Political ecologies of COVID-19,

2nd Edition

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Table of
contents

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We're in This Together: Intergenerational Health Policies as an Emerging Public Health Necessity

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The global handling of the COVID-19 pandemic has highlighted the lack of intergenerational public health solutions. Discontinuity of educational and health care services and environmental threats increase various pathologies and may provoke long-term health damage among the youngest. Unbalanced generational approaches within health policies have been evident before the pandemic and will continue to be a global challenge as both acute and chronic threats due to environmental hazards and social disparities are increasing. We therefore aim to bring with the present article the concept of intergenerational health to the center of socio-political attention as it must become beyond the COVID-19 crisis a core concept in the development and implementation of health policies.

Keywords: intergenerational health policy, children's health and development, adolescent health, COVID-19, age-specific prevention, risk reduction, public health threats, environmental health

INTRODUCTION

As humans, we shape the world we live in by interacting with our environment and creating social and cultural networks. However, not all people shape our world to the same degree: Power is unequally distributed, and because there is a lack of balanced reciprocity and mutual cooperation between generations of people, present adult generations exercise power over younger and future generations (Encyclopedia Britannica, 2020). Indeed, political power as a structural expression of "a complex strategic situation in a given social setting" leads to decisions affecting heterogeneous collectives, which—depending on the priorities set by the actors in power—can be good for some people while being bad for others (Moe, 2005). Depending on the region, many groups with different characteristics (e.g., women, BAME community, LGTBQ, etc.) are under- or not represented at all in positions of power—but since seniority is ubiquitously an important element in legislatures, children and adolescents are the one group missing overall (Wall, 2012). Beneficence, non-maleficence, and justice are fundamental ethical principles in health promotion. However, existing tools for decision-making are usually single-generational and referred to solving an immediate problem as identified via health parameters like incidence and prevalence. Recently, intergenerational disparities, which even in non-crisis periods influence the political shaping of our social and ecological environment, became particularly apparent in the global handling of

the COVID-19 emergency: Most health-related policies in response to the viral outbreak were lacking intergenerational solutions. At the same time, the concept of "intergenerational health" becomes with the rise of both communicable and non-communicable diseases due to environmental threats and social disparities an emerging public health necessity and a valuable concept for political ecology. We therefore aim to bring the concept of intergenerational health to the center of socio-political attention.

INTERGENERATIONAL HEALTH AS AN EMERGING CONCEPT OF MODERN PUBLIC HEALTH APPROACHES

The term "intergenerational equity" occurs across several fields, is mostly discussed in public economics and in environmental justice, but has yet to become a central concept in modern public health approaches and political ecology of health. When used in health care, the term "intergenerational health" merely refers to an interfamilial and sometimes epigenetic concept, with parents and grandparents influencing their descendants' health (Bygren, 2013) and social disparities shaping the subsequent generation (Kahn et al., 2005). On the other hand, "intergenerational justice" is often referred to future generations, which, by definition, do not exist now (Meyer, 2008). However, the concept of intergenerational health is an emerging public health necessity—with both high immediacy on all present generations as shown by acute events such as COVID-19 and long-term consequences due to anthropogenic activity. It is of essential and urgent importance, that the concept of "intergenerational health" broadens up from an interfamilial and individual understanding to societal level and is included as a key aspect in prevention of both acute (e.g., infectious) and chronic (e.g., long-term) threats.

As a matter of fact, human health happens at the interface of environment and society and cannot be approached from a purely biomedical perspective. While immediate and medium-term decisions are taken on public health indicators such as incidence, prevalence, mortality rates, and disability adjusted life years (DALYs), intergenerational effects and environmental indicators encompassing costs and benefits over long periods of time and for different generations should be used as a basis for health-related decision-making. Especially within health-related policies driven by neoliberal interests and implemented by adult members of society, intergenerational conflicts become obvious when it comes to macro-societal threats with age-specific risk variations—such as the COVID-19 pandemic or climate change. Here, political ecology of health steps in as an assisting framework to the commonly used public health indicators for understanding how social and environmental systems intersect to shape health across spatial and temporal scales and impact human population (King, 2010). While these impacts certainly vary individually according to background and these backgrounds are added up intersectionally (e.g., gender, class, ethnicity, etc.), the following analysis on the basis of COVID-19 focuses on the issue of intergenerational influences.

POLICY AND IMPLICATIONS DURING COVID-19: LOCKING DOWN ALL AGE GROUPS

In the 1st months of 2020, territories and countries all around the world have enforced lockdowns of varying degrees including total movement control and the closure of kindergarten, schools and universities impacting almost 70% of the world's student population (UNESCO, 2020a). With the implementation of these measures, suddenly people all around the globe with their various backgrounds, living situations, and health needs had one thing in common: they all became target groups of preventive measures imposed by 194 states during the silent spread of SARS-CoV-2 (UNESCO, 2020a). Doubtlessly, the protection from an exponential viral transmission is a public health priority—but ultimately the corona crisis presents itself not only as an acute, but also as a chronic challenge: The impacts may be linked to direct effects of the virus or indirect social and environmental effects due to the lockdown measures and thus vary greatly in their effects and target groups.

Indeed, COVID-19 varies vastly in its severity and lethality across ages: Age-stratified lethality rates thus far show an alarmingly high mortality in elderly people [Italy, 18.05.2020: case fatality rate (CFR) 80–89 years: 31.1%; CFR ≥90 years: 27.6%] while it appears small in children (CFR 0–9 years: 0.2%; 10–19 years: 0%) and young adults (CFR 20–29 years: 0.1%) (Istituto superiore di sanità, 2020). On the opposite, while being relatively spared by direct consequences, children and young people represent the highest risk group for secondary damage through lockdown measures: "Hundreds of millions of children around the world," stated UNICEF by the end of March 2020, will likely face increasing threats to their safety and well-being because of actions taken to contain the spread of the COVID-19 pandemic (UNICEF, 2020a). By April 2020, they raised their estimate to 2.34 billion children and young people under 18, who currently live in one of the 186 countries with movement restriction and 60% of all children live in one of the 82 countries with full (7%) or partial (53%) lockdown (UNICEF, 2020b).

CHILDREN AND SECONDARY DAMAGE THROUGH COVID-19 MEASURES

Discontinuity of Health Care Services

The perspective of collapsing health care systems is one of the central arguments for cross-aging measures and represents a strong motivation for all age groups to adhere to them—because if (other) treatments can no longer be carried out due to overburdening, the virus ultimately bounces indirectly back to low-risk groups. However, it is known that during epidemic events even without reaching the limits of capacity, health care for patients of all pathologies and ages can no longer maintain the accustomed standard due to reduced shutdown activity: During the Ebola outbreak in West Africa (December 2013–June 2016), most maternal and child health indicators significantly declined, rates of maternal mortality ratio and stillbirth rate increased, and immunization services were disrupted (Delamou

et al., 2017). By 2017, maternal and child health services had not recovered to their pre-outbreak levels (Delamou et al., 2017). During COVID-19, polio vaccination campaigns have ceased, and 23 countries have suspended measles immunization (United Nations, 2020a). A British study recently found that 26% of 2,111 included children with mental health needs were unable to access mental health support during COVID-19 (Young Minds, 2020a). Further, the Secretary-General of the UN warned that "there could be hundreds of thousands of additional child deaths in 2020" as a consequence of interrupted health services and global recession (United Nations, 2020a). A recent analysis based on the worst of three scenarios in 118 low- and middle-income countries estimated that an additional 1.2 million under-5 child deaths could occur within just 6 months due to reductions in routine health services due to COVID-19 (Roberton et al., 2020). Fair, affordable, and intergenerational access to health care facilities thus remains a central challenge in times of crisis.

School's Out: Consequences of Kindergarten and School Closures

Educational institutions are of central importance for the health and development of children and adolescents. By leaving children homeschooled, states structurally deprive their opportunities for growth and development since school closures have been associated to hurt children's prospects, which, without intervention, may persist lifelong (United Nations, 2020b). The high social and economic costs of school closures are particularly severe for low-income families (UNESCO, 2020b). Besides increased exposure to violence and exploitation, gaps in childcare—since working parents may, in absence of other options, leave their children alone—increase negligence and isolation (UNESCO, 2020b). Evidence suggests that children lose their cardiorespiratory fitness when schools are closed during holidays as they are physically less active and have irregular sleep patterns, much longer screen time, and less favorable diets (Brazendale et al., 2017; Wang et al., 2019). These negative effects are exacerbated by enforced isolation at home resulting in limited interaction with peers and natural environments leading to reduced physical activity outdoors. Additionally, as seen in different regions worldwide after disasters like epidemics, with school closures sexual exploitation of girls and young women rises (Plan International, 2014), teenage pregnancies increase (Quartz Africa, 2015), child labor grows, and more children are recruited into militias (Baytiyeh, 2018).

Even though the lockdown could entail opportunities for personal growth and family cohesion, disadvantages such as anxiety, lack of peer contact, and reduced opportunities for stress regulation pose a major health challenge. It is known that isolated or quarantined children are at increased risk of developing acute stress disorder, adjustment disorder, and grief, with 30% meeting the clinical criteria for post-traumatic stress disorder (Sprang and Silman, 2013). Furthermore, due to the feelings of frustration and agitation and due to issues related to parental unemployment or loss of household income, aggression may arise. The extent to which the combination of public health disaster and economic crisis affects people can be seen, among other things, in their consumer behavior: In March 2020, supermarket sales of alcohol in the UK rose by 22%, suggesting increased consumption of alcohol at home (The Times, 2020), and in the USA, gun sales have skyrocketed with an increase of 85% compared to March 2019 (Mannix et al., 2020).

Protecting Some, Harming Others

By May 2020 at the latest, it had become clear that UNICEF was right with its early predictions and governments worldwide had taken no or insufficient measures to protect children during isolation measures: China reported a 40% increase in children abuse (Campbell, 2020); the UK children's charity NSPCC reported a 20% rise in calls coming mostly from neighbors, extended family members, or delivery drivers (BBC, 2020); Germany's "Number Against Grief" reported a 22% increase (Die Bundesregierung, 2020); an online survey with 8,000 German families found one-third of all children between 3 and 15 years are having difficulties with the isolation (Deutsches Jugendinstitut, 2020). A Chinese study found that clinging, inattention, and irritability were the most severe psychological conditions demonstrated by children between 3 and 18 years during COVID-19 isolation (Jiao et al., 2020). In particular, children and adolescents with mental health or special education needs suffer as schools keep being closed: A British survey found that for 83% of all included youngsters with mental health needs, the pandemic had worsened their conditions (Young Minds, 2020b). The extent to which children are affected by the isolation measures only becomes clear with latency: In the 1st weeks of the lockdown, many states have seen reductions in the number of calls to child welfare hotlines because people trained to recognize abuse or neglect like teachers and educators were not seeing the children anymore (Human Rights Watch, 2020).

