The narration in advertisements, online travel fora, and in tourists’ minds cements the belief that the distinguishing feature of the Mexican Caribbean is its clean, white, sandy beaches. It is the narrative that stakeholders in the region are selling and which tour operators are entrenching. When I spent time in Playa del Carmen during my fieldwork in 2020, I interviewed different tour operators along the promenade who were predominantly selling snorkeling and diving trips to nearby shipwrecks and reefs. I observed how they used their phones to show potential guests pictures of the ocean and the beaches—and, of course, they used photos of clean waters and clean beaches to attract customers. They emphasized that guests present at the moment were fortuitous, as algae had been removed, the beaches and waters resembled the condition of the coast’s prevailing narrative, and that nothing stood in the way of an excursion into paradise.

While tour operators predominantly used photos on their phone to “prove” paradise-like conditions, hoteliers had to invest to keep their beaches Sargassum-free. These investments range from barriers to stop algae on the water to beach cleaning, either carried out by hand, with the help of machines, or by human-machine collaboration. Stabilizing tourists’ expectations of the beach paradise requires substantial investments: I learned from a hotel manager in Puerto Morelos that her company hires 1,300 workers—predominantly men from the Chiapas region—to remove Sargassum from the properties’ beaches. These workers earn approximately 2,000 Mexican Pesos a week, which translates to 90 Euros; in total, it generates costs of almost half a million Euros every month that the hotel invests in algae removal. These investments were, however, considered necessary as tourists would otherwise stop coming. In other words, these measures are aimed not only at satisfying those travelers who are already on site by meeting their expectations, but also at ensuring that potential guests are not deterred. Stabilizing the present beach paradise is a costly endeavor.



Barriers, as seen here in the photo, are installed in front of hotel beaches to keep the algae away. It does not, however, hinder the algae from accumulating behind the barrier. These barriers must be cleaned and maintained regularly to be effective, which is costly. Photo credit: Laura Otto.

During field research, I became part of a beach cleaning brigade and actively participated in Sargassum management. The beach cleaners I joined were employed by a company in Puerto Morelos which offers its service to several hotels along the Riviera Maya. While working together, I learned what it meant to clear a beach of algae—it is a Sisyphean task. A Sunday in late February 2022 is particularly revealing here. February is usually not part of the so-called Sargassum season, which typically lasts from April to September. It was therefore quite a surprise for the hotels that large quantities of Sargassum landed on the beaches in winter, and barriers and other “technological fixes” had not yet been installed in the ocean to keep the algae at bay. The explanation for the arrivals was that cold fronts and strong winds had moved the algae to the coast. Since Mexican borders were not closed during the COVID-19 pandemic, most hotels were at full pandemic-conforming capacity. Thus, the hotels found themselves under pressure to act.

That Sunday in late February was supposed to be my day off and I wanted to relax on the beach from several weeks of field research and algae cleaning. Overnight, however, such vast quantities of Sargassum landed that I assisted in cleaning the beach, and again I found myself on the sand with a rake in hand. After three hours,

we allowed ourselves a half-hour break; during that time, so much new algae washed up making it seem like the hours we had spent on shore cleaning had been in vain. While we cleaned, tourists looked at us—some with praise, some with pity, some with puzzlement. When I looked at the ocean and said to Melissa, who has been cleaning beaches for several years, that I already saw the next algae approaching in the waves, she told me to simply work with my back to the ocean and just look at the ground—anything else would be too frustrating. After six hours of work, according to the estimates of the company manager, we had collected 10 tons of biomass—7 tons of algae, 3 tons of sand.

Stabilizing the Present, Destabilizing the Future

While the beach clean-up we carried out contributed to tourists' satisfaction, removing sand poses a risk to the region. Meeting travelers' needs in light of algae arrival also means contributing to beach erosion. Camila, the biologist I quoted above, raised her concern: "Hotels protect their business. They do something they are not prepared for. That is efficient, but harmful" (February 2022). Several scientists told me about their concerns regarding the conditions of the beaches. Like Camila they criticized that algae removal is often carried out in uncoordinated fashion, it is conducted unprofessionally, and beach cleaning to fulfill tourists' dreams illustrates that the "needs of nature" (Leatherman & Goodman 2005) are not a priority. Viewing Sargassum primarily as an economic problem, not as an ecological one, does not only lead to a situation in which 'nature' is treated as an afterthought, but the same applies to communities which do not live from tourism. Beaches and the coastal zone are viewed primarily as an economic good meant to appeal to tourists; in other words, clean beaches are needed to satisfy tourists' demands. Yet "Gringolandia" and the provision of what Torres and Momsen (2005, 68) call a "utopian tropical paradise" leaves its marks on the region. As I argue, the stabilization of the beach paradise in the present goes hand in hand with its destabilization for the future.

The consequences of Sargassum removal are already noticeable: I have observed since 2019 that the palm trees on the beaches are much less deeply rooted in the sand. Their roots are exposed, and they hardly have any stability left, which is the result of strong winds and hurricanes, but also relates to the sand carried away by Sargassum cleaning. In addition, the texture of the beaches has changed due to beach cleaning, as Tadeo mentioned:

When they clean up the Sargassum, they are also taking sand away, little by little. I don't know if you walked on our beaches recently, but the ground, it is so hard and dry, before it was softer, not the same thing. Some people also began digging holes and they bury Sargassum on the beach. That makes the sand very, very hard. The beach is changing a lot. (February 2020)

These subtle changes may not be noticeable to travelers at first glance; those who do not have the comparison will not detect the difference but will rather enjoy the clean beaches. These are changes felt and observed by the local population. Tourists are much less concerned with these transformations, and instead share photos on social media of the cleaned beaches, thereby stabilizing the famous "beach paradise."

They praise hoteliers for making these efforts and comment positively on their work. That plays into the hands of hotel and tour operators: it makes them hope that others will travel to the Riviera Maya in the future, contributing to further investment in beach cleaning.

The practice of cleaning beaches by raking algae off the beaches does not only affect sand quality; it also contributes to beach erosion. My research shows that the disposal of seaweed is intertwined with the general waste problem along the Riviera Maya: the region does not have a functioning waste system, and like packaging, plastic and other waste, Sargassum does not necessarily end up in designated facilities.



This photo depicts Sargassum which has been removed from the beach and is now rotting along a road; it is mixed with other waste. I took the photo in a village in the southern part of the Mexican Caribbean coast. Reports from villagers indicate that they do not know where better to dispose of the algae because they do not have access to designated disposal sites. Photo credit: Laura Otto.

Scientists and environmentalists are very concerned about the uncontrolled dumping of Sargassum. J uan reported the following in our conversation:

After they removed Sargassum from the beaches, they just put it somewhere. Somewhere where nobody can see it. Somewhere, where there is space available. That is where they put it. It happens because the state does not want to give resources for appropriate dumping sites. There are methods and techniques to create proper dumping sites, but they don't want to make the investment. So, they let people dump it in the jungle. (February 2020)

One may think that the disposal of algae in the jungle is less problematic than other waste or plastics. However, the uncontrolled disposal of algae leads to further environmental problems: Not only is hydrogen sulfite released, but the algae contain metals which seep into the groundwater. The Riviera Maya area is known for limestone soil which is highly permeable. *Cenotes*, pools of fresh water under the surface of the earth, are infiltrated by algae pollutants. These pools have been important to local populations dating back centuries, and their contamination leads to the pollution of groundwater upon which local communities depend.

Conclusion: Goodbye Beaches? A Cautious Outlook

This article has empirically examined Sargassum algae's arrival in the Mexican Caribbean. Since the 1970s, the region has been purposefully constructed and marketed worldwide as "tourist paradise" (Mowforth & Munt 1998, 64). The enactment of tourism spaces often leads to the equation of places and meanings—in this case the equation of the Riviera Maya as a "beach paradise." "Tourism spaces" (Wöhler et al. 2010, 14) are not simply out there but are stabilized by various actors and practices—and can be destabilized by anthropogenic climate change, as is the case with Sargassum.

For almost a decade, the region has been affected by massive algae beaching events. Dealing with it poses new challenges for local stakeholders. It is fair to say that the phenomenon of Sargassum algae discussed here is indeed—like other forms of environmental change—a "wicked problem" (Rittel & Webber 1973). This article illustrates the insights ethnographic analysis can generate for such complex issues, as it allows disentangling different actors' perspectives and their preferred ways of dealing with change. By employing an analytical perspective that helps understand governance as everyday practices and co-constituted by how phenomena are viewed, framed and problematized, I offer an urgently-needed, empirically-grounded case study of how societies cope with ecological and environmental transformations.

I carved out that Sargassum is predominantly framed as a tourist issue, thereby showing how tourism and algae governance are entangled, which demonstrates that governance of and adaptation to environmental change are by no means apolitical or neutral (Smucker et al. 2015; Klepp & Chavez-Rodriguez 2018). Despite its ecological root cause, Sargassum arrival is predominantly framed as an economic problem for the region. How to address the issue remains contested for two primary reasons: (1) scholars from within the natural sciences do not know with certainty the degree to which different factors contribute to its growth, such as warming ocean temperatures, a change in currents and winds, as well as increased input of fertilizer in the Atlantic. (2) Dealing with Sargassum is a challenge considering the lack of certitude concerning the temporality of algae arrival, its quantity, and where exactly it will land.

Its framing as a tourist issue leads to specific governance and adaptation practices.

As I have argued, Sargassum's specific framing is employed to justify the measures in play—be it the installation of barriers, the removal with either hand or heavy machinery, or its dumping in the jungle. When Sargassum is not framed as a tourist issue, little is done to address it. The result is a situation in which the stabilization of the present and near-future “paradise” leads to its simultaneous destabilization, calling into question the sustainability for local communities. That being said, the case at hand reveals that adaptation within the context of anthropogenic climate change must by no means be viewed as necessarily “good,” protecting, or neutral, but is loaded with actors' diverging interests, shaped by power imbalances and social inequalities, and is often tied to post-colonial relations. Adapting hap-hazardly and in an ad-hoc fashion to tourists' needs indeed contributes to further environmental damage.

We can see this particularly well if we recall the situation of the fishermen. I have indicated above that the notion of the area as ‘paradise’ is not only invoked by tourists and the tourism industry, but residents and villagers also told me that they used to live in what they considered paradise. Their paradise, however, is no longer what it used to be. They issued concerns about their future, grieved the loss of ecosystem integrity and biodiversity, and were saddened by transformation in such rapid and seemingly uncontrollable ways. Tourists, however, displayed different sentiments when they did not encounter “paradise”: They were frustrated with ruined holidays, they complained about the government and tourism operators who, allegedly, were not working hard enough to clean the beaches, and they were concerned that their photos would not reflect that they had indeed visited “paradise.” Their concerns and interests ultimately shaped the dominant framing of Sargassum governance. It produced a situation in which adaptation to tourists' needs trumped adaptation based on environmental and residents' needs.

The stabilization and adaptation practices aim to cement tourists' imaginaries of what the Caribbean *should* look like. It has much to do with and is motivated by the significant commercial role tourism plays in the region's economic development. Hoteliers and tour operators aiming at satisfying their customers are primarily concerned with the problems of the present and the immediate future. Attracting further tourists in the near future necessitates the stabilization of the present. Clean beaches are important for current travelers and for making the Riviera Maya enticing to future travelers. At the same time its short-term stabilization raises serious questions about the possibility of ensuring an ecologically-sound, longer-term paradise. Stabilizing tourists' beach paradise with its current practices implies its destabilization at the same time. Whose beach paradise is being stabilized also points to environmental justice (Alba et al. 2020).

Tourism is far more than leisure, encounters between travelers and locals, or an industry. To borrow from Marisol de la Cadena (2019) tourism is all these things, but *not only* these things. While Sargassum's framing of a tourist issue may (in the short term) stabilize the travel industry and allow for the continued sale of ‘beach paradise’, it comes at a longer-term cost to the region and its population. If the cautious predictions of my interlocutors come true, airlines and other companies in the tourism industry will have no choice in the future between advertising Mayaness instead of beaches, because the latter may cease to exist. Some will then lose their ‘beach paradise’ as tourists, others will lose the “beach paradise” as residents.

Abstracting from my specific case and returning to the topic of the Special Issue; the case illustrates that views on adaptation may differ amongst actors on the ground. Agreement about how to adapt or what to adapt to is largely absent. Bearing diverging views in mind, it is difficult to generate solutions to environmental change when different interests, world views and power relations overlap. Within governance of and adaptation to environmental change, tensions emerge between ecology and economy, residents and visitors, between the present and future. Sargassum along the Mexican Caribbean has certainly borne that out.

Acknowledgments

I thank all my interlocutors for their hospitality, their time, their insights, and the knowledge they shared with me. I am grateful for comments provided by Arno Pascht and Katharina Graf on earlier versions of this article. It benefited from comments and suggestions I received from participants at the SIEF conference 2021 panel “Approaching Climate Change Adaptation: Challenges, knowledge, practice,” organized by Sophie Elpers, Michaela Fenske, Arnika Peselmann, Silja Klepp and Domenica Farinella. Comments from the editors of this special issue and from anonymous reviewers also improved the manuscript. My work is funded by the Deutsche Forschungsgemeinschaft (DFG/German Research Foundation) under grant number 461841531.

Notes

- 1 All interlocutors gave their consent to participate in either verbal or written form. They were given pseudonyms throughout this article.

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Political Consumerism for the Energy Transition and Collaborative Housing: Two Experimental Cases in Italy

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Abstract

The essay proposes an in-depth analysis of two Italian case studies, that are interweaving new forms of collaborative housing and energy prosumption sharing. They were both born and implemented before Italian legislation on cohousing and energy communities took effect. In terms of domestic life and energy management, they entail real experiments in sharing spaces, times, and activities. These initiatives took place in different parts of the country with different economic and cultural characteristics. Within the theoretical framework of political consumerism, we analyze the community dimension and action of these initiatives in relation to citizen/customer engagement in energy transition processes.

Keywords: Political consumerism; collaborative housing; energy community; energy transition; energy citizenship

Introduction

This essay examines two Italian case studies in detail as examples of intertwined forms of collaborative housing and energy sharing. Energy communities and cohousing were conceived and partially implemented before Italian legislation was passed. Therefore, they are real experiments in terms of how spaces, times, and activities are shared in the context of home living, and energy management. These two case studies represent two experimental models of collaborative housing and grassroots energy initiatives that could be adapted to different socioeconomic and cultural contexts. The two projects were undertaken in two different geographical areas of Italy: one in Northern Italy, and the other in the South, two geographical areas with different economic, social, and cultural characteristics and contexts.

In the first case, a bottom-up participatory process was used, in which group members participated in all stages of the project, from the conception phase to the design of the building, from the choice of materials and technologies used to construct it to the rules and relational dynamics to be applied within the cohousing community. The second is a pilot project conducted by an NGO to promote housing empowerment from a community perspective. People with social integration and poverty problems

are involved. A participative process was also envisaged here, especially concerning housing management and the rules for establishing a small energy community.

These two cases are relevant because they represent new social movements that, through their energy and housing consumption choices, the use of renewable energy and energy-efficient and energy-saving technologies, lead the actors involved in their daily actions to contribute to climate change mitigation. They comprise new forms of collective energy engagement, including strong political action, that contribute to shaping energy citizenship. What seems to be relevant in the strategies implemented in these experiences relates first to the logic of climate change mitigation. Indeed, although they have important differences, both cases of communal living experiment with strategies to change the lifestyles and living of their members (Bouchard 2006). This choice is characterised as a mitigation action and not just an adaptation to the current climate crisis, as it involves domestic practices related to consumption (energy, housing, space, etc.) in terms of their transformation and social reproduction starting from neighbourhood relations. The effectiveness of this strategy with regard to the consequences of climate change is entrusted to the community dimension, that underlies the two initiatives. This strategy is also adapted in relation to the characteristics of the group of co-habitants and their ecological, economic, cognitive, social and relational capital (Moulaert & Nussbaumer 2014). It is also possible to implement a form of climate change mitigation by engaging health and socio-economically vulnerable people and making them beneficiaries (Sovacool et al. 2021; Jenkins et al. 2016), as in the case of social co-housing in Southern Italy. Importantly, the logic of the community approach also allows practices and specific consumption solutions to be adapted to the diversity of territorial and local contexts, through the grafting of forms of situated social innovation (Bouchard 2012) and a practical social learning approach (Moulaert et al. 2013). Our research examined the social dynamics generated by these initiatives and the community dimension. Using political consumerism as a theoretical framework, we investigated how citizens/customers engage with environmental and energy transition processes.

The following paragraphs introduce our definition of collaborative housing and energy communities and the current Italian situation regarding the diffusion and territorial concentration of these kinds of communities. We then discuss the theoretical framework of political consumerism that can help us better understand the social phenomenon under research and the dynamics of its transformation. The Methodology section describes the two case studies and explains our qualitative approach based on in-depth interviews, life stories, and socio-ethnographic observation. In the Results and Discussion section, our focus is on the different features of each case corresponding to two different models of community-based initiatives in the field of living and energy and their political subjectivity. The final section is dedicated to some relevant implications derived from our analysis to highlight how these two experimental cases connected to civil society movements can represent best practices in the energy transition.

1.1 Collaborative Housing, Energy Communities and Energy Transition: The Situation in Italy

In our definition of collaborative housing, we include those forms of living that combine the presence of individual flats with shared spaces (i.e., garden, kitchen) and activities or facilities (i.e., laundry, babysitting, car-sharing). Denmark pioneered this model of living in the 1960s, spreading throughout Northern European countries (Lietart 2007) and other countries (United States, Australia, Japan) over time.

Sharing space, time, and resources (skills, availability of time, and expertise of various kinds) is one of the basic principles of cohousing, as well as rationalizing consumption and avoiding waste. Thus, collaborative living initiatives are born of a strong commitment to environmentally sustainable living. Hence, we agree with the definition of cohousing: a form of housing that emphasizes economic, environmental, and social sustainability (Bianchi 2020, 9).

Italy has fewer collaborative living initiatives than other European countries and other continents. Moreover, no specific law has yet been promulgated at the national level. These experiences are, however, attracting the attention of citizens' associations, local authorities, and national governments. They have therefore become an emerging social and political phenomenon, playing an increasingly significant role in triggering climate change policies and actions. Those who live in collaborative housing also desire to feel part of a community that nurtures well-being in terms of quality of life, relationships, and better management of their day-to-day lives. It is not just the welfare that these initiatives generate that impacts the people living in the homes but also the surrounding context, such as the neighborhood.

Through a partnership between the public administration and the promoters of these initiatives, collaborative housing can be seen as a service to the city, as it allows social networks to be formed and solidarity-based initiatives to be initiated, as well as to support and promote urban regeneration processes. Especially in the center and north of the country, top-down and bottom-up initiatives have multiplied in the past decade. According to data from the website "Mappa dei cohousing in Italia," published by Housing Lab (Housing Lab, n.d.), 28 cohousing units were already inhabited in 2022. As mapped by the Housing Lab association, most cohousing and ecovillage projects are in Northern Italy, while just a few are in the South.

Concerning energy communities, they represent a significant phenomenon of decentralisation of governance in the energy field. In addition, an innovative consumption practice based on participatory models with consequent positive impacts on the ecological and energy transition. According to Seyfang et al. (2013, 978), energy communities are "projects where communities (of places, or of interest) exhibit a high degree of ownership and control of the energy project, as well as benefiting collectively from the outcomes (either energy-saving or revenue-generation)." They may involve different actors and interest groups: citizens to local authorities, NGOs to companies. This is certainly leading to a momentous change in the energy system, as it gives people the right to generate, store, consume and sell their own energy. Consumers and producers of energy can then join in the form of a community to share the energy produced by the facilities held by the community.

Today, the prosumer's role has become accessible to any citizen and is consumer empowerment. He can play a key role by triggering social innovation dynamics, as he reflects a fundamental change in consumer behaviours. Interaction with the grid has thus paved the way for what we could call energy 2.0. However, this model must correspond to a territory managed from a participatory perspective (Nastasi 2013) to make citizens aware of the possibility of becoming producers and more knowledgeable about the energy supply chain and its costs. In this way, the conditions for a wider participation in the decision-making process would be created. Therefore, energy communities will increasingly play a decisive role in the energy transition process, acquiring a multidimensional value and involving not simply technical reconfiguration, but substantial evolutions in changing individual behaviours, practices, processes, social interactions and values, thus generating decisive long-term impacts.

In relation to this issue, we consider energy communities as projects run by and for the benefit of a local population (Walker and Devine-Wright 2008), where communities show a high degree of ownership and control over energy production and consumption, with a collectively positive impact on the results (energy savings or income generation) (Seyfang et al. 2013). Beyond this, we consider them new forms of non-oppositional collective mobilization against renewable energy sources (Magnani 2018).

In this respect, the European Commission, within the Clean Energy Package, has set, on the one hand, the guidelines and constraints in terms of renewable energy to be achieved by 2030 for each state and, on the other, has introduced, through two directives, EU 2018/2001 (Renewable Energy Directive II, or REDII) and EU 2019/944 (the Internal Electricity Market Directive, or IEMD), two new definitions: 'Renewable Energy Community' (REC) and 'Citizen Energy Community' (CEC). In both cases, the aim is to provide environmental, economic, or social benefits to their members or the area where they operate at a community level rather than to generate financial profits. However, there are some differences between these two directives. The REC has to be powered by renewable energy of any kind. It can produce it with any energy carrier (electricity, heat, gas), while the CEC is not specified, and the energy source can also be fossil.

In Italy, the European Directive 2018/2001 was partially and experimentally transposed through the law. No. 8/2020 on 29 February 2020. Then, in 2021, it was fully transposed through the legislative decree 'Red II' (Legislative Decree No. 199 of 8 November 2021), which came into force on 15 December 2021. Based on this legislation, each energy community can have a plant with a maximum capacity of 1 Mega Watt.

Furthermore, the members of an energy community can be connected to the primary power station, which allows a larger number of people to be involved. In rural areas, for instance, more small municipalities can be involved. According to ARERA Resolution 727/2022/R/EEL, the new Italian regulations will come into force from 1 March 2023 or from the date of application of the implementing decrees of the Ministry for the Environment and Energy Security, whichever is later, and will remove the previous restrictions. According to a mapping carried out by RSE (Ricerca di Sistema Energetico) and the Luiss Business School (De Vidovich 2021), there are 27 renewable

energy communities launched in Italy in compliance with Law 8/2020. In this phase of the start-up and development of energy community projects, solidarity, and collaborative living initiatives take on the role of living lab from the viewpoint of sharing renewable energy resources in Italy.

Moreover, these forms of collaborative building can and do play a role in disseminating energy sustainability cultures and best practices. Above all, intentional communities, such as ecovillages and cohousing (Daly 2017), also referred to as ‘community-led housing’ in a broader sense (Lang et al. 2019), are an example of bottom-up practices such as participatory governance, which links family and co-housing management to the use of community-based energy solutions. Often, these experiences lead to the development of technological innovations from renewable sources for energy production, storage, and mutualisation. Bawens and Defourny (2017) show that these practices produce benefits for the members of the cohousing/energy community (*mutual benefit*) but have great potential as social diffusers (*public benefit*) of participation knowledge and practices as they have already done for other purposes. Other scholars point out that some experiences of this type have significantly impacted the surrounding area: they have generated processes of urban regeneration and social inclusion through many activities involving the neighbourhood’s inhabitants. (Tummers 2016, 2030–31).

Ruiu (2014, 324) outlines the role of these ‘collaborative living’ communities as a means of fostering and disseminating social capital within and outside the group.

According to Daly (2017, 1359), “intentional communities represent potentially important experiments in developing more sustainable lifestyles and consumption patterns. They are experimental niches, and as the grass-roots innovation agenda highlights, civil society niches can play an important role in successful sociotechnical transitions to more sustainable production-consumption systems.”

1.2 The Political Consumerism Issue Between Living and Energy Transition

Despite the EU’s massive commitment to the energy transition of its member states—both in terms of producing new policies and economic investment—the results achieved so far do not seem to be sufficient concerning the goals set by the Paris Agreements, which assume an acceleration towards EU decarbonisation by 2050. The pathways already unfolding differ greatly between countries due to the technologies and actions implemented by each of them. The countries that seem to be struggling the most are those located in Southern Europe, which were hardest hit by the economic crisis between 2007 and 2008 and which, also as a result of the political, economic, and social effects of the COVID pandemic, will certainly be forced to review their policies in support of the energy transition.

The conversion of the energy system involves transforming the socio-technical systems that represent “the infrastructure of everyday life” (The Foundational Economy Collective 2018): electricity grid, transport, construction, waste management, production, food distribution, etc. A technical apparatus that can only function if it is accompanied by social practices with specific cultural meanings, requiring new roles

and responsibilities from citizens (Lennon et al. 2020), and public engagement as a precondition for public acceptance (Devine-Wright 2007b). To face all this process's challenges we must expand beyond economic and technological investments. Instead, we must foster and promote the citizens' civic engagement, active participation, and interactions both among themselves and with institutional and/or corporate actors. In short, it promotes 'energy citizenship' processes.

In Devine-Wright's definition:

a view of the public that emphasizes awareness of responsibility for climate change, equity and justice in relation to siting controversies as well as fuel poverty and, finally, the potential for (collective) energy actions, including acts of consumption and the setting up of community renewable energy projects such as energy cooperatives. (2007a, 72-73)

This vision that opens up novel forms of collective engagement in the energy field with a strong political connotation. It also clashes with the official discourse that views the citizen as individual actors motivated above all by economic interests. In this sense, in light of the expanding participation spaces opened by the energy transition, "energy citizenship needs to be reconceptualised to incorporate more collective and inclusive contexts for action" (Lennon et al. 2020, 184). Considering the need to analyse individual and collective behaviours that increase actions concerning both the private sphere, such as energy consumption, and the public sphere, such as citizenship practice, the more appropriate point of view is political consumerism. Consumption, for many citizens, is politically shaped. Through these actions, consumers link their choices to relevant political issues related to environmental, labour rights, human rights, and sustainable development. In practice, by politicising consumption, these people identify the economic sphere as an arena to promote new dynamics. This perspective aims to affirm a different way of conceiving of economy and politics.

The assumption is:

everyday conduct of individual citizens is not just a matter for private life but increasingly important from the local to the global level for politics, community, and the character of the marketplace. (...) Their choices are based on attitudes and values regarding issues of justice, fairness, or noneconomic issues that concern personal and family well-being and ethical or political assessment of favorable and unfavorable business and government practice. (Micheletti 2003, 4)

This is the general context in which forms of alternative consumption, ethical or socially responsible investment, enable citizens/consumers to undertake more responsible actions that can be defined as "politics behind products" (Micheletti 2003; Stolle et al. 2005).

In its internal articulation, political consumerism is divided into *collectivist* and *individualized* collective action. The former, according to Micheletti, represents a kind of first modernity where consumers are involved in associative interest groups, civic associations, or representative democratic structures, in which citizens find a forum for

giving voice to their political identity. In the later, according to postmodern dynamics, consumer action does not require any external structure to support their interests but is based on the individual choice of objectives and political action to be pursued, referring to values shared by others too (Micheletti 2003; Stolle & Micheletti 2013).

The possibility of using purchasing power as a form of pressure is not entirely new, even for some; the origin of this way of acting is traced back to 1773 during the Boston Tea Party protest, which contributed to triggering the American Revolution (Soper & Trentmann 2008, 5; Pellizzoni 2012),

In Europe, from the end of the 19th century— when the first consumer cooperatives were developed in Italy and Germany to contain prices— and at the beginning of the 20th century (Trentmann 2004). Citizen engagement in politics does not only refer to boycotts but also forms of *positive political consumerism*. The boycott promotes the consumption of goods following specific principles (Micheletti 2003; Stolle et al. 2005; Copeland 2014b).

In this framework, considering the market as a political arena, citizens-consumers, and proactive consumers, bring out the connection between the economic and political dimensions: environmental problems and concerns, the ethics of production, and issues in which consumption becomes an instrument of social regulation implemented by civil society.

In the case of Italy, the ethical consumption of Fair Trade goods can be considered the most important kind of political consumerism (Mostaccio 2008), from which all other types of positive political consumerism descend. Among these, the most widespread and best known is that of the Solidarity Purchasing Groups: consumer groups who intentionally choose a lifestyle based on solidarity towards the producers, the environment, the developing countries, and all inequalities under the current growth model (Mostaccio 2016; Mostaccio 2020).

Solidarity Purchasing Groups mostly arise as informal groups formed by consumers and producers who collectively organize the purchase of food or other goods and services. Solidarity Purchasing Groups, as other collective experiences, become “building sites” where new forms of economy are engendered. The purpose is to create a new “relational economy,” where social exchange is as meaningful as economic exchange. Practices like these are increasingly widespread in communities of both place and interest, in which exchange is not necessarily monetary but social and political. We are dealing with a steadily growing phenomenon Since 1994 (the first SPG in Fidenza), the national network has registered 994 groups and 18 Solidarity Economy Districts, with a dozen more under construction.

After a short time, the Solidarity Purchasing Groups merge with other organizations and create different types of experiences so they re-develop their aims and become real political players. In this way, within these groups, many initiatives with a strong political issue emerge: they act as protection, promotion and defence of the local territories as well as encouraging social engagement and connecting with other types of entities. These lead, for example, the referendum campaign for public water. (Mostaccio 2020, 212)

This kind of political consumerism is particularly relevant for our purposes because it is part of Italian renewable energy communities born from the experiences of Solidarity Purchasing Groups and Solidarity Economy Districts. Magnani and Patrucco (2018, 189) point out they were born “within a subculture strongly oriented to issues of participation, self-management, solidarity and environmental sustainability.” These experiences combine local rootedness with the energy transition to respond to the environmental issue. In this case, the statement is that consumers, as citizens, can potentially, under certain circumstances, collectively influence society’s development through what they decide to buy and/or produce. This is obviously also in the energy field. Moreover, the collectivisation of these practices seems to address the concerns raised in a stimulating essay by Pellizzoni (2012), in which he argues that political consumerism, by emphasising individualised collective action, risks supporting and encouraging a certain immunisation of the members of social aggregates; where immunity (as opposed to community) implies having nothing in common with others, no obligation to them. Renewable energy communities, at least in the Italian case, seem to be undergoing a real shift from individuality towards the renaissance of the communitarian dimension.

Political consumerism has become a significant force in dealing with complex and difficult problems in different production and consumption sectors in transnational and multilevel settings (Copeland & Baulianne 2020; Gundelach 2020). It increasingly involves civil society actors engaged in activities within various social institutions at different levels of society (Copeland 2014a; Boström et al. 2019). A type of commitment that political consumers mainly direct toward material goods, despite the growing importance of the service sector. From this point of view, energy communities can represent an interesting challenge: with the reconfiguration of the electricity system due to the opening of the electricity market, consumers can no longer be passive users but can become prosumers and co-managers capable of producing different types of value.

It represents a major achievement for political consumerism in the fields of domestic energy demand and supply and the subsequent new practices of consumption (Kloppenburger & van Vliet 2013). From this perspective, renewable energy prosumerism can be considered as a social movement concerning a decentralized democratic energy model with clearly recognizable adversaries (Campos & Marín-González 2020, 10; Ruostetsaari 2020). Within this theoretical frame, we have selected two case studies that could represent some of the main trends concerning these phenomena and analysed them as possible disseminators of good practices (also) in the energy sector and two models for implementing housing and energy policies.

2. Methodology

2.1 Semi-structured Interviews and Ethnographies

To investigate the two case studies, we used a qualitative approach, mainly the collection of semi-structured in-depth interviews with the main actors involved in each

of the two collaborative living initiatives and socio-ethnographic observation. Several reasons motivated the choice of these research instruments.

First of all, the niche nature of these cohousing experiences does not yet allow for a significant quantitative analysis. However, it leads one to prefer a qualitative approach that can better account for the social dynamics within the groups studied. Secondly, the community dimension and the participatory nature or involvement of the inhabitants play a central role in these experiences, both with the sharing of spaces and domestic life and with the management and consumption of renewable energy. This dimension of consumption governance and a precise vision of dwelling in a shared form needs to be explained in detail from the point of view of the main actors (inhabitants/practitioners) (Bianchi 2020, 13). Thirdly, these two initiatives have a social innovation character combined with high technological innovation, at least concerning the Italian context. This character, once again, defines these case studies in terms of niche phenomena, with respect to which are interesting and useful in understanding the perceptions, changes in behavior, and consumption of citizens/inhabitants in a domestic environment.

The social niche perspective was complemented with an ethnographic approach, strongly focused on the observation of the context and socio-cultural profile of the actors directly involved in cohousing experiences and the spatial and social environments in which experiences fall back (neighborhoods and broader territories). This makes it possible to emphasize the socio-technical configurations that innovative and experimental experiences of energy transition allow to create and prefigure possible models for different populations. Indeed, the choice of the two case studies was not pursued to make an accurate comparison but rather to analyze two different strategies to make possible a new model of sustainable living that links housing management and energy consumption to community dynamics. Thus, twelve interviews were collected with the inhabitants of the cohousing in Northern Italy (out of thirteen households) living in this settlement in 2013, adding a further five interviews after seven years (in 2020). Instead, twelve interviews were collected for collaborative housing in the South (with to practitioners and two with future inhabitants out of six). In both cases, the ethnographic approach, based on participatory observation, supported the collection of semi-structured interviews. This method is a useful strategy for building a direct interaction with the individual actors and the group to understand the dynamics, motivations, and transformative processes from an internal point of view and using the particular positioning of the researcher within the established relationships.