BEYOND COVID-19: INTERGENERATIONAL AND ENVIRONMENTAL INJUSTICE IN PUBLIC HEALTH POLICIES

The COVID-19 outbreak is—as approximately three-quarters of emerging infectious diseases in humans—zoonotic in origin (Jones et al., 2008) and has thus been triggered by human–animal interaction. Eventually, the health threat, which is a direct consequence of human–environment interaction, has resulted itself in numerous impacts on the environment with both positive and negative consequences: While the global reduction in human activity such as the decline in plane travels, drop in air pollution, and reduction in carbon emissions was named "anthropause" due to its temporarily positive environmental effects (Rutz et al., 2020), emissions rebounded quickly and negative consequences of the lockdown included illegal deforestation, reduced environmental diplomacy efforts, poaching, and increased burden of plastic waste due to the usage of disposable personal protective equipment (PPE) such as masks and gloves (El Zowalaty et al., 2020). The extent to which intergenerational health prevention and environmental justice are blocked by neoliberal forces that pitch population

health against economic stability of the country (Smith and Judd, 2020) became particularly visible when, after an initial drop in the infection rates, states gradually "restarted" their economic, but not their education system and did neither use the potential of the "anthropause" to reduce long-term environmental health threats. By May 18th, when several states had at least partially restarted their economic activity, UNESCO counted still 1,210,295,995 (1.2 billion) learners in 156 countries affected by school closures (UNESCO, 2020a).

The unbalanced distribution of intergenerational interests regarding health policies has been evident before and will continue to be a key challenge on a global scale: In the disease continuum from acute to chronic, scientific evidence shows that there are increasing threats to children as, due to increased environmental threats, it is "highly probable that this current pandemic will be neither the last nor the worst global health crisis of the present century" (Horton, 2020). Recently, in particular, young people made increasing demands that their (future) health and well-being must be integrated into current policies as children across the world will be worst affected by climate change and its associated consequences on health (Watts et al., 2019). Compared to an acute infection by a virus, chronic and long-term environmental damage is less immediate and cannot be compared in its biological and physical ramifications. However, the response to these two distinct and different health threats gives an insight into the unequal weighting of generations and power asymmetry in public health policies decided and implemented by most governments mainly against a neoliberal backdrop with individualism, free market, privatization, and deregulation influencing their decisions (McGregor, 2001): Both events present themselves as serious health threats against which preventive measures are, according to current scientific knowledge, needed. However, the two threats differ substantially in their respective target groups: The virus presents itself as a danger for adults and elderly; climate change, on the other hand, threatens the current young generation. Additionally, while children in particular suffer from unintended disadvantages through COVID-19 measures, mitigation and adaptation strategies against climate change would mostly affect adults and the economic system. Whereas transnational regulations and autocratic decisions were taken to contain the virus including control and sanctions of transgressions, there are neither rigorous measures nor sanctions for the long-term damage caused by anthropogenic activity (e.g., climate change) as the failure to implement the Paris Agreement by all major industrialized nations impressively proved (Victor et al., 2017).

The weighting and assessment of intergenerational health effects would change the way we perceive and classify health threats as the focus shifts away from temporal immediacy targeting high-income age groups and economic efficiency toward long-term social and environmental dynamics for those groups, who are relatively marginalized in the political spectrum. Accordingly, an intergenerational analysis would influence the valuation and alter thus the development and implementation of health measures. With the intergenerational shift in emphasis toward "non-economic" target groups, environmental and social health risks, whose long-term consequences only emerge

over time, are recognized in the present, enabling timely primary prevention. Intergenerational justice remains therefore an efficient health measure for all those whose participation in society is limited or non-existent due to their age or because they have not yet been born.

ACTIONABLE RECOMMENDATIONS

Intergenerational Assessment Models

Beneficence, non-maleficence, and justice are fundamental ethical principles in health promotion; however, existing tools for consistent moral decision-making such as Seedhouse's Ethical Grid (Seedhouse, 2008) are usually single-generational and referred to solving an immediate problem as identified via health parameters. While Integrated Assessment Models (IAMs) (such as DICE or PAGE2002) are widely used to evaluate climate policies over long periods of times and for different generations (Kaplow et al., 2010), (global) health policies as well must integrate intergenerational effects over time and environmental dynamics to set the right course for health-promoting measures. The principle of non-maleficence must thus be evaluated in an intergenerational manner to find healthy solutions for every age group.

Working Together: Transdisciplinary and Gender-Balanced Cooperation

Major societal challenges such as acute or chronic health threats require age-inclusive prevention and crisis management through inter- and transdisciplinary cooperation between different actors and disciplines. In addition, each task force advising decision-makers should be as diverse as possible in terms of a gender-equitable distribution: Female policymakers give more attention to social welfare and policies regarding children and adolescents (Solheim, 2000; Forbes, 2020; United Nations, 2020c). Therefore, separatism in terms of age-, discipline-, or gender-stratified division in the ranks of the policymakers does not offer a future-oriented and inclusive solution to immediate or longer-term health challenges.

Environmental Protection Is Health Protection

The environment influences our health in many ways. In particular, children are most vulnerable to environmental influences as it is long known that children bear the highest death toll by environmentally caused deaths yearly, mostly in developing countries (WHO, 2006). For this reason, environmental changes and factors must have important policy implications and governments worldwide should adhere to the environmental protection measures proposed by expert commissions (e.g., the UNFCCC), since environmental protection measures translate into health protection—especially for the younger generation and for the next generations that have not yet been born.

Targeting and Tailoring

What is good for one group does not have to be good for another: COVID-19 illustrated that there is an imminent need for

age-specific risk assessments in order to enable age-appropriate and tailored interventions. In this specific case, access to schools, kindergartens, and colleges must be considered public health priority and should be guaranteed while maintaining age-appropriate hygienic measures. More so, current evidence on COVID-19 transmission suggests that children are unlikely to be the main drivers of the viral transmission and school and kindergarten openings would unlikely impact COVID-19 mortality rate (Ludvigsson, 2020). In any case, school closures must be kept as temporary and short-term as possible and can, under no circumstances, become a long-term preventive measure. Political decision-makers must therefore weigh up direct damage with indirect damage for each age group. Even in the context of a pandemic, acceptable solutions in accordance with hygienic precautions (e.g., sufficiently large rooms, good ventilation, breaks in smaller groups etc.) must be provided to allow development and education in the community.

Buffer Secondary Damage

Flat-rate solutions do not meet people's heterogeneous needs and different living realities: Where secondary damage occurs, countermeasures must be taken. In the case of school closure, governments are for instance urged to act against the unintended and negative effects on children and adolescents: teachers must be provided with didactic measures and families must be provided with adequate equipment in case they cannot afford it. Social assistance to families needs to be expanded, low-threshold contact opportunities for children and young people must be provided, and the continuity of nutrition programs and maternal and newborn care must be prioritized. Solutions to buffer collateral damage must be developed for any age group also for example for people in isolated retirement homes (Plagg et al., 2020). Environmental damage caused by preventive measures (e.g., increasing toxic or plastic waste) must be avoided and prevention measures that go along with changing consumer behavior and altered production chains (e.g., masks) must be designed as environmentally friendly as possible. National and local governments are urged to treat health care and non-health-care waste management as an urgent and essential public service.

Do Not Prioritize and Marginalize

In the provision of plans, resources, and support, no age groups should be preferred: State subsidies must, for instance, be assigned based on the different needs of every age without prioritizing specific groups and marginalizing others according to neoliberal principles and capitalistic interests. Altogether, it is neither efficient nor justifiable to restart most branches of the economic system while leaving the educational system on hold and neglecting environmental protection. Because society functions only as a whole, the marginalization of certain groups ultimately always harms others, too.

Between Local Action and Global Needs

The pandemic has shown that protectionist tendencies become stronger in a crisis. The USA has, for instance, withdrawn from the WHO and there has been less cooperation than competition in the distribution of medical and non-medical resources (Horton, 2020). Why countries and regions with different health systems and socio-political contexts find it difficult to cooperate is a discussion going beyond the scope of this article; however, such cooperation (from local to global level) must be strived for, because major health challenges such as a pandemic or climate change cannot be solved by individual countries alone.

After all, and beyond the current crisis, the welfare of the younger generation and the long-term impact on their lives must be included in informed decisions on adaptation and mitigation strategies for all kinds of global and collective health threats. Both in crisis management of acute hazards and in dealing with long-term threats, an intergenerational approach focused on risk reduction for all age groups is imperative and must be a core part in the development and implementation of current policies.

CONCLUSIONS

The handling of the pandemic illustrates missing intergenerational approaches within the development and implementation of health-promoting measures even in otherwise relatively inclusive societies: As soon as a crisis affects society as a whole and resources need to be allocated and measures prioritized, a strong age gradient leads to marginalization of the youngest [and also the oldest (Plagg et al., 2020)]. In our societies, already skewed in favor of economic privileges, disadvantages follow a strong intergenerational gradient, whose climax is to be found in childhood and youth.

Eventually, the pandemic has opened up generational rifts, but it has also shown one thing: How intertwined humans are across generations in all their diversity because health has become—against the background of a globalized world, the influence of environmental agents, and the social determinants on human health—more than ever a social and collective challenge, rather than an individual good.

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COVID-19 in Rural India, Algeria, and Morocco: A Feminist Analysis of Small-Scale Farmers' and Agricultural Laborers' Experiences and Inventive Practices

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In this paper we present a situated analysis of the implications of the COVID-19 pandemic on the life of small-scale farmers and agricultural laborers in India, Algeria, and Morocco. We draw on data collected through phone interviews since April 2020. Inspired by feminist scholars, we analyze our findings thinking with—and entangling—the concepts of intersectionality, resilience and care. We firstly document the material impacts of the lockdown measures, focusing particularly on the experiences of single women farmers and laborers, whose livelihood and well-being have been notably compromised. Secondly, we unfold how different agricultural actors have come up with inventive ways to respond to the unexpected situation which they are facing. In doing so, we highlight the importance of considering the multiple and entangled socionatural challenges, uncertainties, and marginalizations that different agricultural actors experience, as well as the transformative potential of their inventive practices, which are often motivated and informed by notions of care.