The interviews, once transcribed, were analyzed through a decoding template according to the thematic nodes that characterize typical political consumerism initiatives, taken as an interpretative key of the case studies, but also introducing some new features that emerged in the field research. These thematic nodes are involvement, motivations, obstacles, social and symbolic capital, knowledge, skills, learning, community dimension, trust, the role of critical consumption, political subjectivity, and replicability.

2.2 Case Studies Description

The two cohousing selected as case studies have very interesting characteristics that make them two different models of collaborative living and sharing renewable energy, starting from a community-based project. We describe their distinctive features below.

Cohousing in Northern Italy

The cohousing set up about seven years ago in Northern Italy is composed of 14 families. These families actively participate in all phases of the design of the building, energy systems, and the construction of internal self-regulation. It is, therefore, an initiative that proceeds from the voluntary action of some practitioners (a nucleus of 5 families) who already took part in some experiences of critical consumption and political commitment. They also wanted to share the goal of a community-based way of living, according to the general cohousing model that arose in Northern Europe in the 1970s. This initial group quickly extended the proposal to anyone who wanted to join in a project to be built together, starting a self-selection process that lasted about three years and led to the participatory construction of a decision-making method based on full consensus, which means that any decision is only taken if all members agree.

At the end of this period, the group started the necessary steps to implement their idea: identification of the area, identification of the design features from a technical point of view, and considering the desire to build and live in zero environmental impact houses. This aspect was very attractive to later joiners. In relation to the technical aspects, the group of co-housers had different professional and technical skills (architecture, engineering, knowledge of renewable energies), which helped them design and implement the building. The latter was designed according to bio-climatic parameters, which allowed them to achieve optimal solutions also with regard to the use of energy produced by photovoltaic panels, the introduction of air recycling systems, and the adoption of underfloor cooling/heating with the consequent preference for more performing materials. Another aspect to emphasise that is recurrent in cohousing is the sharing of common spaces and services. In this case, these include a common pantry, a washing machine and dryer, a cold room, and a common room open to neighborhood activities.

This strong community connotation centered on sharing different dimensions of daily life required special attention to the care of internal relationships. This care was driven by the idea of having to constantly building and strengthening bonds of trust, to manage conflicts, and therefore, communication and decision-making, to keep participatory dynamics and well-being at a satisfactory level. On this aspect, too, the group could count on an internal member with skills in facilitation and mediation techniques but also on an external professional who dealt more specifically with the supervision of some community dynamics.

Social Cohousing of Southern Italy

The cohousing is located in Southern Italy and is an experimental pilot project of a wider urban redevelopment intervention. The study presents different characteris-

tics in terms of the subjects that promoted its establishment and the type of actors involved, who geared energy management choices and methods toward different dynamics. The promoter and manager of this project is an NGO, in collaboration with various public and private partners who have contributed to various aspects of the design and implementation of the initiative.

Regarding the creation of the energy community, the role of the social ESCO, a spin-off of the same NGO, and the technical contribution of researchers from an institute specialized in energy technologies were central. The latter, in particular, dealt with the management of the electrical system and storage systems. The design phase dates back to 2014, while the state of implementation is still the construction of the houses and the start of the first activities of the Civic and Educational Centre, which is part of the cohousing. Indeed, the small pilot project is characterised by a varied social composition of actors.

The design phase dates back to 2014, while the construction work was completed, including the facilities, between the end of 2021 and the beginning of 2022. The houses will be handed over to the house recipients in the course of 2022. Meanwhile, the “Civic and educational centre,” which is part of the cohousing and a facility to provide services to support families and children in the neighbourhood, has already been running for a couple of years. This pilot project had a diverse social composition involving several actors: the Civic and Educational Centre, which carries out promotion and education activities for children living in the neighbourhood; three people with some psychiatric problems, but who are following a path of social inclusion, each of whom will live in their own home; a household, husband and wife, with problematic socio-economic conditions. The NGO has therefore set itself the objective of promoting collaborative living experience for people with various difficulties. This again included the sharing of common spaces, activities and services, such as the garden and its maintenance, a single photovoltaic system and its shared use as a true energy community, including through the development of a storage system.

Furthermore, concerning the use and management of energy costs, the NGO is developing a calculation method called a “social algorithm,” which divides energy costs, taking into account the greater or lesser degree of social and economic fragility or need of the end users, according to a mutual aid logic sealed by a community deal. This process of involvement and participatory learning on the part of the future members of the cohousing/energy community takes place with a mediation action undertaken by practitioners (educators, social workers, psychologists) who have been following them for some time on their path to social reintegration.

3. Results and Discussion

The description of the two case studies thus highlights a series of differences that set them as distinct models of living and sharing energy. These models aimed at different social categories but also at different socio-economic contexts. Furthermore, each of the two proposed case studies is placed differently from the more canonical definition of political consumerism introduced above.

In this section, we analyse their particular form of political consumerism, which emerges from the ethnographic study and the decoding of the interviews. In the end, we will detect a very strong community dimension in both experiences, which, according to our analysis, records a certain characteristic of the Italian experience.

3.1 A Collaborative Housing in Northern Italy as a Typical Example of Political Consumerism

On the one hand, cohousing in Northern Italy has features that fit perfectly within our reference category since it is a bottom-up initiative born from voluntary participatory action dictated by a strong awareness and knowledge of environmental and energy issues. Other characteristics are the following: a past political commitment of most participants; the role of this entity as an emerging entity able to dialogue with local authorities to promote sustainable lifestyles.

Regarding the participatory process, the co-housers have become active promoters of the idea and implementation of the cohousing, spending much of their time building a process of real participation. This process starts from the phase of initial idea up to its concrete realization and living in the building designed according to this particular form of intentional community. Here, we merely reconstruct of the main steps of this process:

I am part of the first group composed by five families, who have started to look for a place when we could live close to each other and share an experience with all the aspects I was saying, such as the environmental and the relational aspects (...). So we thought to the cohousing formula, which was developed above all in the countries of northern Europe (...). Thinking about a cohousing meant expanding the base, because if we wanted to have significant common spaces and a certain type of experience, five families were not enough. So we spread our purpose among the milieu that each of us frequented (solidarity purchasing group, all of us were referring to the local political movement, environmental protection, voluntary work, Caritas, this network). Therefore, without making posters or publications, a first group was created, which was then self-selected. There was no one who said "you are fine and you are not", and the group of fourteen families was created, then this group jointly designed the cohousing regarding all aspects and then came to live there. (MC-1)

The main and, in some cases, decisive factor that led the members to start a group for the establishment of cohousing, was the opportunity to design an environmentally friendly house.

Some families, I must say, came close especially at the beginning, for the energy aspect, because we wanted to build a condominium without CO₂ emissions, self-sufficient from an energy point of view (...). The underlying motivation derives from a sensitivity that we all have a bit towards the defense of the environment. We are all well informed about the troubles that we too have produced, all with lifestyles that are especially part of the Western world, in which we are completely immersed. (MC-1)

On the one hand, my husband became passionate about this project due to its construction quality and energy saving. (...) The electric scooter you see below is ours. I liked this goal of not polluting, of saving energy, not destroying nature. (WC-1)

This level of awareness is, on the other hand, also the result of history, individual and collective, at least for some members, of long-standing political engagement in movements that have developed in the reference territory and that have focused on good environmental practices related to the fight against climate change.

Furthermore, alongside this political militancy, many co-housers have maintained over time their membership to solidarity purchasing groups, which in Italy have developed in recent decades a great focus on short supply chains and increasingly strong relationships with producers in the territory of proximity or more disadvantaged geographical areas. This well-structured network acts as a litmus test for another important characteristic of political consumerism experiences. This ability allows the generation of high social and relational capital to be exploited for a personal purpose and shared with the milieu to enhance the effectiveness of one's action (Bianchi 2020, 19).

On certain issues, we were already ahead, for example the experience of solidarity purchasing groups, the issues of the economy and fair trade and other themes. This experience gave us the opportunity to affirm the same principles, also concerning the energy. This is a bit like adding an important piece to a trend that was already present. (...) Our Municipality had the sensitivity to understand that our experience is different, but also to justify a privilege in front of the citizens, it asked us to make our common room available - but we would have done it anyway - also for the activities of the neighborhood. So through this door, a good and collaborative relationship with the Municipality passed. The councilor for the environment has always been part of the political movement I was telling you about before, so for this reason he is a friend of ours, is a colleague. For this reason it was natural that he would call us into question and ask us to be present, but for us it is clearly, it is part of our objectives, so it is really a sharing of objectives. (MC-1)

It also depends on our world, what capacity our basic world has to encourage the exchange and sharing of energy like a lure to start talking about sharing. (...) Much depends on civil society, how civil society will be able to welcome and learn about and put it into practice. There is a lot of groups operating in our areas. I think it is the task of these groups spreading out the knowledge about energy communities. We are trying to do it. Let's start at the regional level, it will be a topic of the next meetings of the Regional Coordination of the solidarity economy. Favoring this kind of initiatives means putting different subjects around the table and seeing how they can get together for development starting from this law (on energy communities in Italy) to take advan-

tage of it and exploit it adequately. If we are able to do it, in my opinion, we will take a good step forward. (MC-2)

3.2 The Social Cohousing in Southern Italy: Towards an Environmentally Sustainable Community-welfare

Social cohousing in Southern Italy seems to be more distant from the typical model of political consumerism because its characteristics are linked to a more ambivalent participatory process. This aspect is particularly true in relation to the generation of the initiative but also for the levels of awareness and training of future members. Indeed, the manager of the NGO plays an essential role, as a strong leader, in the making of the cohousing/energy community idea, in the connection between the technological and social dimensions, in the management of the whole process (selection of members, mediation with the institutions and funders, planning of the social algorithm and business models). However, the goal is to build greater social cohesion and inclusion through an experience of sharing resources (spaces, activities, energy, water) that sets in motion mechanisms of deep change in everyday consumption behaviors.

This idea arises from a broad need to experiment with technologies and organizational models of sustainable urban metabolism. Neighborhoods and cities are like living organisms that feed on natural resources. Energy resources and this transformation process is strongly correlated and strongly interdependent with the level of capital and social cohesion that the territories have and with their level of capability. (MSC-1)

Accordingly, the promoter has created a strong network of private and public actors who carry out different tasks based on their specific skills (scientific, technical, economic, organizational, and educational) to set up this pilot project. These actors are some Banking Foundations, Universities and Research Institutes with energy and architectural expertise, mental health services, social cooperatives, and social workers.

Despite a network of specialists motivated by a high degree of environmental and social sensitivity, the final users involved in a path of social and labour integration that has already started present significant gaps on these issues and considerable fragilities. Among the recipients of these dwellings, we interviewed a couple: a man and a woman. They joined the project because the man collaborated with a social cooperative linked to the NGO. The social housing/energy community project manager and his team offered them this opportunity because they were addressing some housing and economic difficulties. Moreover, they knew the other future inhabitants with mental health fragilities.

Of the two future inhabitants of social cohousing, the man was the one who had a greater interest in environmental issues and was motivated by the desire to use renewable energy.

We are doing a lot of damage (to the environment) and that has consequences. There are those who deny it, but this is the reality. From what I hear about the glaciers, you cannot deny the reality, you can see the difference than the past, the situation is chang-

ing, so in my opinion it is very important to focus on this issue. (...) The feature (of the project) that I like is this one of exploiting the energy of the sun and therefore of these renewable energies, these new technologies. I like this very much. (MSC-2)

With regard to the groups of future co-housers, he pointed out that the poverty conditions in which they live lead to a lack of culture on environmental issues or renewable energy systems and little interest in the financial savings that can result from their use.

You have to consider who you have in front of you. It depends also on the cultural and social situation, because if one needs to have a house or has never had one or is waiting for one, maybe it becomes secondary the fact that he has photovoltaic, solar thermal. He/she only aims to have a place to stay, and then he/she realizes afterwards that he/she saves, that maybe he/she is doing something not only for himself/herself, but for others with what he has inside. (...) It depends on the context, it depends on the culture, it depends on the information, it depends on the attachment to planet Earth, on people, it is subjective, I repeat. (MSC-2)

On the other hand, this experimentation consists of an action aimed at building community practices mediated by consumption behaviours. However, it must pass through a learning process and gradual accompaniment of subjects with greater structural fragility.

This intervention aimed precisely at building a greater awareness of the environmental impact of their consumption. To this, the issue of energy saving and the use of renewable energy from a community perspective is linked, as a social worker involved in the project points out:

It is an opportunity for them to ask themselves some questions and to become a little more aware of the fact that the energy they are consuming comes from a virtuous process, which is sustainable from a social and environmental point of view. Doing this with that type of people having those characteristics, therefore with a low cultural level, with problems of fragility, let's say, personal, obviously is a further challenge, because we certainly cannot explain it to them like this. Somehow we have to find a language that is more suitable for them. (MSC-3)

In other words, this pilot project is a possible model of community welfare in the housing, social, and energy sectors.

This (model) can open new ways of collaboration between institutions and communities that physically live around these institutions with the integration of non-forced styles (the people haven't force themselves to change their habits). A school, for example, necessarily consumes more during the day, because it works during the day. If you have people who work and are busy during the day out of their home, there is a complementarity that can allow the school to pay slightly lower prices. (...) Therefore, they already save, but the choice to stay in an energy community can allow people, who live in situations of energy poverty in the area and have children attending that

school, to have almost zero rates. Consequently, this determines a different relationship between families and school. They could become very interesting social models and tools to combat early school dropout if you work intelligently on this type of initiatives. It opens up interesting paths not explored at this time. (...) The idea is that the energy community can become a sort of new possibility for building fruitful relationships between some institutions and some families. (MSC-1)

3.3 The Community Dimension of the Prosumption of Space and Energy

What emerges strongly in both case studies is the community dimension of the prosumption, which also goes beyond the more traditional model of individual collectivising consumption and translates into a style of practical behaviour in relation to both the production and consumption of domestic spaces/activities and shared energy. The issue of trust is linked to the community dimension, almost overlapping at times: the bond of trust is a gateway but also a central value in both experiences, not only in terms of relationships but also as a practical strategy that makes it possible, for instance, to cope with reduced or absent economic capital.

In other words, the trust that structures the community dimension of cohousing/energy community experiences also assumes a facilitating function from an economic point of view. For example, trust in interpersonal relationships made it possible to solve financial problems by avoiding bank loans:

We had already spent all the money we had and the company went bankrupt, so we all found ourselves in a dramatic situation and yet we didn't even have a discussion there. Whoever had the money advanced the money and started the work again. (...) Our friends put € 250,000 to resume companies that had not been paid and there was no discussion on this. This was done and then the money was paid back a little at a time, 7-8-10 years to return it. (WC-1)

The trusting bond, in the case of social cohousing, also makes it possible to define the dynamics of the internal distribution of costs among energy users in a way that is based on solidarity, as an alternative to the typical rigid correspondence with consumption.

The energy community project, that we imagined and built, needed at the origin of a strong action that would allow us to design and test an engineering field and a hub management algorithm. All this could allow the mutualization of energy, according to algorithm that take into account the social needs, health needs and economic needs, therefore also the income and wealth of the people using it. (MSC-1)

More generally, however, the trusting bond is the pivot around which the mechanisms of adhesion, involvement, and construction of associated life, shared energy consumption, and domestic spaces revolve.

This applies to both cohousings:

Those who go to live perhaps don't have the same awareness, even if they are people who are linked to us, so anyway there is also an emotional and trusting link with this project, so anyway they feel a little more in the family (MSC-2).

In my opinion, basically there is a great mutual esteem, a knowledge that in any case each of us is accepted by the others, a container capable of welcoming you in moments in which you may be in difficulty (...). There is the trust that increases more and more, concretely. Because you share things, because they are relationship - conscious people anyway. In my opinion this is the best quality of the inhabitants of this condominium. (MC-3)

4. Findings

The two case studies analyzed show significant differences, but highlight some peculiar trends in energy consumption and housing patterns found in some sectors of Italian society. First, there is a tendency to return to the community dimension instead of the collectivized individual form of consumption, as categorized by Micheletti (2003). Analysis of the interviews and ethnographic observation revealed that at least part of the population with strong environmental, economic, and social value motivations is committed to building experiences based on strong bonds of trust. This trend is linked to energy-saving objectives, the democratization of processes and choices related to energy consumption, and the affirmation of new guidelines for sharing domestic spaces, activities, and services in daily life.

Although these two case studies have many similarities, they represent two different models, especially concerning the approach adopted for their fulfilment. In the first case, cohousing in Northern Italy is a bottom-up model of collaborative living based on a community—driven by strong environmental sensitivity, a developed aptitude for political participation, and the capability to build trusting relationships. Its members organize themselves to promote an alternative way of living in connection with the provisions of the energy transition, becoming privileged interlocutors for local administrators.

In the second case, social cohousing in Southern Italy represents a top-down model of collaborative housing: within an urban redevelopment project, it arises from an NGO in partnership with several public and private organizations to create a social cohousing by promoting an energy community. As is already happening in other areas of Southern Italy, where this model is beginning to be replicated (see, for instance, the experimental cases of renewable and solidarity-based energy communities in Naples, Ferla, Messina, Musolino, 2022), here it is the institutional actor who promotes forms of political participation: it represents an enabler in building the trust (Magnani & Cittati 2022; Tricarico 2021) necessary to develop community-like bonds. In this trajectory, the two case studies analyzed highlight how political consumerism applied to collaborative housing can open up new forms of social innovation focused on the energy transition. Although these two case studies do not allow for a generalization on a large scale, it is possible to hypothesise a similar development of what has already happened with solidarity purchasing groups, which over the years had the political

capacity to influence the local governments of many Italian regions, obtaining specific laws protecting of their producers and consumers. Closely to this, our types of cohousing can do the same in stimulating actions by local governments to support the creation of energy communities and to contribute concretely to the energy transition.

The definition of public policies aimed at setting up energy communities and collaborative housing models could have very positive repercussions if it considers these trends present in Italian civil society, even if they are still configurable as niche phenomena. However, the reception of this community dimension, centered on the sharing of many consumption behaviours of everyday life (energy, services, appliances, and domestic spaces), within the drawing up of laws and regulations, should become increasingly important and relevant because it reconfigures the consumption pattern (or prosumption) of citizens, especially for energy. This could also be a catalyst for new collective action or the strengthening of existing communities. What can be argued from our analysis is the necessity of adapting community-based housing and energy models to the local context, especially for countries featured by significant internal differences like Italy (De Vidovich et al. 2023) concerning the urban/rural contexts, the South, and the North, small and big cities, etc. If these differences are respected in drawing the “model” and practice of local communities in the energy transition domain, the capacity of these new social movements to contribute to the mitigation of the effects of climate change could be dramatically increased. This perspective is evident in the cases studied and can also be replicated thanks to the forms of social innovation. Shared living, as a form of social innovation, is characterised by the adoption of the community dimension, which involves joint management of consumption decisions and of the resource of energy, which is thus understood as a common good.

In addition, social innovation also consists of everyday practices that are the subject of shared knowledge and continuous mutual learning between the members of the two initiatives. This learning mechanism, based on social participation (Wenger 1998) and cooperation, rather than competitive relations, is more effective than the individual learning model also to activate processes of social change (Rogge, Theesfeld & Strassner, 2020) and innovation, as we have analysed in this paper. Indeed, at heart of this perspective is the possibility of sharing the experience of progressively acquiring of new knowledge and skills and realising them not in an abstract way but in an operational way, within a cooperative relationship, which in turn generates new relational skills. This condition makes it possible to activate mechanisms for the social reproduction of knowledge and related practices concerning energy and housing behaviour change, but also to consolidate them through their local networking (Moulaert & Nussbaumer 2014, 2005) in order to promote forms of transformation of everyday life and achieve greater widespread well-being, which is also potentially linked to the mitigation of climate change processes.

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Adaptation to Climate Change in Vanuatu?

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Abstract

In Vanuatu, state agencies and NGOs have developed adaptation strategies for the rural population. The underlying assumption is that adverse impacts of climatic changes on the environment can be counteracted by changing human behavior—for example cultivation practices and thus the management of the environment. This contribution traces the encounters in the context of adaptation projects: encounters across ontological differences between assumptions connected with adaptation found in such projects and assumptions about Climate Change and environment of inhabitants of two villages on the islands of Efate and Malekula in Vanuatu. It argues that the focus on alterity and these encounters enables research to shift attention to innovative and possibly unexpected processes and outcomes and to shed light on the creative agency of the villagers shaping their livelihoods and creating their world.

Keywords: climate change; adaptation; environment; Vanuatu; ontological alterity

Introduction

By implementing Climate Change adaptation projects, the government of Vanuatu, together with international development organizations, intends to mitigate the adverse impacts of the global Climate Crisis. These projects have become important hubs for people to encounter different knowledge systems and assumptions about the world. Government policy, and project implementation emphasize increased care for nature and the environment, distinguishing them sharply from culture and sociality. In contrast, however, relationality and holism are central characteristics of life in Vanuatu. This article considers the processes connected with these encounters in two villages on the islands of Efate and Malekula.

Vanuatu is classified as a Small Island Developing State (SIDS) and is regarded accordingly as highly vulnerable to Climate Change (Kelman & West 2009, 3). Projections state that hurricanes, floods, earthquakes, landslides, tsunamis (FAO 2008, 32), and a higher number of extreme weather events caused by Climate Change will lead to additional stress for agriculture (39). Accordingly, it is expected that inhabitants of rural areas, in particular, will need to find solutions for problems cultivating their crops. This expectation is seen as a problem for national food security, as most ni-Vanuatu¹ work in the agricultural sector, and more than 80% live in rural areas and practice horticulture (Fallon 1994, 37).

Based on these projections, a considerable number of Climate Change adaptation projects have been, and are being, carried out in Vanuatu's agriculture sector. Such

initiatives aim to improve and support family farming in rural areas for subsistence and the market by introducing new cultivation methods and techniques. These adaptation projects assume that cultivation methods can be adapted to recent and future impacts of Climate Change, and thus the supply of food to ni-Vanuatu can be secured. This article is based on a research project carried out between 2016 and 2020 with my colleague Desirée Hetzel in the two villages of Siviri on Efate and Dixon Reef on Malekula in Vanuatu. We learned that most participants of adaptation projects focusing on cultivation did not follow the demonstrated methods and techniques linearly. During such projects, participants would often only partially implement new aspects of cultivation; they would vary its implementation or follow instructions only temporarily. In one village, most inhabitants chose to supplement or even replace cultivation with additional activities to secure their livelihoods during aggravating cultivation conditions.

As a result, our research raised the following question: How did participants in Vanuatu act after taking part in Climate Change adaptation workshops? Our research showed that they continued to use well-established cultivation practices and patterns during the drought, which took place shortly after a number of workshops. Several villagers implemented, at various points in time, some of the methods and techniques they were taught in the workshops, albeit partly in modified forms, so that the expected linear application of the demonstrated knowledge was not experienced. This nonlinearity led us to the next question: Did knowledge transmission during the Climate Change adaptation workshops fail? One of the results from an early stage of our research had already suggested this was not the case. Despite not necessarily using the demonstrated techniques how they were intended, our interlocutors could explain and demonstrate the methods and techniques very well.

In this article, I discuss specific ideas and practices expressed and enacted by ni-Vanuatu living in two villages during my research. I argue that they created these ideas and practices in the process of encounters with differing ideas and practices connected to environment² and Climate Change during Climate Change adaptation workshops and in other contexts. Such differing ideas can also be found in Vanuatu's adaptation policy and are an important basis for adaptation projects. I look at *what* the villagers did in connection with these encounters—and not so much *why* they did what they did (Holbraad & Pedersen 2017, 16).³ To do so, I first review some of the documents published by the government of Vanuatu, with a focus on the National Adaptation Programme of Action (NAPA), and discern the concept of 'environment' used therein. Second, after sketching out important aspects of Climate Change adaptation projects, I present certain ideas and concepts of the inhabitants of the two villages of Siviri and Dixon Reef regarding the environment as I have worked them out in my field research during interviews, discussions, and observations with people.

I argue that it is not sufficient to consider knowledge transmission and the encounter of different knowledge systems when considering processes of change and the persistence of everyday practices in connection with Climate Change adaptation projects. Instead, research needs additionally to focus on how people create their way of being in the world in connection with these encounters between differing

ideas and practices. I aim to illuminate the alterity of these concepts compared to the ideas of environment and Climate Change used in Vanuatu's policy and often also in externally-developed Climate Change adaptation projects.

Theoretical Contexts/Frameworks

By referring to "encounter" (across difference), I follow Anna Tsing (2005) as well as Lieba Faier and Lisa Rofel (Faier & Rofel 2014). Both emphasise the creative potential of such encounters, defined by the latter as "engagements across difference: a chance meeting, a sensory exchange, an extended confrontation, a passionate tryst" (Faier and Rofel 2014, 364). In their understanding, new "meanings, identities, objects, and subjectivities emerge" (Faier & Rofel 2014, 364) in such encounters.

I argue that such encounters allow for important insights to view them as encounters across ontological difference (Blaser 2009, 2013, 2014; Blaser & de la Cadena 2018). The necessity to consider ontological difference when looking at engagements between disparate knowledge communities has been shown, for example, by Helen Verran (2002, 2013). Whereas she emphasises the tensions between members of two knowledge systems characterised by ontological difference and suggests ways to overcome these tensions, I turn to processes of creating new concepts and practices by community members. This creation implies ontological innovation, exemplary for the Pacific region explained by Amiria Salmond as "creative and novel ways in which Pacific peoples are rebuilding their ships at sea – combining old understandings with more recently arrived influences and ideas, including those of science – in their efforts to generate or keep open distinctive existential possibilities" (Salmond 2017, 221).

In connection with ontological innovations, people in Vanuatu use Bislama⁴ words derived from English but with different meanings. I elaborate on two central concepts expressed in Bislama in the context of Climate Change adaptation: 'envaeromen' and 'klaemet jenj.' In discussing the alterity of these concepts compared to the ideas of environment and Climate Change used in Vanuatu governmental policy and Climate Change adaptation projects, which are characterized by a dichotomizing of nature/environment and culture/sociality, I argue that it is important to make the differences between the English and the Bislama concepts visible and not to take the latter as a translation of the former (see Østmo and Law 2018).

That a distinction between nature and culture, as is still used in many (European) academic studies, is not made by most inhabitants of Oceania (Jolly 2018, 26–27) has been emphasized by scholars investigating society and culture in the region since the 1980s (see Strathern 1980, 177). Marilyn Strathern additionally stressed the importance of relationality for the life worlds of people in Melanesia (Strathern 1988). Thus importance is not only relevant to relations between people but also to those between people and spirits, animals and plants, deities and materialized ancestors, which are "enacted through processes of exchange and reciprocity that are constitutive of personhood, sociality, and environments" (Emde, Dürr & Schorch 2020, 7; see also Hviding 1996; Munn 1986; Strathern 1988; Hau'ofa 1994; Henare 2007). Recently, the anthropologist Carlos Mondragón also emphasized that, for Torres Islanders in

Vanuatu, “knowledge is relational, empirical and contingent, not absolute; as such, it is not linked to an overarching, objective view of the ‘natural’ world as a socially neutral medium” (Mondragón 2018, 36).

For the Small Island Developing States (SIDS) of the Pacific region identified as vulnerable to Climate Change, the concept of Climate Change adaptation has become central to policymaking over the last decade. International and national political actors regard adaptation as an important measure to counter the adverse effects of global climatic changes. In more recent social science publications, it has been emphasized that specific ideas about the environment characterize adaptation measures. They are often criticized as unclear, shaped by natural sciences, and lacking historical, social, political, and cultural depth. Although in project descriptions they are mainly characterized as “community-based,” adaptation projects realized by actors of the international aid community are repeatedly characterized on the ground as driven by Western technocratic perspectives and criticized for not taking local contexts and power relations into account (Klepp and Chavez-Rodriguez 2018). Silja Klepp and Libertad Chavez-Rodriguez state:

Even if new conceptual approaches to vulnerability analysis are committed to combine social and biophysical vulnerability in an effort to overcome the separation between natural/biophysical sciences and social science analysis (see for example Peluso and Watts 2001), this ‘great divide’ (Bassett and Fogelman 2013, p. 44) in the conceptualisation of vulnerability was taken up again after the re-introduction of ‘adaptation’ to climate change after the Rio Summit in 1992 (Pelling 2011). It still persists today and leads to different understandings of legitimate adaptation strategies. (4)

As I have stated in the introduction, in the article at hand, I will focus on one of the numerous aspects raised by recent social science literature about adaptation, namely on (ontological) differences regarding assumptions about Climate Change, environment, and adaptation between the various actors involved in Climate Change adaptation measures. My ethnographic examples also provide a critique of the view that Climate Change is a “natural” or “environmental” process and that the solutions can be found in “adaptation” or “mitigation” (Jolly 2018, 28) as conceptualised in international and national policies. It is important to consider that “the environments of Oceania are anything but simply ‘natural’. Instead, they are the ongoing result of productive, affective, and spiritual human engagements. Such humanized landscapes give rise to forms of flexibility that are not always evident because they transcend narrow understandings of what constitutes indigenous adaptive capacities” (Mondragón 2018, 25).

Research Locations and Methods

Vanuatu is an independent island state in Oceania. Its 83 islands stretch over 12,190 km² (Mückler 2009, 162). Most of Vanuatu’s islands are high, rising up to hundreds of meters above sea level in their centers (Brookfield & Hart, 1971). The ethnography of this article is based on two research sites on two of the larger volcanic islands, Malekula and Efate.

The village of Dixon Reef is located in the western part of Malekula, in the north of the Vanuatu archipelago. The inland part of the island is densely forested with fertile soil, and the dwelling houses of villages are typically located close to shore. The population of Malekula mainly depends on horticulture for food supply. Cash income, as in many other places in Vanuatu, is derived from selling copra, timber, cocoa, and kava (Rousseau & Taylor 2012, 174; McCarter & Gavin 2014). In Dixon Reef, as in many rural communities of Vanuatu, a lack of infrastructure makes it difficult for villagers to participate in cash income activities such as selling fresh produce in the market on the other side of the island. Since founding the Catholic mission of the community of Dixon Reef (or “Tavendrua” in the local language, Novol) in around 1950, the village has—in 2019—grown to be home to approximately 200 inhabitants living in thirty-three households. Due to sandy and infertile soil along the coast, gardens are located inland, sometimes several hours’ walking distance from the dwelling houses. The main food is root crops and bananas from the gardens, with wild pigs, fish, cattle, and local chickens as supplements. Every villager practices horticulture but additionally buys rice, which has become an important staple, and tinned food on visits to the main city or from local stores.

The village of Siviri is located in the northern part of Efate, the main island of Vanuatu, and is close to the island’s main ring road. Its location makes transporting goods and people to the capital Port Vila and distant gardens very easy. The two villages of Dixon Reef and Siviri have a comparable number of inhabitants. In Siviri, horticulture and wage labour in Port Vila and other locations around the island play important roles in the livelihoods of inhabitants. Most villagers additionally fish in the lagoon or glean on the reef regularly to supplement their food supply. Some sell crops and firewood in the main market in Port Vila. The people of Siviri are much more town-oriented than residents of Dixon Reef. Many members of Siviri’s younger generation commute to Port Vila or other locations on the island every weekday, working with their families in the gardens at weekends. They are often employed in education, service, or construction work. Although almost every family has one or more gardens, a considerable part of the family’s food supply is bought in markets or shops in Port Vila or around the island.

My research results derive from a long-term team-based research project consisting of fifteen months of anthropological fieldwork between 2016 and 2019 in Siviri and Dixon Reef villages and an additional three months in Siviri in 2020. The research methods included formal and informal interviews with a wide range of actors, such as male and female villagers of different ages and professions, NGO staff members, members of the agriculture department of the government of Vanuatu, and others, in combination with participant observation, practical participation and structured observation, regarding social, economic and political aspects of community life. All interviews were conducted in Bislama. Additionally, we conducted 92 household surveys and used other methods such as drawing moving maps and free listing. As we stayed in Vanuatu for more than one year, we experienced the praxis of a full annual cycle of gardening and other activities in the villages. When we arrived at the end of 2016, the topic of an El Niño event⁵ after a severe cyclone, which caused an extended

dry period in 2015, was very present in the discourses and praxis of the people.

Siviri and Dixon Reef were chosen as research sites mainly because adaptation to Climate Change projects (in combination with food security) had been implemented in both communities for some years. We positioned ourselves as independent researchers from a European University vis-à-vis the community and the organisations running the adaptation workshops and training. To present the different assumptions and practices encountered in Climate Change adaptation measures and the results of such encounters, I draw on this research project and re-consider our insights through the lens of people's relations and interactions with their environments.