Keywords: COVID-19, small-scale agriculture, intersectionality, resilience, care, India, Morocco, Algeria

INTRODUCTION

In March 2020, when lockdown measures were announced in many countries across the world, people were urged, if not obliged, to stay home and keep distance from each other in an attempt to slow the spread of COVID-19. Many businesses, local shops and markets had to temporarily close and national and international transportation was almost completely halted. We too, the authors of this paper, all of a sudden had to put our fieldwork in rural areas of Algeria, India, and Morocco on hold and in some cases be repatriated.

We work in different agrarian contexts, where we analyze processes of agrarian change from a feminist critical perspective. It felt somehow sad and surreal to leave the places where we conduct our empirical research, particularly because we knew about the many challenges that the small-scale farmers and the agricultural laborers[1] we regularly spent time with were facing both because of the COVID-19 health threat itself and because of the implications of the lockdown measures. The situation prompted new, sometimes troubling questions. It, for instance, made us painfully aware of how we are very differently affected by the pandemic than the farmers and laborers whom we study (with). After all, for us it was relatively easy to work from home and we would still receive our salaries. Those who depend on farming to make a living faced more challenges: when local markets are closed, where are they supposed to sell their produce? And if agricultural laborers cannot travel to their workplaces, how can they continue to sustain themselves and their families? How are they dealing with this situation? How have they reinvented the everyday organization of their livelihoods in these troubled times? In other words: what are the short-term implications of the pandemic for the farming practices and livelihoods of people relying on small-scale agriculture?

Starting off with this question, our main objective was to better understand how COVID-19 and the related lockdown measures reveal and sometimes exacerbate existing inequalities but also provide space for new inspiring initiatives and practices to emerge. Hence, we conducted from March to November 2020 a series of phone interviews and surveys with different groups of farmers and farm laborers in Maharashtra (India), in the agricultural plains of the Gharb and the Saiss regions and in the Draa Valley (Morocco), and in the M'zab valley (Algeria). In this paper, we present and analyze the findings of our remotely conducted fieldwork.

Notably, the socionatures and histories of Morocco, Algeria and India, and of the specific regions in which we work, are very different. However, a common thread between these countries relates to the importance of small-scale agriculture for the national economy and in supporting the livelihoods of a big slice of the population. In India, small-scale holdings (<2.0 hectares) comprise 86% of total land holdings [Government of India (GoI), 2019]. In Algeria as well, 70% of farmers are small-scale farmers, according to the agricultural census of 2001 [Food and Agriculture Organization (FAO), 2020]. A similar situation exists in Morocco, where small farms make up 70% of total landholdings (Verner et al., 2018). In addition, in the three countries, agricultural wage work is extremely important for the livelihood of the rural population [The World Bank, 2019; Food and Agriculture Organization (FAO), 2020; Kumar et al., 2020]. Although often working in poor conditions and without contracts or access to social security, agricultural laborers contribute greatly to make the agricultural sector of each

respective country flourish (Bossenbroek, 2016, 2019; Théroux-Séguin, 2016).

Moreover, similar processes of agrarian change have characterized these three countries in the past decades. Neoliberal-driven reforms have encouraged farmers, including small-scale farmers, to start cultivating more and more commercial crops for national and international markets (see among others Akesbi, 2011; Joy et al., 2014). Changes in cropping patterns have gone hand in hand, among other dynamics, with (ground)water overexploitation (e.g., Llamas and Martínez-Santos, 2005; Shah, 2005; Kulkarni and Shankar, 2014; Bossenbroek et al., 2015), increased land tenure insecurity, higher agricultural costs and thus indebtedness and exposure to market volatility (e.g., Mohanty, 2005; Joy et al., 2014). Drought, water salinity and irregular precipitation patterns also posed significant challenges for farmers (e.g., Kuchimanchi et al., 2019). On top of this, COVID-19 and the related lockdown measures disrupted the global food production and distribution system, exacerbating existing inequalities at different scales (Clapp and Moseley, 2020; van der Ploeg, 2020). As such, the pandemic more forcefully brought to light the dimensions of an ongoing crisis that small-scale farmers are already experiencing in terms of ever greater uncertainties and unpredictabilities. Yet how these crises and processes of change become manifest in individual lives and livelihoods shaped by prevailing axes of social differentiation alon along the lines of gender, class, and age (O'Hara, 1998; Ramamurthy, 2003; Bossenbroek et al., 2015; Bossenbroek, 2016; Domínguez Guzmán et al., 2017; Domínguez Guzmán, 2019).

In this paper, we propose a modest and situated analysis of the implications of the COVID-19 pandemic on the lives of different actors involved in small-scale agriculture, drawing on their personal experiences and narratives. However, rather than drawing comparisons between the different cases, or using our empirical material to identify larger generic patterns, our aim is to engage in a joint reflection and conversation about our observations, findings and interpretations. In presenting and analyzing our data, we try to remain as faithful as possible to the complexity of the documented experiences, relations and practices of the different agricultural actors we talked to, by carefully and humbly listening to their many different voices (O'Hara, 1998; Ramamurthy, 2003, 2010; Bossenbroek et al., 2016; Domínguez Guzmán et al., 2017). Doing this shifts the attention away from how COVID-19 has emphasized the violent features of the modern industrial agriculture and food system (Béné, 2020; Clapp and Moseley, 2020; Timilsina et al., 2020; van der Ploeg, 2020), to instead shed light on the very material implications of COVID-19 on the everyday lives and livelihoods of people involved in small-scale agriculture and their inventive practices to address them as good as they can.

In paying attention to the complexities and specificities of everyday experiences, we are inspired by feminist ethnographies that let small facts speak to large issues, or large concerns (Gibson-Graham, 2014). For us this means conducting a careful empirical work, drawing on the everyday to appreciate the multiplicity of different people's lived experiences, relations, and practices. It also means that we do not analyze the mundane, the empirical, as an incidence of a larger structure or discourse, but

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[1] With small-scale farmers and agricultural laborers, hereafter also referred to as agricultural actors, we mean people involved in small-scale agriculture: some of them farm only on their own -or their household's-land (no more than 2.0 hectares); some also work on other people's farm to complement their income; some do not own land and work exclusively for others.

as a moment that is "sensitizing but also unique" (Mol and Law, 2002: 16). After all, as critical ethnographers—we do not aim to "fabricate bounded, coherent, and essentializing 'cosmologies'" (Bonelli, 2016), nor does our form of theorizing consist of either confirming or refuting larger structures or patterns of change. Rather, we use theory to think with, letting our rich but also partial and incomplete empirical material to converse with theory (see also Domínguez Guzmán, 2019).

The paper is structured as follows. In the next section we introduce the theoretical concepts we use to read through the ethnographic material and weave together connections across sites. Thereafter, we discuss more in detail the contexts of our research and the methods we used in the different countries to collect data, including reflections on the challenges of conducting fieldwork remotely. Our analysis is then presented along two main research lines. Firstly, employing an intersectional lens, we focus on how different small-scale farmers and agricultural laborers experience COVID-19 and the lockdown in various material ways. Thereafter, our second line of analysis focuses on individual and collective responses of different agricultural actors to respond to the challenges faced during the COVID-19 lockdown. In the final section, in light of our analysis and process of joint learning, we will draw some conclusions.

INTERSECTIONALITY, RESILIENCE, AND CARE: CONCEPTS TO THINK WITH

The three main theoretical concepts we interweave and use in this paper to think with our empirical data are intersectionality, resilience, and care. We decided to engage with them as they kept emerging in our conversations since we started our research project. We acknowledge that these concepts are at the center of important theoretical debates. For this reason, we here briefly unfold how we approach and mobilize them empirically as they are useful for understanding our data.

Firstly, intersectionality, as a concept developed in feminist literature, allows us to think how inequalities-and the different types and degrees of exclusion and oppression that they entail-are often shaped by different and intersecting systems of domination (e.g., Crenshaw, 1989; Yuval-Davis, 2006; bell hooks, 2014). In this regard, feminist political ecologists, have shown how, especially in agrarian contexts, access, and use of natural resources-and thus also roles, responsibilities, labor relations and decision-making processes-are very much shaped by intersecting axes of social differentiation such as gender, class, caste, age, ethnicity (see among others, Crow and Sultana, 2002; Gururani, 2002; Harris, 2006; Nightingale, 2006, 2011; Elmhirst and Resurreccion, 2008; Sultana, 2011). Though we do not have all data needed to conduct an in-depth intersectional analysis of the implications of COVID-19 in the contexts where we work, throughout our discussion we remain sensitive to how experiences and responses differ among different respondents. Importantly, in the three countries where we conducted research, deeply patriarchal social structures permeate various levels of governing land (and other) resources, and contribute to the reproduction of a public imagination of the farmer as an

individual adult or elder male landowner. In India, patriarchal discourses importantly interweave with the caste system to constitute institutional and social dynamics in which (single) women farmers and agricultural laborers from scheduled castes are often the most marginalized and discriminated (Agarwal, 1992, 2003; Chakravarti, 1998; Chen, 1998; Kulkarni and Bhat, 2010; Padhi, 2012; Krishna and Kulkarni, 2018). In the Moroccan and Algerian contexts as well, different studies have illustrated how patriarchal family and kinship hierarchies and existing gendered social-cultural norms hamper rural young women to pursue their farming aspirations and their possibility to access resources (Salhi, 2010; Bossenbroek et al., 2015; Ftouhi et al., 2015; Lahmadi et al., 2016). Certainly, we recognize that gender relations, roles, and responsibilities unfold differently in the three countries, also intersecting with age, class, ethnicity factors. At the same time, while being cautious of generalizations, we trace some common and interesting threads weaving the experiences of some groups of agricultural actors in the three countries.[2]

Secondly, the notion of resilience has been used across different epistemic communities and fields, ranging from mathematics, physics, and engineers to ecology and social sciences, development studies, and urban planning (for reviews of studies on resilience see Cote and Nightingale, 2012; MacKinnon and Derickson, 2012; Simon and Randalls, 2016). It has been mobilized by scholars and policy-makers, practitioners, and activists, in multiple, malleable, and often very abstract ways, generally referring to the capacity of a system, or a group of people to respond, adapt, or deal with crises, change, and uncertainty (Walker and Cooper, 2011; MacKinnon and Derickson, 2012; Simon and Randalls, 2016). The term resilience has often been used as a "boundary object," "floating between descriptive and normative meanings" (Brand and Jax, 2007). One of the most well-known and discussed approaches to resilience thinking originates in natural sciences and ecology but integrates social components to study the capacity of socio-ecological systems (SES) to continue functioning in spite of change. This approach inspired social scientists to conceptualize social resilience as the capacity, or strategies, of people living in different environments to cope with external (social, political, and/or environmental) disturbances (Adger, 2000). Yet many theoretical approaches to resilience, and particular the socio-ecological systems framework, have been criticized by political ecologists as they fail to account for the violence and power hierarchies structuring the systems, or the orders that are disrupted or threatened (Ingalls and Stedman, 2016); and for ignoring the plurality of epistemologies and ontologies that co-exist and co-produce the world (Bell, 2005; Walker et al., 2006; Cote and Nightingale, 2012; Tozzi, 2021). In other words, too often resilience has been mobilized as a tool serving (neoliberal) governance programmes, where