Environment in Vanuatu's Policies

For more than a decade, Climate Change has been one of the major topics of political discourse in Vanuatu. Vanuatu was one of the first states in Oceania to submit its National Adaptation Programme of Action (NAPA) in 2007 (NACCC 2007). This document has prioritized agriculture and food security, sustainable tourism development, community-based marine resource management, and sustainable forestry management (Bijay, Filho & Schulte 2013; NACCC 2007).

The NAPA states:

For the Ni-Vanuatu, their livelihood and social structure are inextricably linked to the natural environment and its resource base. Any perturbations to this availability of natural resources will have a direct bearing on the poverty levels and the very survival of the people. Changes to the traditional social system, coupled with any decrease in food security and water availability, could lead to deterioration of social systems and law and order. (NACCC 2007, 16-17)

Therein "natural environment," including "resources," is linked to the (social) life of the people on the one hand, while, on the other hand, it is at the same time clearly distinguished as a different realm. Additionally, an almost causal relationship is implied in the statement: perturbations will have direct effects on the livelihood and even survival of the people. A similar relation, regarding the economic realm, is implied in the following statements: "The effects of Climate Change on agriculture production, human health and well being [sic] will have the consequences of decreasing national income while increasing key social and infrastructure costs. This negative economic impact will affect all levels: individual, household, community, private and government sector." (NACCC 2007, 18).

The solution to these problems, then, is seen in adaptation to climatic changes: adaptation to "subtle changes in climate, resource stocks and environmental conditions [...] is deemed crucial and critical to the well being [sic] of the communities especially as the environment is their source and means for livelihood through subsistence farming, fishing and other agricultural practices" (21-22). One of the conclusions of the NAPA is that there "is a need to change agricultural practices, crop varieties and diversify to crops that are resilient to climate change conditions" (23).

Finally, several adaptation strategies are suggested but not elaborated on in

detail. The first ranked, for example, reads as follows: “Agriculture & food security (preservation/processing/marketing, modern & traditional practices, bartering)” (28, 31). At the end of the NAPA, there are descriptions of a few examples of concrete projects⁶ for implementing these adaptation strategies.⁷

Climate Change Adaptation Projects for Cultivation of Food Crops in Vanuatu

In line with the policy documents, many projects for Climate Change adaptation have been, and are being, carried out, which target challenges for cultivating of food crops in Vanuatu. The government and, in particular, international state development organizations, and NGOs have designed measures for food security and Climate Change adaptation—largely developed for use in rural communities.⁸ In most cases, these organizations cooperate with Vanuatu state institutions such as the agriculture or forestry ministries. Measures are implemented by ni-Vanuatu and by citizens of other countries as staff members or cooperation partners of those organizations. A number of these measures aim to improve and support family farming for subsistence and the market. These measures are typically implemented in the form of projects consisting of several workshops over several years. In these workshops, project managers and field officers from NGOs expound upon various aspects and communicate theoretical information and practical instructions about principles of cultivation in general and specific practices. They often include talks and dialogues and collaborative work in demonstration plots.

Climate Change Adaptation Projects

The projects I deal with in this article relate to agriculture/cultivation and food security and concern, as formulated in the NAPA, ‘modern and traditional’ practices. One of those is the NARI-EU-ARD Project.⁹ The project document formulates a general goal: “Generation and adaptation of improved agricultural technologies to mitigate climate change-imposed risks to food production within vulnerable smallholder farming communities in Western Pacific countries” (Generation of a Agricultural Technologies 2016, 5). A specific objective is mentioned: “To improve the food production capacity of smallholder farming communities [...] in areas where precipitation deficits and/or excesses and soil salinity problems are becoming significant threats to agricultural production and productivity” (6).

The other project I refer to in this article is “Kaikai fo Laef,” which also relates to the foci explicated in the NAPA. A progress report on this project states the focus of the project as being the capacity building “of community members in [...] sustainable agriculture techniques [and] food production strategies using specific localized designs to maximize food production for participating families on land available to them (permaculture).” (ADRA 2015, 1) It is emphasized that community members will “become more aware of the issues of climate change, how it impacts them and their food security status and most importantly how to mitigate for it.” (1) The outcomes are described as follows: “(a) Increased access and availability of locally produced

foods for small scale farmers [...]. (b) Small scale farmers, particularly women, have access to knowledge on improved integrated intensive, organic gardening methods. (c) Households [...] are more resilient to the impacts of climate change on food security” (1). As these excerpts show, environmental changes are seen as external threats to life and especially to the livelihoods of the people participating in both projects.

As an example of concepts and ideas used by staff of the implementing organization for the food security and adaptation project in Dixon Reef, I will draw on a workshop held in February 2019. The ni-Vanuatu staff member of the implementing organization conducted the workshop in Bislama. As a main objective, she stated that a few practices regarding cultivation had to be changed because of weather changes experienced in Vanuatu. She explained that she would teach the participants several principles taken from a cultivation practice known as “permaculture farming,” which includes, as she formulated it, copying environment or nature. Adopting these principles, she stressed, would banish problems, whatever climate prevailed. She also stated that it was important to control the garden—otherwise, it would not grow.

An important principle of permaculture farming elaborated in detail by this staff member is to improve soil fertility: producing and using compost, mulching, spreading manure, utilizing grey water, and growing legume plants. This principle is especially important for one of the foci of the project in Dixon Reef: the installation of backyard gardens close to the dwelling houses. During the workshop, a demonstration plot was set up where a number of the new methods and techniques were used – for example, using natural fertilizer or building a cyclone-proof climbing support for yam plants.

As in the policies and the descriptions from project documents discussed above, the explanations of the staff member during the workshop were often based on specific ideas and principles regarding the world, which I did not experience during my research with the inhabitants of the villages. Most important here is the dichotomization between nature/environment and culture/sociality. Environment is conceptualized as opposed to human activities and should be copied by humans to cultivate successfully, independent of climate and situation. At the same time, humans should control the environment with their cultural practices. This understanding differs from the notions of the ni-Vanuatu villagers, which are oriented along the lines of holism and relationality, as I will show below. It is also important that the staff member advocated investing time and energy into improving and thus changing the potential of the ground for cultivation using fertilizer and irrigation. This method differs from an established practice held by villagers of seeking specific proper locations where food crops grow well without effort and soil improvement.

After the Workshops: New Livelihood Practices?

Villagers in both locations were generally interested in the projects, and many attended workshops. According to our interlocutors, they appreciated being taught about new methods for cultivation—for example, how to produce and implement fertilizers like compost or manure, mulching, or using of legume plants. Some villagers tried new methods, for example, planting gliricidia trees (*gliricidia sepium*) and using compost,

mulching, and greywater to establish backyard gardens close to dwelling houses. However, after showing initial enthusiasm, most participants did not continue—if they even started—to implement these new methods and techniques. Villagers largely abandoned novel practices even after the drought period in 2015. By then, they had already attended several workshops focusing on drought as a severe risk to the area.

What did people do then to secure their livelihoods in both villages – especially after the enduring drought caused by the El Niño event in the aftermath of cyclone Pam in 2015? Before this date, projects focusing on food security and adaptation to Climate Change had already been implemented in both villages for several years. Additionally, in Siviri, several workshops addressed the same topic. According to staff members, these projects and workshops were, among others, intended to meet situations, like the extreme drought that came in 2015.

Although the projects and workshops mainly concentrated on cultivating food plants to secure people’s livelihoods, it is important for this paper to widen the perspective to livelihood practices in general. In Siviri, community members cultivated food crops to a lesser extent than previously, instead extending their combination of different livelihood opportunities – a trend they had already reported for the past decade. For cultivation, they employed established practices, innovative possibilities derived from diverse sources, and practices of maintaining food security presented during workshops and training sessions. For example, several villagers planted *gliricidia* trees, a practice promoted in workshops because they fix nitrogen in the soil and thus fertilize it. Most of these trees, however, were destroyed by Cyclone Pam in 2015 and were not replanted.

Engaging in different activities in different places, Siviri villagers told me, is important for ni-Vanuatu. In addition to cultivating food crops for their consumption, villagers found employment in the capital Port Vila or elsewhere on the island of Efate. Furthermore, they practiced a great variety of self-employed and wage labour. In one family, for example, the husband works in Port Vila and goes fishing and hunting several times a week at night while the wife is a teacher. They run a small store and cultivate food in different locations. There are numerous examples of these kinds of strategies being employed by villagers to diversify their livelihoods.

In contrast to Siviri, access to a market for people in Dixon Reef is difficult because of a lack of infrastructure. Accordingly, although they also turned to an extent towards other activities, their livelihood practices during and after the 2015 drought were more focused on cultivation. They largely continued to employ established cultivation practices but also added new methods learned during workshops, which they integrated into the existing bundle. One of the persisting practices in Dixon Reef is that gardens are located in different locations, which provide suitable conditions for growing food. Walking to these locations is an important part of the life of people in Dixon Reef (Hetzl 2021). Villagers extended their network of locations and established new gardens in areas with humid soil, for example, along the river, directly in the dry river bed, or in a swamp, depending on the required conditions for each group of plants. During wet periods, they moved their gardens further up into the hills or shifted to locations further inland or closer to neighboring villages to find better

conditions for the plants.

Villagers additionally experimented with new methods and integrated new techniques learned during the workshops into their existing practices. For example, as well as the planting of gliricidia trees, they also used mulching to protect the soil from drying out. Directly after the workshops, we found small house gardens in many households, a food security strategy intensely promoted by one of the NGOs. However, later in that same fieldwork period, and in 2017, we could record only a small number of such gardens. Dixoners mentioned various reasons for the change: some explained that chickens, mostly not fenced in Dixon Reef, destroyed the harvest. They explained that a lot of work or money would be required to install a proper fence to keep the chickens out of the gardens. Others stated that the water supply in the village was not constant, so it was not possible to irrigate the gardens sufficiently. Explanations were not consistent, varying across interviews, and often Dixoners could not give an explanation for their behavior. In addition to the cultivation of food crops, we observed that some people supplemented their livelihoods through other activities, mainly fishing for consumption or sale. Interlocutors also explained that buying rice and other food was an important supplement for their daily diet. To obtain the money necessary for its purchase, people spent a considerable amount of time in the coconut plantations harvesting coconuts, removing the flesh from the shell, and drying it so as to obtain copra, which was then sold to regularly visiting copra buyers. Another activity for earning cash is the production of cocoa, which is even more labor-intensive.

With very few exceptions, inhabitants of Dixon Reef did not plant kava themselves but imported it mainly from the Southwest Bay region of Malekula. However, during the time we spent in the village, a group of people set out for a place further inland, where they stayed for some days and planted large amounts of kava. They did so, we were told because the price of kava had risen considerably during the previous couple of years (Hetzel & Pascht 2019, 209–10). Thus, these Dixoners draw on the practice of diversification and travel long distances to find the appropriate place for planting specific plants, in this case, kava plants. They decided on this approach instead of investing time and energy in the new methods and techniques shown during workshops.

In summary, in both villages, a number of people employed some of the new ideas and practices presented and demonstrated in the Climate Change adaptation projects temporarily. Others did not implement them but were able to describe them in detail. Participants of the projects thus knew about these ideas and practices, but they decided not to apply them in a linear way. Either they did not implement them at all, or they tried them out but abandoned them after a while. Remarkably, after abandoning most of the methods and techniques of the workshops, some Dixon villagers, after one or two years, drew again on some and re-established, for example, new backyard gardens using mulching and planting gliricidia trees (Hetzel 2021, 105–6).

Consequently, to consider the success of “knowledge transmission” as the only factor for discussing the non-linear implementation of knowledge of new ideas and practices is not adequate. I argue that different assumptions of the actors about the world, about environment and social life have to be included. In the next section,

I discuss important differences by investigating ideas underlying the concept of “*envaeromen*” as understood by my interlocutors.

Environment vs. *envaeromen*: Interactions

“Environment” and “*envaeromen*” are concepts that are quite frequently used in discourses connected with Climate Change and adaptation projects in Vanuatu. One ni-Vanuatu staff member of the agriculture department of the Vanuatu government, who was also part of a Climate Change adaptation project, explained to me that he tries to teach the people who practice cultivation not to damage the environment (“*spoilem envaeromen*”). One of the practices he identified as “*spoilem envaeromen*” was burning trees and other plants to clear a piece of land for cultivation, which is practiced in most parts of Vanuatu, a method often termed ‘shifting cultivation.’ The staff member stressed that it is very difficult to convince people not to practise this form of cultivation. Similarly, the progress report of the project in Dixon Reef mentions difficulties in encouraging workshop participants to change their practices (ADRA 2015, 6).

Below, I will discuss several concrete examples of explanations from my interlocutors in the two villages of Siviri and Dixon Reef regarding their environments, showing that they do not contrast ‘environment’ and ‘sociality/culture’¹⁰ but instead foreground relationality. People in both locations know and use the Bislama term “*envaeromen*.” Their explanations show that this is not a one-to-one translation of the word “environment” but is, instead, a new concept that people have created in interaction with actors and information from various contexts, especially in the context of Climate Change workshops and projects. Talking about *envaeromen* with one of my interlocutors, he explained, for example, that “a tree is part of many things ... it is also part of us human beings.” This quote shows important aspects of human relations and interactions with plants, animals, and other items termed as ‘environment’ from definitions based on Western science. Furthermore, interlocutors explained that every plant and every animal has its task or work in relation to others—for example, to provide food (food plants), to clean the reef (blue fish), or to ensure safety at night (dogs). “Trees provide shade, fresh air, and fruits to us,” explained an interlocutor. Humans, in turn, must have respect and care for their “*envaeromen*,” for example, by replanting trees after a piece of land has been cleared for cultivation. Reciprocity is thus very important, and it is morally wrong to “*spoilem envaeromen*”—to damage or destroy, especially the forest, by felling large numbers of trees.

In this network of relations and reciprocity, humans also have their tasks or work. Interlocutors told me that the work of people living in rural areas is to cultivate food plants, including clearing pieces of land and felling trees. In contrast to the staff member cited above, they explained that this is not “*spoilem envaeromen*,” because it is part of the life of human beings (living in rural areas). It is also perfectly reasonable to fell trees to build a house, but it is not acceptable to fell many trees to make money, an interlocutor in Siviri explained to me.

Furthermore, not only does everything have its task, but everything also has its

proper place/location (“ples”): there is a suitable location for everything, including planting food crops. People in Dixon Reef stressed that it is important to choose the right location for food plants depending on soil and weather conditions. Cultivation “is thus also a matter of choosing which soil is the best at a particular moment” (Hetzel 2021, 121). Reciprocity becomes explicitly visible in the process of the cultivation of yam, Vanuatu’s most valued root crop. Yam, which is often compared to the human being by ni-Vanuatu, does not like quite a number of behaviours of humans, and thus there are bans (“tabu”) regarding what to do and when not to enter the yam garden. Our interlocutors found that everything in the world is related and interacts: every entity gives, respects, helps, and takes.

That there is a proper “ples” for everything has important consequences. In both research locations, people plant different species and varieties in the same garden while maintaining gardens in different locations. They know about the soil conditions in these places, especially about the (potential) humidity of the soil. Thus it is always a challenge to find a suitable place to plant in accordance with the weather conditions which will prevail in the forthcoming plant cycle. Dixon villagers explained that even the need to burn for clearing a place for a garden depends on the location of the garden: Whereas in places where they have their gardens currently, it is necessary, the contrary is the case more inland, where it is “kolkol” (cool).

The way to improve cultivation is accordingly to plant at the right location with good soil suited to the cultivation of food plants: “When you plant yam in a place not suited, the yam will die,” explained an interlocutor from Dixon Reef. This statement does not contradict the attempt to grow new plant materials that people have exchanged with relatives or friends or which they received from the Department of Agriculture or NGOs, a method that has been called “continuity through change and novelty” (Sardos et al. 2016; see also Hetzel 2021, 127–28). That ni-Vanuatu act in such ways can also be observed in other areas of life: when managing their coastal marine life, people also included new ideas, creating their own “Siviri Marine Conservation Area,” with which they succeeded in maintaining their “Siviri marine management assemblage” (Pascht 2022). Changes are, thus, quite common in Vanuatu’s cultivation practice, and because a continuous exchange between people and “environment” takes place, villagers can change their way of acting in these exchange processes while simultaneously creating continuity.

Another important practice identified by the research project for people in both villages is diversification, which is connected to the principles already sketched out, namely relationality and the significance of the proper location for planting. In Vanuatu and many places elsewhere in Oceania, diversification regarding cultivation is widespread. Pacific Islanders are planting a great variety of different species and varieties of food crops (Barrau 1958, 61–63; Clarke 1994, 21). Interlocutors told and showed me that this is also the case in both villages—although they stressed that the variety had been much greater during the time of their ancestors. The research led me to conclude that Dixon Reef and especially Siviri villagers additionally transfer this practice to other realms of livelihood practices: they continuously expand their possibilities to secure their livelihood and thus diversify these possibilities. In doing

this, they extend their relational network of people, places, activities, etc. They do not specialise in cultivating one kind of crop at one place, doing one job; instead, they diversify their (livelihood) activities and the places of activities (Hetzl & Pascht 2019, 212).