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[2]Recent (feminist) scholarly work on the implications of COVID-19 particularly in urban contexts further pointed out the usefulness of adopting an intersectional approach. Some groups have been affected by this global pandemic much more than others: minorities (especially ethnic minorities), socio-economically disadvantaged people, the elderly and women (Agarwal, 2020; Ali et al., 2020; Bahn et al., 2020; Butler, 2020; Hay, 2020; Kulkarni, 2020).

authorities are de-responsibilized and individuals—especially those most marginalized—are urged to cope, adapt, and sustain themselves in the face of multiple stresses and contingencies (Welsh, 2014). In this regard, MacKinnon and Derickson (2012: 263) have proposed the notion of resourcefulness as an alternative to resilience in order "to problematize both the uneven distribution of material resources and the associated inability of disadvantaged groups and communities to access the levers of social change." Other scholars have preferred to stick to the term resilience, but they similarly emphasized the importance of approaching it in a context-specific manner that seeks to consider, among other elements, the very material challenges that different individuals and groups face (e.g., limited, uncertain, or difficult access to resources) as politically charged issues of maldistribution and misrecognition (see among others Cote and Nightingale, 2012; Locke et al., 2014; Jordan, 2019). In other words, sociocultural factors and relations of power-often embedded in institutions-significantly shape the response options available to different actors to make decisions and act in relation to change (Cote and Nightingale, 2012; Tozzi, 2021). Hence, the importance of unfolding and embracing the specific ways of knowing and being of different individuals and groups, as they shape-situated-priorities and ways to respond to crises (Cote and Nightingale, 2012; MacKinnon and Derickson, 2012; Tozzi, 2021). This way resilience can become more than a process to maintain—or return to—particular socionatural configurations; it can open up ways to transform those configurations in attempts to circumvent the disturbances that caused the struggles in the first place.

Thinking with resilience from this critical and grounded perspective allows us, first of all, to identify and document the material challenges that different people involved in small-scale agriculture are facing in the context of COVID-19 and the socionatural and political dimension of those challenges, which go much beyond the current pandemic. Secondly, it inspires us to reflect on how different agricultural actors persist, adapt, and transform (see also Keck and Sakdapolrak, 2013), individually and collectively, in light of these challenges through everyday practices informed by a cumulative process of learning, sometimes mediated by other actors, including the government, civil society, researchers-activists, and other organizations.

The last concept we will use to think with throughout our empirical analysis is the concept of care. Care has been used in many different ways by feminist scholars, especially in feminist political economy and feminist political ecology scholarships. In the context of our research we approach care in two entangled ways. On the one hand, we look at care work in relation to the fundamental practices that ensure social reproduction (especially domestic work and taking care of children), which are often invisibilized and fall beyond the paid economy. This is because COVID-19 and the related lockdown have underscored the enormous importance of care work, both in the private and in the public domains, and how this is overwhelmingly performed by women (Bahn et al., 2020; Craig, 2020; Power, 2020). At the same time, we reflect with care in a broader sense. Following the feminist scholars Fisher and Tronto (1990: 40), we embrace a definition of care as "everything that we do to maintain, continue,

and repair 'our world' so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all that we seek to interweave in a complex, life sustaining web." Drawing on this definition, Puig de la Bellacasa (2012) emphasizes the relational character of care: we care because we are interdependent. In this regard, practices of care can encompass both professional and everyday types of care, being the "persistent tinkering in a world full of complex ambivalence and shifting tensions" (Mol et al., 2010: 14). In this broader sense, care blurs the divide between rational, technical, and emotional (Mol et al., 2010; Puig de la Bellacasa, 2017) but also between the private and the public, the personal, and the political (Escobar and Harcourt, 2005; Mol et al., 2010; Tronto, 2013). Practices of care can be driven both (and often simultaneously) by deliberate affection and love, and by a sense of obligation and constraint (Puig de la Bellacasa, 2012), involving both the human and the more-than-human world (Puig de la Bellacasa, 2012, 2017). In our research, we shed light on how different actors involved in small-scale agriculture engage in, perform and re-think practices of care in times of COVID-19, to support their own and their loved ones' well-being. Unfolding how these practices are or are not mediated by other actors (e.g., government, civil society) and how they may involve the more-than-human world provide interesting insights in how people relate and collectively cope with change, potentially in transformative ways.

METHODOLOGY AND RESEARCH CONTEXTS

How do ethnographers and activists work "from home" during a global pandemic? When the lockdown started in March 2020 we did not have a straightforward answer to this question. Perhaps no one did. Resources and literature on digital ethnography and on conducting surveys and interviews remotely started to abundantly circulate through university and research networks mailing lists (see among others the repository compiled by Lupton, 2020). Though research has been conducted remotely by phone or through digital platforms for many years—mostly focusing on western societies—COVID-19 caught everyone unprepared, especially researchers/activists working in rural areas or in low and middle-income countries. In most cases-including ours—conducting remote fieldwork became the only option to continue doing ethnography.

We wanted to remain engaged with the farmers and agricultural laborers with whom we had been working before the lockdown in different areas of Algeria, Morocco, and India (**Figure 1**). We did not want to disappear safely in our home offices during such worrisome circumstances. We thought that perhaps it was exactly in these times that research and activist engagements become even more important: when new challenges emerge, worlds are shaken, dynamics of exclusion, and oppression may (further) materialize, but also where potentially unexpected changes for the better may begin and promising alliances might be formed.

In all three countries, our research idea was motivated by the importance of carefully listening to the voices of farmers and

FIGURE 1 | Map of study areas in Algeria, India, and Morocco.
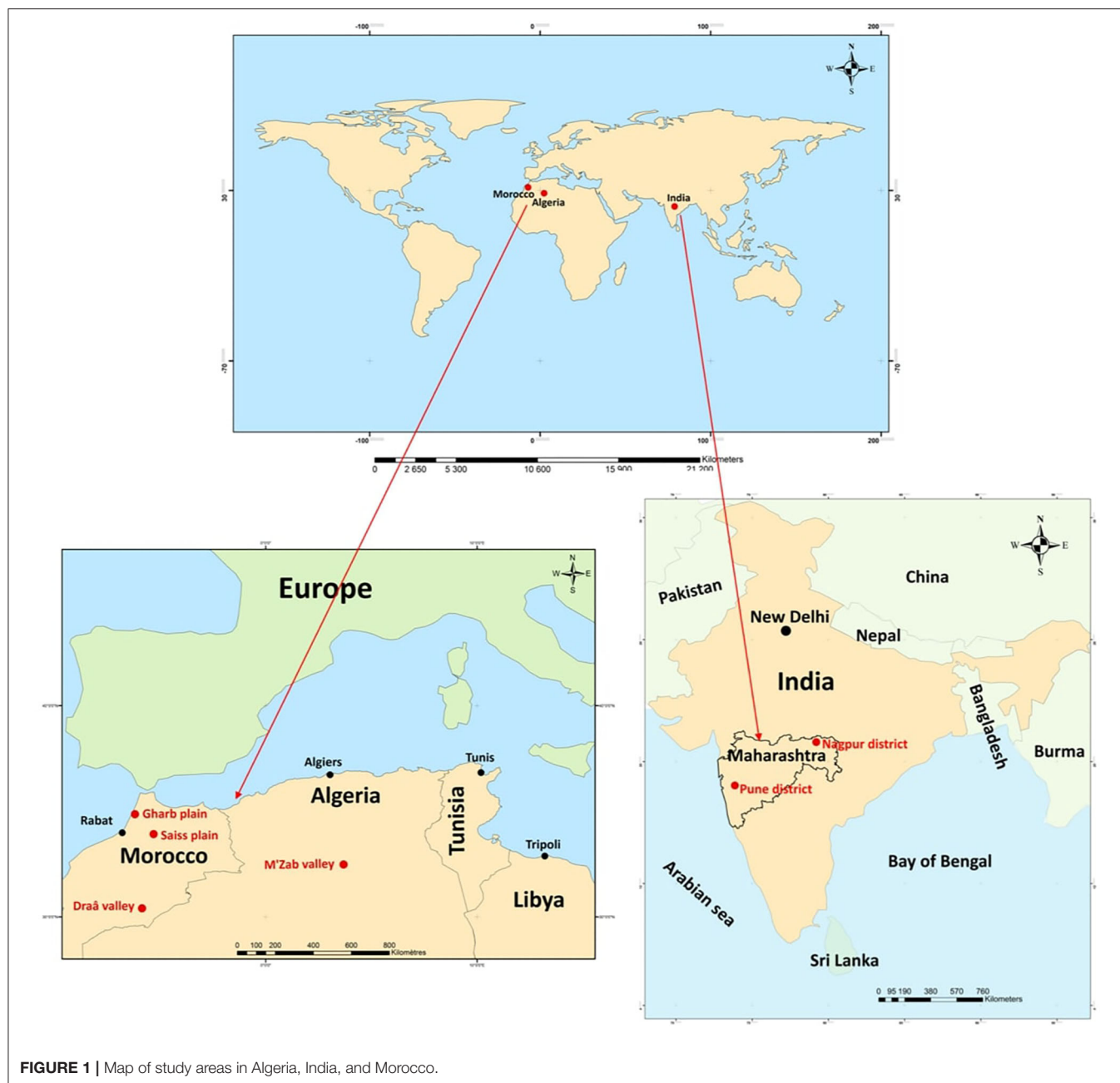
agricultural laborers who already dealt with so many entangled challenges and uncertainties and who belong to the poorest sections of the rural population. Not only to trace and shed light on their possible further marginalization in the context of a global pandemic, but also to identify and give space to their strength, their ways of rethinking how to survive and take care of their current and future well-being. We collected data mostly through phone interviews with farmers and agricultural laborers between March and November 2020. Text messages and photos exchanged through mobile phones apps have also been part of the data collection process. However, each country team also developed their own specific methods and involved different

respondents (see **Table 1** for more details), based on existing contacts and focus of different ongoing research projects.

Conducting fieldwork remotely is challenging and very different from the face-to-face ethnographic experience we are used to. We may imagine where different respondents are while talking to us on the phone and who is around them, but we do not really know. The richness of an embodied ethnographic encounter is lost. The lack of information on non-verbal communication, places (e.g., homes, farms, squares), smells, sounds, circumstances, force us to conduct our data analysis and write our ethnographic narrative remaining almost exclusively at the level of the spoken conversation, of the text

TABLE 1 | Methods used in the different study countries.

Country	Location	Methods
India	Maharashtra state	40 telephonic interviews conducted between April and November 2020 with women farmers, and agricultural laborers from seven districts of Maharashtra, and particularly Pune and Nagpur districts. Telephone survey of 946 single women farmers and agricultural laborers across 17 districts of Maharashtra, conducted through the MAKAAM network.
Morocco	Draa Valley, the Saiss Plain, and the Gharb Plain	70 semi-structured telephone interviews conducted with farmers (5 of which were women) and agricultural laborers (all men) conducted between April and November in the Draa Valley. 15 semi-structured telephone interviews with female agricultural laborers and farmers (men and women) in the Saiss Plain and the Gharb Plain and 12 structured questionnaires with female agricultural laborers. Interviews were supplemented by photo and video exchanges and voice messages shared through WhatsApp.
Algeria	M'zab valley	77 telephone interviews with men farmers and breeders, agricultural laborers mostly from Sub-Saharan countries, sellers of agricultural inputs and civil society; follow-up of the interviews through WhatsApp and Facebook.

(Holt, 2010). Only in a few cases we were able to conduct video phone calls and receive pictures through mobile phone apps accompanying the narratives of our interviewees.

As mentioned before, the cases we study are differentiated by their socionatural character and historic formation. In India the study was conducted in the state of Maharashtra: this is the most industrialized Indian state, though about half of its population lives in rural areas and agriculture is still the main occupation (Yadu and Satheesha, 2016). In the past 40 years, Maharashtra has faced several dimensions of an agrarian crisis related to processes of agrarian change involving water re-allocation from subsistence farming to commercial farming, exploitative employment of agricultural laborers in agribusinesses, increased indebtedness of small-scale farmers, farmers' suicides (Mohanty, 2005; Sahay, 2010; Joy et al., 2014). Our research focused mostly on women farmers and agricultural laborers, and particularly single women (unmarried, deserted, widows). In fact, though about half of the people involved in small-scale agriculture in Maharashtra are women, they are often socially and institutionally not recognized as "farmers," something documented also in other parts of India (Agarwal, 2003; Kulkarni and Bhat, 2010; Padhi, 2012). The data collection was conducted in close collaboration with MAKAAM (Mahila Kisan Adhikar Manch), a nationwide network of activists, women farmer collectives and organizations working to secure due recognition and rights of women farmers.

In Morocco our fieldwork covered three regions: the Draa Valley, the Saiss, and the Gharb Plain. The Draa Valley, in the south-east of the country, is known for subsistence farming. However, in recent years, new agricultural investors have entered the region and an increasing number of local farmers, mostly young local farmers, started cultivating commercial crops, and particularly watermelons, both aimed for the national and international markets. Changes in the agricultural landscape of the Draa Valley have created new opportunities for young farmers but have also gone hand in hand with new dynamics of socionatural exploitation. Water is becoming scarcer due to droughts and over-exploitation (Karmaoui et al., 2016; Bossenbroek, 2019; Berger et al., 2021)—putting at risk the livelihoods of small-scale farmers who cannot compete with larger, wealthier farmers. In the Saiss and the Gharb Plains, in the North of Morocco, our investigations focused mainly on

the experiences of women agricultural laborers. These regions constitute two of the main agricultural basins in Morocco. Whereas, the Gharb is famous for the production of different kinds of berries, mainly for export, the Saiss is known for the production of vegetables and recently also for different kinds of fruits. Most are sold locally; a smaller quantity is exported. Importantly, these regions attract each year a large mass of men and women who rely on agricultural wage work to support their and their families' livelihood throughout the year.

In Algeria, our work focused on the M'Zab Valley, located in the Algerian Sahara, about 600 km from the capital Algiers. Like most oases, the M'Zab Valley is characterized by the coexistence of two agricultural landscapes: the ancient palm groves created in the eleventh century, where traditional palm trees are cultivated, and the new agricultural extensions created in the 1980s, located at the periphery of the old palm groves (Bisson, 2003; Hamamouche et al., 2018). These extensions are characterized by diversified farming systems mainly oriented toward the intensified cultivation of commercial palm trees and horticultural crops (Cote, 2002). The M'Zab Valley faces several processes of degradation mainly due to rapid urbanization and degradation of natural resources—in particular the depletion and pollution of aquifers—which raises concerns about the sustainability of palm groves cultivation, but also of the existing oases (Bouchair, 2004). In this area, we conducted interviews with different local actors: local farmers and breeders, sellers of agricultural inputs and people working in the civil society. Though women and men work together in the farms-performing different tasks—we unfortunately were able to get in touch only with men. Differently from Morocco and India, in Algeria we had no direct contact with women farmers before starting this research and because of the patriarchal norms characterizing the Mozabite community, we were not able to get in touch with women farmers remotely. For this reason, in our analysis, we will be extra cautious in interpreting second-hand data on women farmers and agricultural laborers in Algeria. We also interviewed men agricultural laborers, both Algerians and migrants coming from sub-Saharan countries. The latter are usually undocumented and work temporarily in Algeria, as they try to save money to reach Europe.

SMALL-SCALE AGRICULTURAL ACTORS AND THE MATERIAL IMPLICATIONS OF COVID-19

In what follows we illustrate some of the material consequences of the COVID-19 crisis on different actors involved in small-scale agriculture and how these interweave with existing socionatural challenges and uncertainties. In doing so, we also zoom in on the experiences of women farmers and agricultural laborers, particularly widows and single women in India and in Morocco who have been notably impacted by the pandemic and by the constraints imposed by the lockdown. We unfold how the lockdown measures affected farming and labor practices as access to the market was limited and mobility and work opportunities constrained. Moreover, we reflect on women farmers and agricultural laborer's increase in unpaid care work and on their limited access to government support schemes.

Difficulties to Commercialize Crops

As soon as the lockdown started, at the end of March 2020, small-scale farmers started facing difficulties to sell their produce. Often, in order to sell at least part of their harvest, they had to accept very low prices. In the Draa valley, in Morocco, the young local watermelon farmers (under 35 years old) harvested their produce in April (2020), just weeks after the lockdown started. As watermelons in this region are foremost produced for the national and international markets, farmers are strongly dependent on national intermediaries and buyers traveling to the region during the harvest period. These middlemen negotiate the price of watermelons with farmers in relation to supply availability and market demand. Due to transport and mobility constraints, and to the excessive administrative proceedings required to travel from one region to the other, only a few buyers and intermediaries were able to reach the watermelon farms. At the same time, farmers could not reach nearby cities and smaller towns by themselves and the souks (weekly local markets) remained closed due to the lockdown for several months. Consequently, these young watermelon farmers, who combine small-scale commercial farming with subsistence farming, faced difficulties in selling their produce at profitable prices. Ahmed,[3] one of them, indicates: *"There are only a few buyers and they install a monopoly on watermelons. They decide on the price, there are no other alternatives. Before when there were more buyers we were able to negotiate prices."* With watermelons only staying well for a few days, the young farmers were forced to accept low prices. Yet they had to leave part of the harvest on the field to rot.

Similarly, throughout Maharashtra, in India, when the lockdown started, most farmer markets closed, public transport was stopped and paying for private forms of transport, such as (shared) rickshaws, became unaffordable for most of the small-scale farmers we interviewed. For this reason, they had to leave much of the harvest on the field to rot. Meena, a woman farmer from the Pune district explained: *"We* [she and her husband] *had grown fenugreek but much of it got wasted because no vendors came to pick it up, and it was not possible for us to transport it*

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[3]Pseudonyms used for all names to protect the identity of the respondents.

and sell it elsewhere. Everyone from the village grows their own vegetables, so there is no market here." Not only farmers, but also cattle breeders faced difficulties during the lockdown as the demand for milk significantly decreased due to the closure of markets and restaurants.

In the M'Zab Valley, in Algeria, the prices of dates, a crop that can be stored for a very long time, dropped significantly during the second wave of COVID-19 infections, in October 2020. Farmers faced difficulties particularly in selling dates of the Deglet Nour variety, which is mainly produced in the new agricultural extensions for commercial purposes. To escape the monopoly of intermediaries who have a strong grip on the marketing price, small-scale farmers usually store this variety of dates in cooling stations. This way, they can sell them for better prices throughout the year, exporting them to Sub-Saharan countries and to Europe but also selling them on the national market at specific festivities (e.g., during Ramadan, at weddings and funerals). However, this year in October, when the new dates were ready to be harvested, the cooling stations were still packed with last season's harvest because the border traffic remained limited since March 2020, markets were closed and festivities and family gatherings prohibited. Malik, one of the farmers we interviewed, told us: *"We have spent a lot of money for pollination and for maintaining the commercial palm trees, especially the high-value varieties. We cannot stand a greater deficit year."* As a consequence, many farmers had to sell large quantities of Deglet Nour dates from last year at low prices (about half the usual price) to large local food processing companies in order to save some storage capacity for this year's harvest. In the past years, only downgraded dates were destined for processing. Other farmers decided to harvest only the dates of common varieties that are mainly for self-consumption and to delay up to 2 months the harvest of commercial varieties. For instance, Kamel explained: *"As long as I don't have better market visibility, I will delay the harvest of commercial dates."* However, this decision generated additional costs, especially water related costs: to prevent the dates from withering, farmers had to continue irrigating the palm trees while waiting to find a profitable market. At the same time, the harvest of dates could not be delayed forever as these would start rotting on the tree. After 2 months, farmers preferred to sell the remaining dates at a very cheap price than not to sell them at all, also to make sure to have greater financial liquidity to invest in the next cropping season. Less resourceful farmers who cultivate commercial dates on very small plots in the old Mozabite palm groves got even more affected, as local middlemen did not want to buy their dates in the first place, considering the uncertainty of the market. They thus had to leave much of their produce to rot in the palm groves and did not make any profit.