Klaemet Jenj vs. Climate Change

Not only do ideas about the “*envaeromen*” of the inhabitants of Siviri and Dixon Reef differ from ideas about environment disseminated by the media and other actors, but ideas about “*klaemet jenj*” also differ from those about Climate Change (Pascht 2019). People in both villages have heard the term “climate change” or “*klaemet jenj*” from various sources—mainly from the radio, in Siviri the daily newspaper or the so-called “climate change” awareness programs and workshops that have been organised in many parts of Vanuatu. The two concepts are closely related: while the phrases “*envaeromen*” and “*spoilem envaeromen*” are also used in the context of conservation, they often play a role in discourses and projects about “*klaemet jenj*.” For example, some interlocutors explained that people from Vanuatu are also responsible for “*klaemet jenj*” through “*spoilem envaeromen*” (Hetzl 2021, 87; Pascht 2019, 241). Desirée Hetzel states that the villagers of Dixon Reef use “*envaeromen*” in discourses about “*klaemet jenj*” “to describe on the one hand, the materialisation of Climate Change and on the other, the human impact to cause it” (Hetzl 2021, 88).

Similar to the idea of “*envaeromen*,” the idea of “*klaemet jenj*” does not exclude sociality. It is seen as an encompassing phenomenon that includes not only changes in sea levels, weather patterns, and times of trees bearing fruits but, as one woman of Siviri in her forties explained, “*klaemet jenj*” means that “everything is no longer in its place.” This concept includes changes in community life – for example the youth are drinking kava and alcohol and people do not engage in community work as they did before. Several interlocutors explained that people are generally lazier now than they had been in the past. The increased use of technology such as mobile phones and Facebook was also mentioned in connection with “*klaemet jenj*” (Pascht 2019). This connection means that “*klaemet jenj*” is not confined to ‘environmental’ changes but also relates to changes in ‘sociality’ and that my interlocutors do not see environment and sociality as dichotomous spheres but as one whole, connected through manifold relations.

I argue that it is not villagers’ misunderstanding of the concept of Climate Change that made them regard “*klaemet jenj*” as an encompassing phenomenon concerning weather, other environmental changes, and social changes but ‘*klaemet jenj*’ itself is a new (local) concept, which people create by engaging with (new) information and practices. Climate Change projects therefore are, for Siviri and Dixon Reef, one of the contexts in which the processes of creating new concepts take place. I argue furthermore that their engagement was across ontological difference: in contrast to concepts of “environment” and “Climate Change” presented, for example, in the documents of NGOs and the government, the villagers’ worlds are characterised by relations rather than by dichotomies—namely by “*envaeromen*” and “*klaemet*

jenj.” In this “klaemet jenj world,” there is no “climate change,” which results in “environmental changes,” which again impacts cultivation and thus human culture, but multiple relations connect these spheres. Accordingly, living in this world it does not make sense for villagers to focus on changing cultivation practices, but they (also) draw on other established principles like diversification of livelihood practices and choosing better places for cultivation.

Conclusion

Two questions were raised in the introduction: First, how did participants act following the Climate Change adaptation workshops, and second, did knowledge transmission during the workshops fail because participants’ practices were diverse and multidirectional? These questions could be answered by including the alterity of actors’ assumptions about the world. Alterity can be shown by comparing the concepts environment and envaeromen. The explanations of my interlocutors about “envaeromen,” cultivation, and “klaemet jenj” suggest that for inhabitants of the two villages, the social and the environmental are not opposed to each other: villagers are living in a relational fabric/network and are thinking of and performing reciprocity between humans, plants, soil, etc., so that “klaemet jenj” also is part of this network.¹¹ Research showed two central principles of villagers: diversification (regarding cultivation, but also livelihood practices in general) and the significance of places (e.g., that there is a proper location for cultivating specific plants). In this relational network, the main concern is to realize as many possibilities as possible and to find the proper places for these. I conclude that an important intention of ni-Vanuatu of Siviri and Dixon Reef is, in the first place, to maintain this relational fabric of reciprocity—what then “automatically” secures the well-being and survival of humans (as well as animals and plants). This means, for example, villagers change their lives *together with* “klaemet jenj,” not *because of* climate change.

These ideas are fundamentally different from the assumption found in policy, adaptation project documents, and the deliberations of workshop leaders, that climatic changes cause environmental changes, which in turn cause problems for human life and that the change of some specific cultivation practices is the best way to adapt to these environmental changes. In these contexts, environment stands in a dichotomous position to the cultural and social. I argue that people in both villages engage with these concepts used in adaptation projects creating new concepts, practices, and thus new worlds. I interpret the conceptualising and acting of people as ontological innovation: they do not adopt new concepts and practices in a linear way but rather create a new world by creating and transforming concepts and practices. Thereby, concepts and practices are integrated, transformed, or rejected.

One example I have shown is that when encountering the concepts of Climate Change and environment, they define them anew—as “klaemet jenj” and “envaeromen.” The same is true for cultivation methods and techniques: People may try out new practices, but they also draw on other existing or established principles and practices, which enable them to create new relations, stabilize yield or income by

diversification, or by finding the proper place to cultivate so that the yield is sufficient for their needs—principles, and practices which are very important in their world. These established practices are also possibilities for acting. To live in a “klaemet jenj world” means to deal with new challenges in various ways, drawing on “old” and “new” possibilities:¹² diversifying cultivation, looking for good places to cultivate, spending more time on copra production, mulching, establishing backyard gardens for certain periods (but not necessarily continuously).

While acting and interacting with (external) assumptions and concepts and continuously creating new discourses and practices within their social, cultural, and physical environments, the villagers’ narratives and actions become quite different from those of the government and NGOs. People in Siviri and Dixon Reef do not actively contest governmental and NGO agendas. However, what they explain and how they act often do not meet the expectations of members of these organisations. The “encounters across difference” (Tsing 2005) between staff of development organisations or the government and villagers are encounters that may result in misunderstandings because not only different cultural perspectives but also different worlds or ontologies are involved—differences which people who communicate and interact are not aware of (see Blaser 2009, 11).

In Siviri and Dixon Reef, alterity regarding the world—the importance of relationality, diversification, and “ples” on the one side, and a dichotomy of nature/environment and sociality/culture on the other, was not addressed by interlocutors. The staff members, however, were irritated and did not understand why people did not use the presented methods and techniques in the way they had been taught. At the same time, the villagers did not explain conclusively why they did not use these methods. However, despite misunderstandings and irritations, the Climate Change adaptation projects in the two villages did not lead to major conflicts, but, as I have shown, led instead to several constructive processes of creating new worlds and thus new approaches for cultivating food crops and securing livelihoods in the future.

Acknowledgments:

The author would like to thank all the people in Vanuatu who have agreed to contribute to his research. Special thanks go to Chief Atavi from Siviri and his family, and to Jean Michel Kailik from Dixon Reef and his family as well as to all the inhabitants of Siviri and Dixon Reef and to all the other research partners in Vanuatu. Further thanks go to the Vanuatu Kaljoral Senta for supporting the research project and to the National Advisory Board on Climate Change and Disaster Risk Reduction in Vanuatu. I also would like to thank the reviewers of this article who made a number of valuable and helpful suggestions which led to a major improvement of this text. The author would furthermore like to express his particular thanks to Desirée Hetzel, who contributed to the whole research process and to this article with helpful and inspiring comments as well as critical discussions.

Funding information:

The research for this article was conducted as part of the project “Lokalisierung von globaler Klimawandelpolitik in Vanuatu: Rezeption von Wissen und kulturelle Transformationen,” funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation), grant number 298643416.

Notes

- 1 Ni-Vanuatu is the term inhabitants of Vanuatu use to refer to themselves and is also officially used by the government.
- 2 The term ‘environment’ is used in this article in different contexts with different meanings. I use it in a very broad sense in order to avoid specific ontological distinctions between, for example, human and nature—so my discussions may include artifacts, discourses, practices or social relations. However, in the context of adaptation policy and measures, the meaning is more narrow, as I will show below.
- 3 It is not my intention to criticize the projects.
- 4 Bislama is a pidgin language and the lingua franca in Vanuatu. The citations of research partners in this article were translated into English by the author.
- 5 El Niño is the name of a meteorological phenomenon. It denotes one of the phases of the El Niño–Southern Oscillation (ENSO) and means less rain for Vanuatu than usual.
- 6 As none of these concrete strategies are relevant to the adaptation projects in the two villages where I conducted research, I do not expand on them here.
- 7 Another example of a policy document that includes statements that establish a dichotomy between the environment (as pristine and natural) on the one hand and humans who use this environment for their needs on the other is Vanuatu’s “2030 National Sustainable Development Plan 2016 to 2030 – the People’s Plan” (Pascht 2022).
- 8 These projects have been initiated and financed almost exclusively by foreign organizations.
- 9 ‘Generation and adaptation of improved agricultural technologies to mitigate climate change-imposed risks to food production within vulnerable small farming communities in western Pacific Countries’ (Generation of a Agricultural Technologies 2016).
- 10 See also the article of Carlos Mondragón (2018) on seasonal environmental practices and climate fluctuations in Vanuatu.
- 11 For the two villages, what Mondragón states for Torres Islanders is applicable: “climatic fluctuations [...] are associated with broader chains of relations between humans and other entities, as well as with a diverse set of ideas regarding the shape and nature of the world” (Mondragón 2018, 37).
- 12 In the following listing, I deal with topics connected with cultivation only. As I have shown above, ‘klaemet jenj’ is an encompassing phenomenon.

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When Nature Becomes a Risk: Solastalgia and Entanglement in Human-Tick Relations

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Abstract

This article discusses the relationship between humans and ticks from the perspectives of solastalgia and climate change adaptation. Many daily activities and spatial practices are nowadays affected by ticks or the fear of running into ticks, as ticks, and also the awareness of ticks, in general, seem to have increased with climate change. The fear and discomfort caused by ticks are, therefore, a common theme debated among the public. Details in these stories tell us about a controversial, troubled, and traumatic relationship with ticks that affects both people's perceptions of nature, outdoor activities, and daily life. This contradictory and multifaceted human-tick-nature relation is analyzed with the help of questionnaires, newspaper articles, and social media comments.

Keywords: ticks; solastalgia; climate change; nature

Introduction

Climate change with milder winters and longer periods of temperatures staying in warmer degrees have increased the living conditions of ticks in Finland. Ticks are therefore connected to the Anthropocene and the changes in the climate caused by human actions. The milder the climate, the more ticks and vectors—i.e., animals that transfer ticks from one place or host to another. These vectors or host species, such as deer, moose, rodents, and city rabbits, spread ticks around the country. Also, the high number of domesticated animals and their role in bringing more ticks near humans and human habitation has been acknowledged (Zöldi et al. 2017; Sormunen et al. 2021). Changes in the living conditions of ticks have led to a growth of the tick population and density of ticks in many parts of the country, challenging the perception of Finnish nature as a source of well-being and relaxation. Therefore, I intend to discuss how ticks affect people's perceptions of and relationships with nature. Ticks and their host species are adapting to climate change, but how are we humans adapting to ticks and responding to these changes?

A book for children titled "Children as Tick Researchers" (Penttinen & Lamppu 2021) is the starting point for my article. The book is written by Finnish tick scholars Ritva Penttinen and Maija Lamppu. According to Penttinen and Lamppu, many

people experience a deep fear of insects and ticks. On the other hand, people seem to know very little about ticks, which, according to the authors, also increases the common discomfort surrounding ticks and impacts the discourses about them. Thereby, the purpose of the book, intended for school children, is to reduce the fear associated with ticks and offer new information while breaking down prejudices surrounding ticks and spending time outdoors (Mediatiedote 2021).

The fear and discomfort caused by ticks is also a common theme debated in Finnish public discourse (Lillbroända-Annala & Winberg 2023). When the tick season begins in early spring, newspapers are gradually writing more and more about ticks. Also, discussions on social media intensify, and ticks are discussed in relation to humans, companion animals, and host species. In some articles and threads, but still on a rather small scale, the effects of climate change in relation to ticks are debated. Details in these stories tell us about a troubled relationship that has also changed peoples' outdoor activities and relation to nature. This contradictory and multifaceted relationship, as it is understood and defined by interlocutors, is in this article analyzed with the help of questionnaires, newspaper articles, and social media comments. When and why is the relationship with ticks described as problematic and dysfunctional, and what implications does it have for peoples' relation towards nature? Therefore, this article contributes to discussions on multispecies encounters and climate change adaptations, raising questions about ticks and ticks as part of nature in Finnish everyday life.

The book for children raises additional questions about why there is an educational need to tell children about ticks and ticks as part of nature. Something in the relationship between ticks and nature has changed or is currently changing. This relationship is analyzed through the concept of *solastalgia*—a term developed to give greater meaning and clarity to environmentally induced distress. As opposed to nostalgia, solastalgia is the distress produced by environmental changes impacting people and their home environment. Solastalgia is closely connected to climate change as environmental changes are often caused by changes in climate. Therefore, solastalgia is a kind of psychological pain or existential melancholy in people who experience unexpected and unwanted changes in their home region. As considered in this article to have been brought along by ticks, changes in nature have a negative effect that is exacerbated by a sense of powerlessness or lack of control. Solastalgia is also strongly connected to emotions and emotional responses when changes in nature overwhelm us and challenge our relationship with nature. Thus, solastalgia is an eco-emotion such as related concepts of biophilia and topophilia (Albrecht et al. 2007; Albrecht 2019).

Solastalgia and emotions intertwine in multispecies entanglements (van Dooren et al. 2016) between ticks, humans, host species, and companion animals, and materializations and practices of tick encounters, prevention, and protection. Together, these entanglements refer to situations where different actors, when encountering each other, influence one another so that something or some things change (Ingold 2008, 1807–1808; Damsholt & Simonsen 2009). The encounters and imagined encounters with ticks bring about protective measures and effective practices. Ticks evoke strong emotions and cause people to act defensively through practices adopted to avoid tick

bites and tick-borne diseases such as Lyme disease and tick-borne encephalitis TBE.

For this reason, I ask how the perception of and spending time in nature is affected by ticks. With nature, the interlocutors mean nature in a broad sense, and it is various forms: urban nature surrounding their homes, parks, and the wild outdoors such as forests. With regards to nature, as my interlocutors perceive it, I ask: How have ticks changed nature over time? What kinds of protective practices are adopted and manifested during the tick season? How do materializations correlate with the increased awareness of ticks and tick-borne diseases? In encounters with ticks, practices, and materializations become control mechanisms in the ongoing work, where the practices shift as the environment changes and new actors appear. Even the knowledge about ticks develops and changes over time. With the increased knowledge of ticks, ticks have proven to be dangerous to some extent and are often linked to bacteria, viruses, and diseases.

This article can be considered a contribution to research fields of cultural animal studies and human-animal studies. It also contributes to multispecies studies and environmental humanities (e.g., Helmreich & Kirksey 2010; Ogden et al. 2013; Haraway 2008; van Dooren et al. 2016). All these research fields contextualize and problematize human relationships with other animals, species, and environments and their relationships with us (e.g., Räsänen et al. 2020; Ekström & Kaijser 2018; Marvin & McHugh 2014). Within these research fields, questions about how animals and environments are classified and valued, i.e., how we relate to, talk about, and create practices from encounters with animals and environments – often also from the viewpoints of tensions and conflicting emotions arising from these relationships. Postcolonial and intersectional influences, as well as anthropocentric perspectives, are also discussed in interspecies relations and with environmental concerns (Ekström & Kaijser 2018; Hagelstam & Lillbroända-Annala 2020; Räsänen et al. 2020). Studies within all these research fields highlight human and non-human entanglements and encounters and how they impact climate change and adaptations to climate change.

The question of ticks and nature also contributes to the civilization-critical and often dystopian themes that gain relevance in times of uncertainty (Vidergar 2013). By zooming in on the human-tick relationship, we can look closer at the “complex ideas about being human and being animal, and the relationships negotiated around these conditions” (Marvin & McHugh 2014, 2). Thereby, a focus on animals and their relationships with humans on a day-to-day level increases our knowledge of where the boundaries for these conditions are drawn—both socially and culturally. The questions about ticks bring about questions of animal agency regarding larger and smaller existential and societal questions. In the tension between animals and humans, or nature and culture, we can highlight important aspects of our ways of living, thinking, acting, and taking responsibility—also with regard to climate change (Hörnfeldt 2018,223; Ingridsdotter & Silow Kallenberg 2020,35).