Our data from India shows how negotiations to market crops can be marked by gender inequalities. Small-scale women farmers in Maharashtra in general face particular difficulties to get reasonable prices for their produce. This is because women rarely own land, as they continue to be disinherited (Bhat, 2016; see also Agarwal, 2003; Kulkarni and Bhat, 2010). Hence, single women and widows often cultivate land officially owned by someone else—mostly male members of their extended family— which also limits their access to bank loans for agricultural

inputs and government support schemes. They therefore need to rely on private money lenders, having to accept very high interests. Moreover, women farmers usually have limited access to procurement centers where specific crops can be sold at government-established minimum support prices. This is also due to the fact that single women lack the required documentation to access these centers, especially those related to land titles. Besides, government procurement centers are located far from villages, and most often managed exclusively by men. Even when they do have land titles, women farmers find it very difficult to transport their produce to these centers as well as to negotiate prices. At the same time, they do not have space to store their produce at home or in the farm for a long time. For these reasons, single women farmers often do not have other options but to sell their harvest to local traders, having to settle for prices lower than the minimum support price, and thus earning comparatively less for the same effort. These dynamics of exclusion and marginalization worsened with the implementation of the lockdown measures. Reaching government procurement centers became even more difficult for women farmers; negotiating prices almost impossible. For this reason, single women and widows found themselves even more dependent on private traders and money lenders and on the male members of their extended family. The testimony of Vasanti, a widow farmer illustrates this issue: *"I had to sell my cotton to the same trader who gave me seeds and inputs on credit. Otherwise he would not extend the credit next year. I do not go to the procurement centers. Only men go to the procurement center."* This way she could at least get some return from her investment and not have to fully waste a good harvest. However, this shows how gender and marital status intersect and shape the impacts of the crisis on different groups in society. The experience of Neeta, a widow farmer who does not own any land but cultivates her father-in-law's, is also relevant in this regard. She lives in her natal village because in her marital village *"there is no place for her."* Usually she travels every day to her farm but once the lockdown was implemented, she could no longer do so. For this reason, her only option was to ask people in her marital village to harvest the produce in her farm, something that increased her dependency and indebtedness to her marital family. The circumstances created by the COVID-19 pandemic reinforced patriarchal power relations, contributing particularly to the (increased) indebtedness of women farmers and significantly hampering their capacity to make ends meet and thus also to invest in the next cropping season.

Labor Shortages and Lack of Labor Opportunities

The organization of agricultural labor has also been strongly impacted during the lockdown. This has first of all negatively affected small-scale farming families who depend on agricultural laborers and even more agricultural laborers themselves. Those households that cultivate their own land and usually hire laborers to perform some farming tasks such as weeding and harvesting, preferred to manage all the work among family members. In this way they attempted to minimize contact with other people and thus the risk of being infected as well as to limit the expenses for agricultural inputs-given the difficulties in commercializing the produce.

At the same time, agricultural laborers who are used to traveling to work on farms could not easily do so, as mobility was blocked, public transport not available and gatherings at pick-up places were not allowed. In the three-study areas in Morocco, we were told that the *moquefs*—places usually situated at the outskirts of small cities, where agricultural laborers gather in order to find a job for the day—were banned. This made it very difficult for laborers-and especially for women laborers-to find work. Men laborers had more options to organize work in alternative ways, despite the restrictions (as we will better outline in section Reinventing Farming Practices in Times of COVID-19). In some cases, they were even able to increase their profits, asking for higher wages, as farmers were in extreme need of laborers. In the Draa Valley for instance, the harvest of watermelons relies on a regional workforce with laborers (foremost men) coming from nearby towns and cities. The relatively high demand for labor compared to the availability of agricultural laborers, led to higher wages, as it became increasingly difficult for laborers to travel to and across rural areas. For example, the price of loading a truck of watermelons increased significantly. Usually, it ranges between 1,400 and 1,500 Dirham (±130 to ±140 euros), depending on the truck size, while this year, the price reached 2,000–2,500 Dirham (±185 to ±230 euros).

The situation was similar in Algeria where the travel restrictions imposed between different Algerian regions impacted on the availability of skilled agricultural laborers. Usually, the date harvest in the M'Zab Valley, and particularly the harvest of the Deglet Nour dates, relies on laborers coming from the Timimoun region, about 600 km away. In fact, laborers specialized in harvesting dates are part of a socio-ethnic group descending from the slaves that used to work in the M'Zab Valley. These used to be called "khammès" (which means sharecropper to the fifth) as they farmed the land in exchange of one fifth of the harvest. The descendants of the khammès gradually returned to their native region (Timimoun) after the land reform of 1971, implemented to distribute land to landless peasants and changing the social status of the descendants of the khammès (Aït-Amara, 1999). However, this year in October, these skilled laborers could not travel to the M'Zab Valley because of mobility constraints. Hence, they have been affected disproportionately, as they could not work. At the same time, this meant that the salary of the few laborers available in situ increased by about one third: from 400 to 600 dinar per palm tree (±2.5 to ±3.75 euros). Sub-Saharan migrants (all men) living temporarily in the area-and who are often exploited and marginalized because of their ethnicity and because they are undocumented-benefitted from this situation as they could work as agricultural laborers in the palm groves and earn more than usual. They told us how land owners would treat them particularly well to make sure they would not try to leave to go work elsewhere.

The lockdown constraints, especially during the first month, had drastic implications for agricultural laborers in Maharashtra and in Morocco's Gharb and Saiss Plains, where most agricultural

laborers are women. Many of them rely on farm wage labor for their primary earnings, as they tend to be precarious backgrounds, often not owning any land, or only cultivating very small plots. For single, deserted women and widows particularly, wages earned as laborers are essential to provide for themselves and often for entire families. In Maharashtra, about half of the women agricultural laborers we talked to did not get a single day of paid work during the lockdown months from March to June, mostly due to mobility constraints [see also Mahila Kisan Adhikar Manch (MAKAAM), 2020]. Janaki, one of the single women we interviewed, explained: *"Our village is mostly unirrigated, and we do not have agricultural work during summer. Usually we get some work in nearby villages, for things like irrigating or picking turmeric or chilies. The farmer sends a rickshaw for us. But during the lockdown that was not possible."* The fact that migrant workers-mostly men-who lost their jobs in cities returned back to villages, also decreased the work availability for women (see also Agarwal, 2020).

Similar experiences were encountered in Morocco (Bossenbroek and Ftouhi, 2021). The lockdown was implemented early spring, when the demand for labor is usually at its peak. During regular years, women laborers go to the *moquefs* and are able to negotiate their daily wages, and usually get decent salaries: up to 180 Dirham (about 17 euros) per day. Yet, this year, the women laborers we interviewed complained that they faced huge difficulties in finding work as the *moquefs* were banned. In the Saiss region, some women laborers told us that they were ready to be paid very little as any income would be better than no income at all. One of them told us: *"Those who are going to the moquef are ready to work for 50 Dirham a day* [about 5 euros] *just to be able to pay their rent, and to provide food for their children. They do not have any choice."* Because of reduced incomes they were forced to limit their expenses. Khadija, a widowed agricultural laborer explained: *"I could not afford to provide my child with the means to take online courses… I do not have a smartphone… he could not take the courses on TV either because ours is damaged and I do not have the money to buy a new one."* Souad, another laborer in Morocco married to a much older man and with three children, told us that she had to ask her daughter to quit her studies at the University of Meknes because she could no longer afford to support her. Others were not able to afford proper meals, and had to adapt their diets accordingly.

Difficulties to Access Government Support Schemes

In Morocco and in India, the national government launched several initiatives to support socio-economically marginalized groups. In Morocco, the "Tadamon" (solidarity in Arabic) program was meant to provide financial support to the poorest sections of the population during the COVID-19 pandemic. However, the rural population, and particularly single women farmers and agricultural laborers, often did not benefit from them. In fact, even in cases where the woman is the main provider for her family, the husband or father (in-law) is considered the de facto head of the household, hampering women to directly

apply for government support schemes. In other cases, women would say that they had difficulties filling in the requested forms or they were refused support because of not following the procedure correctly. They would attribute this to the fact that they are illiterate. As Fdila, aged 45 and wage worker in the Saiss, mentioned *"an illiterate person is like a person who walks in the darkness."* All three requests that she put in to get government support were rejected.

Throughout Maharashtra, India, the institutional marginalization of single women farmers emerged even more evidently from our data. At the end of March 2020, the central government announced a COVID-19 emergency aid package as part of the "Pradhanmantri Garib Kalyan Yojana (PMGKY)" (Prime Minister poor welfare scheme) to provide relief to the most socio-economically disadvantaged groups. This entailed, among other measures, the distribution of free rations of food grain through the existing public distribution system, and cash transfers through existing government support plans such as the widow pension scheme and a scheme that provides financial aid to the poorest farmers. The vast majority of the women who we talked to had access to the free rations during the lockdown months [Mahila Kisan Adhikar Manch (MAKAAM), 2020]. However, these consisted only of rice. Because of the difficulties of generating income, many did not have cash to buy other essential items such as oil, vegetables and pulses. At the same time, many (more than half of our respondents) did not benefit from the cash transfers announced under the PMGKY as they were never registered for the above-mentioned schemes in the first place. Even when they had cash on their bank account, many women could not reach the banks in nearby towns due to mobility restrictions [Mahila Kisan Adhikar Manch (MAKAAM), 2020]. Significantly, almost none of the women we talked to had access to the "Mahatma Gandhi Employment Guarantee Act (MGNREGA)," a government scheme developed to enhance livelihood security in rural areas by providing wage employment to adults willing to do unskilled manual work. One of the reasons for this was lack of awareness among people regarding the act itself and its procedures. Less than half of the women we interviewed had the necessary documentation (job cards) to apply for these government-subsidized jobs and almost all of them were anyway not familiar with the procedures to apply [Mahila Kisan Adhikar Manch (MAKAAM), 2020].

Increase in Care Work

Although there were several governmental and private initiatives to support the most affected ones during this time of crisis in all three countries, we learned that people in our research areas mainly relied on familial and community relations for support and care. Providing such support often adds to the already increased responsibilities of women, something that frequently emerged in the narratives of the women we interviewed in Morocco and India. As schools and kindergartens were closed, mothers, and particularly single mothers, had to juggle between working on the farm, taking care of most domestic tasks and looking after their children—something that increased their unpaid work burden and stress level, and further constrained their capacity to find work outside the household to make ends

meet. Even in the case of married couples, our data suggests that the lockdown measures did not trigger changes in gendered labor relations within and outside the household or in the distribution of work, even if men were temporarily not working as wage workers and some migrated back from cities to rural villages. Women remained responsible for most domestic work while often also having to find new ways to support their and their family members' livelihood as income was affected by the lockdown (see also Agarwal, 2020; Kulkarni, 2020). In fact, many of the women working as agricultural laborers we interviewed in India and in Morocco, mentioned the necessity to continue their paid work on the farms in order to provide for their family, especially for their children, elderly or sick parents. In this respect, in the Saiss region, in Morocco, Souad, who is married to a much older man and has three children, told us how she was *"in charge of providing for all the household needs."* During the first month of the lockdown, some women had stopped working out of fear to get infected themselves, or to infect their family members. But once the little savings were exhausted, and loans were mounting, they were forced to find ways to continue working (as we will better illustrate in section Reinventing Farming Practices in Times of COVID-19).

These findings resonate with what has been pointed out by other feminist scholars who conducted research in COVID-19 times: the importance of care work, how most of it is performed by women, and much of it remains unpaid (see among others, Bahn et al., 2020; Craig, 2020; Power, 2020; Ticktin, 2020). Several of us, women and authors of this paper, also experienced an increase in care work during the lockdown months, having to suddenly juggle between working from home and home-schooling kids and/or caring for sick or anxious family members on top of many domestic tasks. The challenges some of us faced made us even more attentive to the struggles of the people who live in less fortunate circumstances with many more challenges caused by the pandemic and far greater uncertainties.

COVID-19 impacted the life of most, if not all, small-scale farmers and agricultural laborers struggling at the margins of profoundly unequal food systems, at local, national, and international scales. It also pointed out particularly how these margins remain highly patriarchal spaces, where women, particularly those socially neglected because of their matrimonial status (e.g., widowed, divorced, deserted) were often further marginalized and had to deal with (re)newed forms of exclusion and oppression.

REINVENTING FARMING PRACTICES IN TIMES OF COVID-19

The different material implications of COVID-19 and the related lockdown brought us to reflect on the response options available to different agricultural actors to continue to take care of their own and their household's well-being. In what follows we illustrate different forms of resilience emerging from our empirical work, focusing particularly on how resilience often emerges through different practices of care. Here as well we use an intersectional approach to tease out the different responses

and possibilities of actors in dealing with the situation and embracing creativity, courage, and solidarity. Specifically, we narrate how some women agricultural laborers ignored the lockdown restrictions as they had to work secretly; how men agricultural laborers used virtual labor markets to find work; how farmers owning land changed their cropping patterns to cope with the situation; and how the pandemic inspired different collective initiatives toward more equitable and more sustainable socionatures.

Re-arranging Labor Practices

Many agricultural laborers could not afford to stop working during the lockdown. With little or no savings, often increasing debts to pay back, and limited or no access to government support schemes, they, and particularly landless (single) women, had to find ways to be able to continue working. Hence, they tried to circumvent the official COVID-19 restrictions and faced the risk of getting infected. In the Saiss Plain, in Morocco, agricultural laborers (mostly women) who desperately needed to work, tried to go to the *moquef* despite the ban. To avoid roadblocks and police checks they would go before sunrise as explained by Zineb, a divorced woman: *"These days we work in secret so that the authorities do not see us."* Farmers looking for laborers to harvest their ready-to-sell produce would pass by the *moquef* to stealthily pick them up. Other laborers, rather than going to the *moquef*, walked to nearby farms using secondary roads in order to avoid checkpoints. Zineb also indicated that during the lockdown, she started working as a paid caregiver in the house of one of her acquaintances who needed help with domestic chores. Yet again, she had to do this secretly, trying to avoid police checkpoints: *"If they stop me in the street, I tell them I am just going shopping. Instead, I go to her* [her acquaintance] *house, I work and then I go home."* In the narratives of women laborers particularly, the fear of being stopped and fined was added to the fear of getting infected. Forced to share transportation with other laborers to reach the farm, these women tried to minimize the risk of getting infected as much as they could. As Hafida, another divorced woman with a young son affirmed: *"We disinfect our hands. I always take lavender soap and a little bit of bleach with me. I wipe my hands with my own towel and eat by myself, away from others during the break. Everyone eats in her own place on the plot. And when I get home, I take a shower and wash the clothes I was wearing outside."*

With little resources available, resilience in these cases meant adapting working practices, despite the fear and the risks, in order to make a living. However, this did not necessarily mean accepting all conditions. Dignity and solidarity emerged even in the most desperate situations. In the Saiss Plain, in Morocco, for instance, Fatiha, a divorced woman with a young son and an agricultural laborer in extreme need of an income, would not accept a daily job from a farmer employer because she thought it was not paid enough. When he offered to pay more, she still refused as she felt it was not fair for other women laborers to be paid so little. She explained to us: *"A farmer came to see me this morning, but he was not going to pay me well. He just wanted to give me 70 Dirham. I told him that it was not enough. So, he offered 80 but I shouldn't tell the other laborers. I told him no, that he must*

give us all the same remuneration." This quote also suggests that resilience is not simply engaging in individual practices to make a living, to adapt and survive in an extremely difficult situation: it can also be about supporting and caring for others that are in the same or in a similar situation. These women laborers have little resources to rely on, being very much marginalized institutionally and socially: yet they engage in everyday practices of care toward others, to fight for more just and equitable working conditions even in extremely difficult times.

More resourceful farmers came up with other, innovative and inspiring ways to organize labor in times of COVID-19. In the Draa Valley of Morocco, young watermelon farmers who usually rely on laborers coming from other nearby towns and cities, uses smartphones and social media to find laborers for harvesting. This way, Facebook and WhatsApp groups became a sort of virtual *moquef*. In case laborers did not have direct access to social media, they relied on information provided by their neighbors, or by friends who had a smartphone and could access the virtual *moquef*. As explained by Mohammed, a young laborer: *"Farmers have WhatsApp or Facebook groups. You give your phone number to a farmer and ask him to share it in their group. When someone in the group needs laborers, they get in touch with you. Though then you need to find a way to reach their farms by yourself."* In the case of these young watermelon farmers, technology played an important role in helping them to adapt to restrictive lockdown measures—opening up new ways to organize work, which could last beyond COVID-19. However, these alternative recruiting strategies only benefitted men laborers and those who are better well-off, who own a smartphone and can pay to access the internet. No women laborers mentioned to have used social media to find work, perhaps also because they felt safer to rely on their existing network of contacts, rather than on new ones based on social media. Also, the virtual labor market could be used exclusively by local laborers, and not by those ones who usually come from surrounding cities or other regions as these could not reach far-away farms.

Changing Farming Practices

In the case of small-scale farmers cultivating their own land, resilience emerged in other ways. Their concerns mostly related to which crops to cultivate in order to provide for themselves and their family members, while trying to minimize loss and debts. Our data shows changes in cropping patterns in all three study countries. These emerged as a way to deal with the challenges imposed by the lockdown and their entanglements with other pre-existing challenges and uncertainties. Vaishali, a woman farmer living in a drought-prone rural village in Maharashtra, India, told us: *"We* [me and my husband] *are not going to plant flowers this year… maybe only some, on a small piece of land."* Indeed, when the lockdown started in India, farmers were about to finish harvesting the *rabi* (winter season) crops, and to start planning for the next cropping season *kharif* (monsoon season). In Vaishali's village, in April, farmers usually sow mostly flowers, such as marigolds and chrysanthemums, which they sell at markets in nearby towns especially during important Hindu celebrations. Women farmers who perform most of the farming tasks, usually plant food crops for household consumption only

on small portions of land or next to the flowers to take advantage of the drip irrigation system installed to irrigate this commercial and non-edible crop. In fact, in the past 15 years, in this drought-prone village, farmers have increasingly engaged in growing commercial crops for the national market. However, market volatility and irregular monsoon patterns make it very difficult for farmers to decide every year when exactly and which crops to cultivate. Chanda, a woman farmer living close to Vaishali explained: *"You never know if it is going to rain enough, or too much. You never know how much you are going to be paid as market prices are so unstable. We can decide to grow onions or flowers if they have good rates in the market, but if everyone starts growing the same, then prices drop. Or if it rains too much, we have to throw everything away."* It is because of such socionatural uncertainties that in Maharashtra, in the past 30 years, men started working more and more as wage laborers in industries and factories in nearby towns, to diversify the household's income; leaving it to women to perform most farming activities: what has been referred to as the "feminization of agriculture" (Deere, 2005; Agarwal, 2012; Tumbe, 2015; Pattnaik et al., 2017). COVID-19 and the related lockdown measures starkly revealed the fragility of this arrangement, as many agricultural laborers (mostly women) and wage workers (mostly men) could no longer travel and work in nearby farms and towns. In March, farmers did not know how long the lockdown would last, how long the possibilities of selling produce would remain constrained. This is why Vaishali and other farmers in her village felt it was too risky to invest in flowers cultivation like they had done in the previous years. They thus decided to cultivate larger portions of land with subsistence crops such as bajra (pearl millet), pulses, and peanuts. These involve much cheaper and secure investments in comparison to commercial crops such as flowers, as they can be consumed within the household and stored for a longer time. Conversely, flowers wither very quickly; they require more inputs in the form of pesticides and labor and they are more fragile to heavy monsoon. In such an uncertain situation the farmers did not want to take the risk of investing too much. Yet, at the same time, farmers did not want to stop cultivating commercial crops completely. Vaishali explained: *"We know it is a risk, but we can't give up hope completely. What if markets open, and we do not have anything to sell? That's why we still have invested a little in flowers and onions. Even if we will get little in return that would already be good."* Vaishali was right, planting some flowers turned out to be a worthy risk to take. In fact, before and during Diwali, an important Hindu festival that takes place in November, there was a shortage of flowers supply in nearby cities. Farmers like Vaishali earned up to three times higher rate than last year for the flowers they could sell.