Ticks and Nature

The book’s main characters, Eevi and Eino, explore their home outdoor surroundings

with their grandparents. These exciting explorations increase their knowledge about the variety of ticks living in Finland. They learn that there are more than 1,500 species, of which *Ixodes ricinus* is the most common. Ticks are blood-sucking arachnids that develop from egg to larva to nymph and on to an adult. Ticks live approximately 3–5 years (THL punkkiesite 2023).

Besides *Ixodes ricinus*, a new tick, categorized as an invasive species, is *Ixodes persulcatus*, originating from the east. Both of these species have adapted to the changes in climate and can nowadays be found in most parts of the country except for the northern parts of Lapland. The coastal areas and the archipelago are tick-dense. These two species also pose a health risk to humans and companion animals. Both ticks can also occur in the same areas and share the same hosts, from wild mammals to companion animals and humans. Ticks thrive wherever they have access to blood meals; therefore, their living environment includes nature in a wide perspective. However, above all, grass and bushes are usually highlighted as the tick's habitat, as ticks are considered to be 'lurking in the grass' waiting for a passing animal. When it is hot or too cold, ticks retreat into the soil to wait for more suitable conditions (Hytönen et al. 2021).

In this article and according to my interlocutors, the concept of *nature* includes the wild, the untamed, and uncontrolled nature, as in forests, and the cultivated, 'tamed,' and controlled nature in cities and around human habitation. Within different cultures and among different individuals, a variety of understandings of nature exist. Therefore, nature is complex and multifaceted, covering a wide range of perceptions and connotations (Nationalencyklopedin natur; Midholm & Saltzman 2014). Nature can be understood as a physical place, a concept that encompasses the entire universe, a principle or being (the laws of nature), or a source of inspiration and conceptual opposite of culture (Coates 1998, 1–10).

Nature as an antipole to culture is considered the most influential view in the Western history of views of nature. Until early modern times, 'wild' nature was perceived as a threat and an enemy humans had to fight against. Nature, at its worst, could destroy crops and make agriculture impossible. Also, different insects and predators could threaten the lives and living conditions of humans and domestic animals. The Western history of human-nature is portrayed as a struggle to maintain and defend the fragile culture against overpowering and intrusive nature (Oelschlaeger 1991; Väyrynen 2006).

Today, the division of "nature" and "culture" is criticized, as nature and culture are considered tightly interwoven and inseparable from each other. The concept of *natureculture* is meant to question this divide and stands for a synthesis of nature and culture that recognizes their inseparability in ecological relationships that are biophysically and socially formed (Latour 1993; Haraway 2003; Fuentes 2010). Natureculture emerges from various fields of science questioning the position of humans as the only acting individuals, superior subjects, or primarily cultural beings given a universal nature. Terms like "almost human" (Strum 2001), "beyond humanity" (Ingold 2013), networks of "other-than-human" (Haraway 2016, 18), or "more-than-human" (Greenhough 2014) have been brought along to the discussion of a posthuman approach and

understanding of natureculture. These concepts also play an important part in discussions about climate change.

Although these positions differ in their basic assumptions, they can all be discussed as perspectives that question the anthropocentric and/or humanistic tradition (Engert and Schürkmann 2021). They decenter the human from various angles: humans as embedded in hybrid relations of subjectivity (Haraway 1991), human agency conceived as part of heterogeneous networks with material objects and artifacts (Latour 2007), or human experience appearing as limited in the face of unperceivable “Hyperobjects” (Morton 2013). “The Posthuman,” therefore, becomes identifiable as an ambition to surpass vital changes in human living and acting and to consider trajectories of what humans are becoming (Engert & Schürkmann 2021).

The anthropogenic climate change and its consequences, i.e., the increase of ticks (e.g., Gilbert 2021, Dub et al. 2020), serve as an example of “naturecultural phenomena” showing how humans and more-than-humans are interrelated and entangled. Still, nature and culture are often perceived as separate entities by my interlocutors, which they feel the urge to control.

In the Nordic and Finnish context, the wild and untouched nature has been a target for taming and control until the 20th century. This conquest of nature has in Finland been a very rapid and an intense process in comparison with the taming of nature in continental Europe, where the transformation took several hundreds of years and began much earlier than up in the north (Enbuske 2010; Ruuskanen et al. 2020).

The same conquering mentality has long affected the relationship with different species, resulting in a division between beneficial species and pests, endemic and invasive species, and charismatic and non-charismatic species. This classification has had and keeps having severe consequences for the biodiversity in Finland and elsewhere, resulting in war-like declarations against different species considered unwanted and hazardous (Ilvesviita 2005; Vuorisalo & Oksanen 2020; Mykrä et al. 2005; Russell 2000; Johnson & Nagy 2013).

In the 1900s, the distinction between nature and culture, the mentality of humans as superior to other species, and the exploitation of natural resources were challenged by a view of nature as a source of physical and mental well-being. This shift led to the founding of nature reserves and nature parks (Pekurinen 1997; Niemi 2018). These early conservation acts of nature were, especially from today’s point of view, anthropocentric. It was not until the late 1900s that the interest in nature conservation was directed towards ecology and wilderness, nature, which was not yet influenced and reshaped by humans. Also, the understanding and appreciation of wild animals grew along with less anthropocentric ways of looking at flora and fauna (Räsänen 2020, 284–85).

In the wake of nature as health-bringing and considered worthy on its own, a widely accepted notion of nature as a source of recreation is also being promoted. This awakening led in the 19th century to nature being seen as an unambiguously positive entity, while all threats and problems originated from human activity (Pihkala 2019).

With ticks and their health risk, the idea of nature as relaxing and healthy is challenged. Nature becomes a risk, yet again, reminding us of the traditional view of

nature as fearful and dangerous. Health concerns related to ticks are debated and shared in knowledge formation and circulation - both in scientific contexts and within a broader public discourse. *Ixodes ricinus* and *Ixodes persulcatus* are considered the most notorious species in Finnish nature, which carry a stigma associated with danger—even life-threatening for humans and companion animals (Penttinen et al. 2015; THL, Infektionssjukdomar och vaccinationer; Puutiaistutkimus; European Centre for Disease Prevention and Control).

Research Material and Theoretical Approaches

The inspiration for discussing how ticks impact our relation to nature and outdoor activities was received from the children’s book, by reading people’s answers to questionnaires about ticks and their comments on ticks on social media. In the book, ticks are presented as resilient. In contrast, in the public discourse, the general image of ticks is built around ticks being vicious predators who prey on humans and other animals. Changes in climate are discussed within the public discourse—not to the extent you might expect but sporadically, and most often as something occurring on its own, instead of pointing out the role of anthropogenic climate change—whereas the effects of climate change are not discussed in the book.

The primary material used in this article consists of questionnaire answers to questionnaires “Tick” (Fästingen 2019) and “The ticks are coming!” (Punkit tulevat! 2019).¹ These questionnaires were sent out and made available online by the Swedish Literature Society (SLS) and the Finnish Literature Society (SKS) in the summer of 2019. The questionnaire by SLS was answered by a total of 42 people, and the questionnaire by SKS was answered by 103 people—both from almost the entire country except areas north of Oulu.

The questionnaires were prepared by our research team in collaboration with the archives. Our project, *Humans and Ticks in the Anthropocene*, is funded by the Academy of Finland 2020–2024. The research team consists of historians, ethnologists, and social scientists from the University of Turku, Åbo Akademi University, and the University of Eastern Finland. The project aims to examine the multi-faceted relationship between humans and ticks from the perspective of environmental history and environmental humanities and, secondly, provide a comprehensive analysis of discussions about ticks in Finnish society from the late nineteenth century to the present. Our third aim is to increase the knowledge about human relations, not only to ticks but also to insects (<https://sites.utu.fi/huti/>).

In the online questionnaires sent out, we wanted to know how ticks have been treated in the past and how they are treated today. We also wanted to know what kinds of experiences people have about ticks and what names they use for ticks. Questions about the relationship between ticks and climate change and how changes in the climate and environment may impact ticks were also asked, as well as whether the respondents have seen ticks on other animals and how these have been removed. We were also keen to know more about tick-related diseases and how respondents feel about vaccines. The questionnaire also points out an interest in knowing how ticks are

portrayed in media of various kinds and how the respondents react to media discussions. We also asked how the respondents see the relationship between ticks, humans, and other animals in the future.

From a source-critical perspective, it is important to remember that questionnaires as material should be considered as a result of the questions asked. In both questionnaires, the intention was to get the respondents to tell as widely as possible about their memories, ideas, and attitudes toward ticks. Looking at the questions now, a few years later, the questions seem leading and too focused on the problems and challenges that ticks might cause. Therefore, the questionnaires should be considered in a critical light where one is aware of the material's shortcomings as well as the advantages of a rich, qualitative material (e.g., Hagström & Marander-Eklund 2005).

The public discourse material consists of online chats on the social media platform *vauva.fi*. Additionally, a few newspaper articles are used as examples of the public discourse. The online materials are accessible without restrictions, and all comments are anonymous, enabling them to be used. The material from the discussion forum consists of more than 80 discussion posts with comments published in the "the subject is free," category.

The discussion forum, consisting of several sub-forums with themes, is one of Finland's major social networking websites. The website is maintained by Sanoma Media Finland Oy, which is the leading Finnish cross-media company. Sanoma Media Finland publishes Helsingin Sanomat, the primary daily newspaper in Scandinavia. Ilta-Sanomat, the market leader in digital and mobile news, is also used as material in this article (Sanoma Media 2021).

In analyzing the material, *solastalgia* and *multispecies entanglement* as concepts are useful. Environmental philosopher Glenn Albrecht introduced solastalgia, referring to an experience of loss, pain, and sadness due to changes in one's home environment (Albrecht 2005; Albrecht et al. 2007). The term was initially linked to climate change but has later been used to describe changes and distress caused by changes in different environments (e.g., Warsini, Mills & Usher 2014; Leandroer 2021). Solastalgia originates from the concept of *solacium*, meaning solace, and the word *algos*, meaning pain, suffering, and grief (Albrecht 2005, 3, 41-55; Albrecht et al. 2007, 95-98; Albrecht 2011).

Solastalgia is connected to the concepts of somaterratic and psychoterratic illnesses introduced at a psychiatry congress in 2006. Somaterratic illnesses (*soma* meaning body, *terratic* meaning earth-related) threaten physical well-being and are caused mainly by living in ecosystems that have been contaminated by pollutants and toxins. Psychoterratic illness is defined as earth-related mental illness where people's mental well-being is threatened by the severing of 'healthy' links between themselves and their home/territory. An old form of psychoterratic illness is nostalgia, whereas solastalgia is the new form. It is driven by a sense that a well-known landscape might give solace, strength, or support, and when interrupted, discomfort and distress (Albrecht et al. 2007, 95-96).

The multispecies relations, as well as the materializations and practices to deal with solastalgia can be analyzed as *human-tick entanglements* (e.g., Helmreich and Kirksey 2010; Ogden et al. 2013; Haraway 2008; van Dooren et al. 2016). Humans,

non-humans, and things are relationally produced, but the focus on dependence rather than relationality merely draws attention to how humans and ticks get entrapped in their relations with things. Archeologist Ian Hodder distinguishes two forms of dependence. The first and more general focus on dependence recognizes enabling, where the human use of things allows humans to be, live, socialize, think, etc. Hodder uses the term dependence in the sense of “reliance on.” Dependency often leads to a second focus as it involves some form of constraint. When humans and non-humans become involved in various dependencies, these might limit their ability to develop as societies or individuals. Therefore, dependence and dependency create a dialectical struggle within entanglement.

On the one hand, humans and non-humans depend on or rely on things to achieve and enable something. On the other hand, dependency and codependency occur when humans and things cannot manage without each other, and in this dependency, they constrain and limit what each can do (Hodder 2014, 20).

Solastalgia also fuels emotions and the effectiveness of ticks in relation to nature. British-Australian scholar Sara Ahmed writes in *The Cultural Politics of Emotion* that emotions are created in contact with someone or something and are influenced by our cultural beliefs about this someone or that something (Ahmed 2004, 79). Thus, emotions are produced not only in the interaction between people but also in interspecies encounters and rooted in different environments, matters, etc. (Riis & Woodhead 2010,7). I agree with Ahmed and understand that affects, and emotions are influenced by and connected to each other. Therefore, I see the bodily, affective response as part of the feeling that the bodily response gives rise to or vice versa.

We need to understand emotions by focusing on what they *do* rather than what they are. This focus is also inevitable when it comes to ticks. Ahmed believes emotions are more than psychological states and should be understood as performative social and cultural practices. She argues that emotions should be understood as both moving and sticky, where the subject is formed in encounters with others and where the emotions create surfaces and boundaries between subject and object. The mobility of emotions can have different effects: for some, an emotion can be fleeting and temporary; for others, it can mean a fixation—it sticks firmly, as in many cases of ticks (Ahmed 2004, 7–13).

Ticks and Rubber Boots

The front cover of the children’s book shows siblings Eevi and Eino exploring the grass, wearing rubber boots and long-sleeved shirts. In their hands, they have magnifying glasses through which they inspect the grass. A cat is lying in the grass as it is summer, and the flowers bloom. The image emanates peacefulness and joy of exploring nature. The practice and materiality of exploring ticks in their natural surroundings are obvious. However, much more can be written into the cover’s symbolism and the book’s overall message.

Ticks in childhood memories are often described in terms of ordinary. I believe this is also one of the author’s core messages in their book. Ticks live among us in

various surroundings; nothing strange about that. The same message emerges from the childhood memories shared in the material. For many, ticks were everyday companions in their childhood from the 1950s until the 1990s. The carefree yet controlled co-existence with ticks is present in many memories—just as in the book.

When I was little, I didn't know ticks could be dangerous. We played outside and played in the grass without any worries. No one did tick checks, neither on people nor on pets, who ran in the bushes. With the curiosity of a child, we were amazed and we admired all insects with great interest. I think I knew already in elementary school what a tick looks like and that it bites animals. (SKS questionnaire answer number 79)

Many childhood memories are linked to beliefs about where the ticks lived. The living environments of different tick species are also under scrutiny in the book. Ticks live above the surface and in the ground, trees, and undergrowth. Ticks even occupy our homes and the most intimate places in homes, such as beds, for short visits while sucking blood from us or our companion animals.

In many memories, children were supposed to avoid tick-infested natural surroundings, especially alders. They were considered tick magnets as it was in the alders and in their immediate vicinity that ticks were believed to reside. By avoiding alders, one could avoid running into ticks. This protective practice of keeping children away from alders was one way of dealing with the fear of ticks in nature. It was later proven wrong, as the increasing knowledge of where ticks live shifted the tick-infested area around the alders to grass and damp lands. Ticks can even reside in our backyards, very close to where humans live.

I remember well Dad always reminding us not to run near the alders, because that is where the ticks can bite. Therefore, we children avoided running near alders. Sometimes it happened that a tick would bite. After all, we could run barefoot along meadows and on grass. We were not forbidden to do this, because it was not known that it was actually in the grass where the ticks lurked on us. (SKS questionnaire answer number 92b)

The relationship described today is more dysfunctional, bringing us closer to solastalgia and the dramatic change in our relationship with nature. The same reality of wearing rubber boots as in the book is evident in the quote below, but the relationship between ticks and nature is much more problematic than portrayed. The only refuge from ticks is considered a concrete suburb, where ticks cannot get to her but where, at the same time, all things considered worth living are diminished, and the beauty of nature has gone wrong.

My relationship with nature, with the archipelago and the forest, with berry picking and gardening has been fundamentally shaken. My children are hardly allowed to go out into our garden without rubber boots on. We have abandoned the tradition of birthday picnics a long time ago due to the tick misery. The children must be

“body checked” in the evenings, and the same rituals are repeated at different summer camps. The flower beds are left untended because every attempt at gardening brings along ticks. You don’t dare to get a dog because it would bring ticks indoors... I’m not a hysterical neurotic, but rather a bohemian, but because of the cursed creature, all my desire to walk in the woods and fields is GONE. I dream of a home in a concrete suburb.” (SLS questionnaire answer number 32)

The solastalgia in the memories of many interlocutors is strongly marked by “the time before and after the ticks,” i.e., that the awareness of ticks, the number of tick encounters, and the knowledge of tick-borne diseases have increased, especially since the 1990s. This awareness and the concrete experiences of ticks have shaped the everyday life of humans, their companion animals, and peoples’ approach to nature. In some answers, the connection to climate change is brought forth as an obvious reason for the changes in tick density in Finnish nature.

In my childhood, I wasn’t warned about the dangers of ticks. I was just told to watch out for alders, because ticks jump from them. In particular, gray alders were considered as trees where ticks live. Now that is no longer true, either – and ticks have gone from being annoying to being really dangerous. That is why the checks continue, I have no dog but the grandchildren are always checked for ticks. They are also aware of this risk themselves, they move around dressed and they do not walk barefoot. It is a little annoying that they cannot fully enjoy the summer. Fortunately, ticks do not threaten when you are swimming! (SKS questionnaire answer number 78b)

Emerging Tick Habits

When Eevi and Eino explore the outdoors and enter the wild and untamed nature, they wear protective clothing and are encouraged to perform tick checks. With the growing awareness that ticks have increased in number and can be considered a health risk, the approach to ticks and nature has brought about both avoidance and adaptation practices. These practices include, for example, tick-preventing clothing, regularly performed tick checks, tick removals, and using tick repellents on companion animals.

From being perceived as ordinary and relatively harmless, as in many childhood memories, ticks seem to have become more threatening with the reproduction and circulation of tick knowledge and experiences, as well as through the practices we perform to keep our bodies tick-free. These entangled practices combining knowledge sharing, habits of everyday life, and spending time in or avoiding nature are often visible in the material.

Since the ticks have started to spread serious diseases, the attitude towards them has of course changed. From being harmless (in my childhood in the 70s) they have become a terrifying and menacing insect species, comparable with malaria mosquitoes or venomous spiders. (SLS questionnaire answer number 32)

The research about ticks within the field of natural science and within our current tick project increases our knowledge about ticks. The results from the research projects conducted at Finnish universities (e.g., Zöldi et al. 2017; Sormunen et al. 2020; Uusitalo et al. 2022) but also worldwide (e.g., Boulanger et al. 2019; Hansford et al. 2022) affects our understanding of ticks in both positive and negative ways. Interestingly, even though the research does not aim for nature to be considered dangerous and repulsive, it can have such an effect, especially if the information is used in media to portray ticks as part of nature in a certain way.

I no longer move on the beaches or in the grass. Ticks have ruined this country. (vauva.fi 2018)

I am hysterically afraid of ticks, to an extent that it isn't normal anymore (?). I don't dare to go out in the nature properly, or if I do, I keep looking at my legs. I also have a dog and I am hysterical about her catching ticks. I check her every 15 minutes for ticks when we are outside. (vauva.fi 2016)

Health-related concerns are not just news items for the media but a reality our health authorities believe we live in and many people have experienced (see, e.g. Sane 2017). The fear of falling ill is a real concern for many people, highlighted in the material. The fear has even evoked prohibitions, where, for example, children are prohibited from moving in tick-infested natural areas.

We check the children every day and forbid them from running in tall grass, reeds and near alders on the beach – a shame but true. It feels like you cannot do much to avoid being bitten by a tick if you live normally and move around in nature, a bit like it is a matter of luck and bad luck, which is not a pleasant feeling at all, especially considering the children. (SKS questionnaire answer number 48)

In addition to our health authorities confirming that the number of ticks and tick-borne diseases has increased, nature's health-promoting effects are emphasized. Therefore, the risks related to ticks and the benefits of outdoor activities become contradictory when Finland is divided into risk areas based on the occurrence of TBE and Lyme disease. A map indicating the level of risk for TBE, along with statistics on reported TBE cases, is updated annually in the infection register by the Finnish Institute for Health and Welfare (THL 2021; Mäkelä 2021).

Many Finns are concerned about the diseases spread by ticks, and assess the risk of, for example, TBE infection to be much higher than it really is. The risk should not be underestimated, but it should not be exaggerated either, and there is no need to limit spending time in nature in fear of ticks. With the help of the right kind of protection and performing a tick check, you can enjoy nature in peace. (Mäkelä 2021)

The connection between materiality and practices is strengthened, becoming an important component in the handling of ticks. The perception of risk with ticks and nature becomes visible each time someone is surprised to find ticks in areas or places where they have not met ticks before, or where you are not expecting to run into them. Therefore, the division into risk areas can also have an opposite effect: the awareness of and practices around ticks are disabled in areas not categorized or perceived as risk areas. At the same time, we can count on ticks in almost the entire country except for the northern parts.

We live in South Lapland. There are ticks in the Kemi area, but here where we live, I have never seen a tick. I cannot take it anymore when my husband is so hysterical about the ticks. He becomes suspicious of our dog during the summer and is afraid of every little piece of garbage on the dog. The dog is trimmed for the summer with a very short coat, it is easy to go through the fur every day. I have also put a repellent on the dog. (vauva.fi 2019)

From the viewpoint of solastalgia, our relationship with ticks and nature as threatening and risky is not solely based on medical and biological facts but, even more, is culturally constructed. We are socialized into a *tick culture* with tick-related practices for prevention and protection. These practices are preceded by traditions that have been adapted and practiced within the family, for example, when removing ticks, which have been further developed or replaced with new ways.

The best way to protect yourself and your dog is to do a tick check in the evening and in the morning, because if you don't notice the tick in the evening, it has time to attach to the skin during the night and then you have to remove it. (Ilta-Sanomat 2019).

Examine yourself and your dogs. Don't allow dogs in the bed during the night. Better have them sleep on the floor. (Ilta-Sanomat 2018).

The practices are linked to the tick season, which lasts from spring until autumn, and to tick-dense areas of the country. Ticks actively look for blood meals when the temperature is above +5 degrees. The practices are also anchored in a range of products intended to keep ticks at a distance and to remove them. These products are sold in grocery stores and pharmacies. The product range includes many products intended for companion animals, and by protecting them from ticks, we also indirectly protect ourselves. Therefore, the materiality and practices associated with the products are important elements of the multispecies and multi-item entanglements, also bringing about questions of anthropocentrism (see, e.g., Boddice 2011).

In the last ten years or so, the number of ticks in our summer place on the island has been increasing constantly. First, I had to start checking myself in the morning and in the evening, and about five years ago it seemed wise to get vaccinated. Last year I began to check my skin for ticks throughout the day, there are so many of them. In

the family, the attitude has remained the same, that is, we think there will be no Lyme disease if ticks are removed daily, and the series of vaccinations protects with a high probability against TBE. (SKS questionnaire answer number 82)

Our dog and our cat, especially our Norwegian forest cat, has about 10 ticks attached every spring and sometimes they fall off on their own becoming really ugly blood-filled balls on the floor, if you have not noticed them before that. As soon as ticks start to come inside the house with the cat, we buy collars for both the dog and the cat from the pharmacy. They are very expensive but help a little anyway. (SKS questionnaire answer number 48)

Although products used to keep ticks at a distance and to remove them are displayed in visible places in pharmacies and shops every year, we quickly forget that ticks can also occur outside the actual tick season. Therefore, seasonality can also bring about conflicting signals and risks about when to do tick checks, use repellents and dress accordingly.

In addition to the practices adopted to keep ticks away from humans and companion animals, solastalgia also brings forth tick practices linked to different ways of cultivating nature. We are not only avoiding tick-infested areas or using protective clothing; ticks are kept away by keeping lawns as tick-free as possible by cutting and keeping the grass short. These protective measures reinforce the feeling of security and the feeling of control. The cultivated, controlled nature is less risky than the wild, uncontrolled nature.

In the late 1980s and 1990s, it [the cabin] became a place we visited more and more often. The forest groves had to be cut away and the paths were trimmed regularly. The mosquitoes were expelled by removing undergrowth and lower branches of trees. Construction timber was also taken. Grass and thickets no longer provide significant protection, ticks still occasionally appear. (SKS questionnaire answer number 70)

Ticks and Climate Change

When reading the children's book and following the stories Eevi and Eino are told about the ticks by their grandparents, who by profession are natural scientists, I notice something. The book does not cover climate change and the meaning of global warming—the obvious effects of the Anthropocene. Compared with newspaper articles, social media, and questionnaire answers, questions about climate change and ticks are highlighted but not overemphasized. Instead, the focus is drawn towards other species, who are mentioned as hosts for ticks, and with them, ticks are spreading within the country and abroad.

In the 2010s, ticks seem to have become more common. I think climate change is the reason. Certainly, due to climate change and mild winters, there are more of them now, and, on the other hand, I would also believe city animals, which used to roam in

forests but have now moved closer to cities, carry ticks closer to humans than before. For example, deers occasionally visit our yard, and ticks are surely falling from their coats. I also remember reading that a new tick species has spread from Russia to Finland with birds. (SKS questionnaire answer number 6)

The interlocutor refers to *Ixodes persulcatus*, the so called *taiga tick*, as the new tick spreading from the east. According to the European Centre for Disease Prevention and Control, and their latest statistics concerning ticks from March 2022, *ixodes persulcatus* has spread almost all of Finland except for the southwestern parts of the country. (European Centre for Disease Prevention and Control) With climate change, species find new living conditions and spread beyond nation borders. In the spreading, wild host species play a central role. Also, domestic animals, especially dogs, are one of these important hosts. Domesticated animals like dogs challenge the notion of the wild and the uncontrolled. Therefore, not only wild animals carry ticks from the untamed nature to the tamed nature, but instead, dogs and other companion animals with access to the outdoors, as well as humans themselves.

I haven't actually heard much about what people thought about ticks back in the days. But their habitat has definitely changed, because they were first more common on the Åland Islands due to all the deer, which then moved to the mainland and spread out more and more. I don't think we will ever get rid of ticks without reducing the deer population significantly. Ticks are probably here to stay, so you can just forget about walking in blueberry rice and tall grass. At the same time, I don't think they will disappear, even if we reduce the population of deers, because they may have found new "hosts" such as, for example, our companion animals (horse, dog and cat) and other wild animals. (SLS questionnaire answer number 36)

The large dog population is the main reason for ticks to have become more common. No other animal has grown in number as much as dogs and spending time around humans like dogs. (Helsingin Sanomat 2018)

When learning about ticks, Eevi and Eino learned that people used to think ticks lived in trees—as in quoted childhood memories. The knowledge formation about ticks has played an important role in human-tick relations. It has also been one of the inspirations behind the book and its purpose: to provide new information and to break prejudices surrounding ticks, especially among children (Mediatiedote 2021). The lack of information is one of the things brought up in the material, affecting our relationship with ticks.

When I was a child, we thought ticks lived in the alders and that they fall down on us. Now we know that they stay in the grass. But still, we have too little information about how they live, during the day, at night, in moisture, in dry... What is their favorite type of grass etc... More research is needed. I got a tick bite in Turku this year, don't know if it came in my clothes from the cottage and I got bitten when in town, but ticks are said to be already in the city. If they increase, they destroy all the fun of gardening. I don't

think the climate has an effect, but instead, the deers and all the dogs people nowadays have. They are spreading ticks effectively. (SLS questionnaire answer number 39)

This quote leads me to some concluding thoughts. Ticks are experienced and debated in the questionnaires and the public discourse as disgusting and dangerous for the well-being of humans and companion animals. The increasing number of ticks and host species is clearly connected to climate change. The more favorable the climate—also for their host species—the longer ticks stay active looking for blood meals and with the movement of their hosts spread across waist areas of the country. The tick season brings about tick-related practices of avoidance, adaptation, protection, and control.

Solastalgia and the discourse of ticks as risky are projected against nature and ticks as part of nature—not against humans and their ways of exploiting nature. The presence of ticks and the increased knowledge of the health risks ticks bring about have had a profound effect on people's relationship with nature. When ticks are active, human activities outdoors become more dysfunctional. Feelings of solastalgia are channeled into fear and concern for ticks. For many, nature looks different than in their childhood, when the ticks were mostly harmless and interesting components to explore outdoors, until recent decades when they started to be perceived as hazardous and an obvious liability.

Ticks challenge our connectedness to nature. Many activities one could previously enjoy are now excluded due to the solastalgia ticks bring about. The general attitude towards ticks is colored by bitterness and resentment. The fear of ticks has also affected the respondents' relationships with their companion animals, which also undergo regular tick checks and are subjected to various tick-preventing and killing repellents.

As we know, during the last, health-promoting nature has taken on a different dimension in many answers when nature becomes dangerous, risky, and unattractive because of the ticks. The cultivated and controlled nature is perceived as more tick-proof, while the uncultivated and uncontrolled nature poses a significantly greater risk for ticks. Nature and ticks should be controlled by keeping lawns short, avoiding tick-dense areas, wearing tick-proof clothing, and doing regular tick checks on your bodies and the bodies of others.

In the relationship with humans and ticks in nature, materializations and practices become important components to fight solastalgia, maintaining control and increasing the feeling of security. Thus, the practices and materiality associated with preventing and removing ticks constitute a management strategy adapted, incorporated, and developed during the tick season. We become dependent upon these protective practices, which can also restrain us from doing everything we desire. In that sense, a very important question remains: Is it the ticks and the tick-infested nature we fear, or is it the changes in our habits and ways of perceiving the nature we are afraid of?

Notes

- 1 The questionnaire answers used have been anonymized but can be read with the license provided by the archives. The anonymisation has been done in accordance with the National Board on Research Integrity, <https://tenk.fi/en/research-misconduct/responsible-conduct-research-rcr>.

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Response

Best Practice in Climate Change Adaptation: When algae and ticks Take the Lead

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If the Sargassum algae and ticks would meet, what would they say? Would they congratulate one another on their shared thriving? Would they share their concerns about their thriving and its impact on their environment, neighbours and friends? Would they wonder what it means for the long-term ecological web they are a part of? Whether this “new normal” is one to keep and settle into?

Reading through this edition of Cultural Analysis on the topic of climate change adaptation, it seems these two more-than-human species do adaptation best. Amid all the changes to their ecological environment and their multispecies entanglements, they flourish. The multispecies entanglements in this issue reflect the fine balances that life as we know it is structured around and embedded in. As one of Arno Pascht’s interlocutors shares in an interview on the meaning of climate change (*klaemet jenj*): “Everything is no longer in its place,” suggesting that we all have a place within the larger whole: ticks, seaweeds, humans. Adaptation may then be about finding this place again or anew.

However, these places are entangled in a closely knitted ball of relationships, and as Laura McAdam Otto reminds us, this is why climate change is so often referred to as a *wicked problem*. What makes adaptation and climate change response

even more complicated is that things have a different place according to different perspectives. Taking the wickedness one step further, Tim Morgan (2020) calls this the *wickedest problem of all*: a multi-verse of worlds, cosmologies, ontologies and epistemologies coming together, adapting, and responding. How do we go about tackling climate change and its manifold manifestations while living in a world of plenty? Arno Pascht’s article shows how the well-intended ideas of NGOs and state agencies may generally be good approaches in creating a more resilient food production system but on the local Vanuatu level fail, because they do not fit within the ontologies and experiences of the island’s rural population.

Laura McAdam-Otto’s article points to another difficulty in adaptation, describing how the growth of Sargassum algae is impacting the lives of many different people with different interests and different relationships to a place. The strong heritage of the local community to the sea, the land and its changes established over long periods of time, stands in stark contrast to the short-termed, consumerist attitude of many tourists. McAdam-Otto’s case study seems to be embedded in a Capitalocene (Haraway 2015; Malm & Hornborg, 2014), where the economy and globalised capitalist marketplace heavily impact the responses and chosen adaptation strategies. The *Sargassum-case* reminds us that not only the causes of climate change are closely linked to a globalised world powered by a growth-based market-driven economy; adaptation and other climate change responses are sought within this system too. From this perspective, climate adaptation only addresses the consequences, not the causes. I cannot help but see the

Sargassum algae and the ticks in Sanna Lillbroanda-Annala's contribution as the real radicals. Not only do they manage to thrive in a world of ecological decay, but their growth also imposes limits on the human sense of entitlement to move, design and change at their own pace and on their own terms (see Morton, 2013).

This brings me back to a series of questions: when is everything in place? What is this "balance" and who's balance is it? Is it a concept that is mostly applied to the past and as a future desire while often absent in the present? *Solastalgia*, a term introduced in this issue by Sanna Lillbroanda-Annala, seems a comforting term then. It means that people still know, still remember, perhaps still feel in their bones what once was, what personal and communal heritage they treasure. It is a term that indicates a time before and a time after. In that sense, solastalgia is about knowing what was and how it differs from what is. In contrast, adaptation is about what is and the uncertainty of not knowing what will be.

This is what Sanna Lillbroanda-Annala's final question points to: "Is it the ticks and the tick-infested nature we fear, or is it the changes in our habits and ways of perceiving the nature we are afraid of?" A question that captures some of the essence of the difficulties with adaptation. Adaptation asks us if we can accept changes to the familiar and comfortable, at a time we may not be ready and perhaps never will be. Solastalgia, this beautiful term, may work against adaptation then, when the sentiment already arises before the distance between past and present has been shaped by time. Instead, it may be a solastalgia for the future that we need: what's ahead that we desire?

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