Interestingly, our data suggests that, in India, decisions about changes in cropping patterns in times of COVID-19 were taken jointly by different family members within the household. Though market-related decisions are most often dealt with by the male members of the household (Agarwal, 2000; Mitra and Rao, 2019), the women farmers we talked to pointed out how they played a role in influencing these decisions. *"My father-in-law and my husband always listen to my opinion,"* said Meena, one of the women farmers we talked to regularly. At the same

time, they also emphasized how they took some important decisions autonomously, without necessarily discussing them with their husbands. For instance, women famers realized the importance of cultivating more varieties of vegetables for the household. They noticed how the lockdown had changed their daily diet, which had become almost exclusively based on staple food such as wheat, rice, and pulses, and including very little vegetables, dairy and meat products. Hence, they came up with the idea of planting more and diverse vegetables in their farms, while trying to minimize expenses. Vaishali explained: *"I did not discuss this much with my husband, I just plant vegetables along with other crops, between other crops, so I do not have to use additional fertilizers or water."* This quote suggests how women farmers' knowledge informed specific forms of resilience, often geared toward care work: in this case, being able to maintain a varied nutritious diet, even when markets are close. In this direction, in order to support women farmers, the MAKAAM network set up an initiative to support their efforts in cultivating more vegetables while engaging in agroecological practices. Since August 2020, around 200 single women from across the state of Maharashtra started developing organic kitchen gardens, mostly sowing local varieties of seeds. Unfortunately, the monsoon season this year happened to be very long and intense: many kitchen gardens were destroyed in September and October. However, women remained hopeful. They continued taking care of their organic garden, using local resources, experiences, and knowledge in an attempt to improve their food security. In this regard, resilience emerges as self-reliance developed in light of local knowledge and traditional practices enhanced through the mediation of a network of activists and grassroot organizations (MAKAAM). This initiative emerged as a powerful one to strengthen the resilience of these single women farmers and agricultural laborers, especially of those who did not have access to government support schemes. It is one of many first steps to counteract women farmers'-and particularly single women farmers'-marginalization and exclusion: to transform power relations and enhance instead caring relations in the long-term, and thus beyond COVID-19.

In the Draa Valley in Morocco as well, young watermelons farmers adapted their cropping patterns during the lockdown months. The young male farmers are from local farming families: their background and farming experience, coupled with discussions among neighboring farmers on WhatsApp groups, helped them to make informed decisions about cropping patterns during the COVID-19 pandemic. Farmers know the volatility of the market for watermelons very well: *"it's like a lottery: there is no guarantee,"* explained Ahmed, a young man who used to farm watermelons. For instance, everyone remembered 2018 as a disastrous year as the offer of watermelons significantly exceeded the demand and many farmers ended up with high debts. Consequently, after 2018, some farmers decided to minimize costs by reducing their expenses in agricultural inputs, including by reusing their water drip lines. Others planted watermelons on smaller areas and diversified their crops. Said, a young watermelon farmer told us: *"I cultivate four hectares, sometimes three* [of watermelons]. *On the remaining land I plant some pineapples and another variety of melons."* Their resilience

is clearly informed by their past experience and knowledge. Although most of them, by adapting their farming practices made little or no profit this year, they did not accumulate additional debts. In the M'Zab valley, in Algeria, small-scale farmers also adapted their cropping patterns in relation to the challenges posed by the lockdown. As they could no longer go to specialized shops to buy agricultural inputs such as seeds of horticultural products imported from abroad and chemical fertilizers, many turned to traditional practices oriented toward agroecology. For instance, they started using manure as an organic fertilizer and sowing local seeds, such as local varieties of peppers, eggplants, and zucchini. Interestingly, the strong local demand for manure led to the emergence of a manure market in which livestock breeders in the area started to sell it to farmers in order to generate additional income.

Hence, for different small-scale farmers in the three case study countries, resilience in times of COVID-19 partly entailed trying to be more self-sufficient, minimizing investment risks and (re)using the locally available resources. It also meant drawing on diverse local knowledges of farming to respond to a multilayered crisis. Intrinsically, these practices and knowledges show how the ability to farm—grow food—provides an important source of resilience as it allows for a form of self-reliance by reducing dependence on market circuits—the very circuits that have become compromised because of the pandemic. Understanding this may inspire farmers to reconsider cropping patterns and farming practices in general in the long-term. As such, it emerges how different dimensions of crisis-like COVID-19-may trigger changes that give resilience a clearly transformative character, an input to rethink existing decision-making processes and the power relations that shape them.

Collective Initiatives

For others, more precisely better-off and thus more resourceful small-scale farmers, resilience during the lockdown involved engaging in new small-scale farming projects by reconnecting with the land of their ancestors and with traditional farming practices. In the M'Zab oases, in Algeria, several villages were repopulated during the lockdown as people who had migrated to nearby cities to work as wage workers or traders returned to their native villages when economic activities shut down. They took this as an opportunity to boost their agricultural activities and restore palm groves. Parents thought this was an interesting opportunity for their children to get to know the land of their ancestors and spend time outdoors, playing in the farms and using the irrigation basins as a swimming pool. Students too returned to their native villages due to the temporary closure of universities and offered their help in farming activities. However, the sudden increase in population and the boost of agricultural activities put pressure on the already scarce water resources of the valley. For this reason, in one of the oases of the M'Zab, Tahar, the *Oumana El Sayl* (traditional water guardian, working under the authority of the mosque and for the local association for the preservation of the environment) launched a campaign to restore the long-disrupted irrigation system in the village. In fact, in the M'Zab oases, since the eleventh century, local communities of farmers developed a circular irrigation system

to capture, store and use the water of the rare flash floods (0–2 floods per year) in the valley. When flash floods happen, the water is channeled toward wells and traditional dams. This way it recharges the shallow groundwater aquifer and can be used for irrigation purposes. Yet, in the past decades, several recharge wells have been clogged by sediments and not maintained. The sediments affected the efficiency of the recharge and thus the groundwater level. The initiative of restoring the old irrigation system was organized through the traditional system of *touiza*, a mutual aid and cooperation system that characterize most community initiatives in the valley. Different communication channels, including social media, were used to raise funds for this maintenance work. With the money collected, the community restored 22 wells. According to a well digger, who we interviewed soon after the initiative started: *"the groundwater level in the wells already increased by 5 m."* Different people contributed to this collective work in different ways, also making sure that the safety measures against the spread of COVID-19 were respected. Local women started to sew face masks, supported by local associations that provided them with the raw material. Young men started health awareness campaigns related to the spread of COVID-19 both face-to-face and through social media. Resilience here, became a collective effort, based on the reparation and restoration of a dismissed infrastructure (Ftouhi et al., 2021). These practices of repairing can be seen as acts of care (Fisher and Tronto, 1990; Puig de la Bellacasa, 2012), as emerged clearly from the words of Houssem (president of the local association for the preservation of the environment): *"The lockdown gave us the opportunity to take care of our community irrigation system."* It represented an opportunity for local farmers to strengthen alliances among themselves and to enhance their agricultural activities to support their livelihoods and well-being during the lockdown but also in the long-term. Resilience here is rooted in knowledge inherited from ancestors: it is about reworking an infrastructure abandoned for many years and thus re-establishing a socionatural relation that was lost, or put aside for many years. In this regard, COVID-19 triggered practices that are not simply responses to a crisis, but work as long-term visions toward more sustainable and caring futures, involving both the human and the more-than-human world.

How resilience often involves and is enhanced through practices of care enhancing transformation became even more evident in light of other collective and individual initiatives emerging from our data. In the M'zab oases, several local associations coordinated support for migrants from other African countries who got stuck in Algeria during their journey to Europe. A food distribution campaign was organized during the month of Ramadan: women cooked rice and food baskets while men took charge of distributing them. Also, among the women laborers in Morocco some would engage in different forms of solidarity to be able to make ends meet. For instance, the costs of internet recharge cards would be shared so that their own children could follow online courses.

In Maharashtra, India, women farmers, activists and grassroot organizations that form the MAKAAM network, actively engaged in various forms of relief work to support women farmers and agricultural laborers, especially the most marginalized and those who did not have access to government support schemes. Among other initiatives, a fundraising campaign was organized to support women farmers to buy agricultural inputs for the next cropping season and distribute food and other essential items to those who were most in need. As mentioned before, the MAKAAM network also funded the construction of agroecological kitchen gardens to support women farmers' livelihood in the long term. Another initiative aimed at increasing women's access to work under the "Mahatma Gandhi Employment Guarantee Act (MGNREGA)." Through a women grassroots leadership development programme, the MAKAAM network encouraged women farmers and agricultural laborers to get together and demand work under this act, mobilizing at various administrative levels. In fact, as previously mentioned, almost none of the women we interviewed had access to this type of jobs during the lockdown months. As of November, many of these groups of women reported how they had succeeded in getting employment through this collective initiative, though often they had to deal with apathy by local administrations and sometimes corruption. This sheds light on how resilience can be mediated by civil society organizations and engaged (and caring) individuals and collectives (see also Agarwal, 2020). It also points out how yet another dimension of crisis like COVID-19, exacerbating existing dynamics of exclusion and marginalization triggered a long-term process to counteract those dynamics, to slowly transform an unequal and unfair distribution of resources.

CONCLUDING REFLECTIONS

Documenting the responses of the farmers and farm laborers to the pandemic and carefully listening to and sharing their experiences is our way to argue that there is value in focusing on the margins of the chain of food production (Béné, 2020; Clapp and Moseley, 2020; Timilsina et al., 2020; van der Ploeg, 2020)—and specifically on what we can learn from those brave, capable and creative agricultural actors who inhabit these margins. By listening and documenting their voices we aim to engage with them, to express our solidarity and to provide space to "the unstable and constantly negotiated capacity to act and talk politically by those that usually 'do not count'" (González-Hidalgo and Zografos, 2019: 2). While writing this paper, we do not yet know how COVID-19 pandemic will shape the future, we do not know when we will be able to return to our field sites, to meet the farmers and farm laborers again. What we do know now is that there are ways to remain engaged, as researchers and activists, by staying in touch with the people who count for us, whom we care about, even from far away and in uncertain times.

Different challenges and multiple uncertainties characterize the everyday life of small-scale farmers and agricultural laborers in rural India, Morocco, and Algeria. COVID-19 and the lockdown that was imposed to attempt to reduce the spread of the virus added new challenges to the life of these agricultural actors. This resulted in various material implications, such as crops that had to be sold for a very

cheap price or were left to rot on the farms. This impacted the income of farming households and many agricultural laborers could not find work. In this regard, COVID-19 revealed existing inequalities even more sharply as access to resources—such as land, money, technology—importantly determined how farmers could provide for themselves and their families, especially during the lockdown months. Through our intersectional lens it emerged that in Morocco and in India, women farmers and laborers were particularly hard hit by this pandemic. Significantly, landless women—often from lower class—and women who are socially neglected because of their matrimonial status (e.g., widowed, divorced, deserted women) had to deal with (re)newed forms of exclusion and oppression while their unpaid care work often increased enormously.

Despite this hardship, our data also shows that different agricultural actors came up with various inventive strategies to be resilient, to cope and provide for themselves and their families, responding to the new challenges faced during the lockdown. We approached resilience as something grounded and situated in the everyday-inspired among others by Cote and Nightingale (2012), MacKinnon and Derickson (2012), Welsh (2014), and Tozzi (2021), and that may involve persistence, adaptation but also transformation of socionatural configurations. With this approach, we aimed to emphasize the importance of paying specific attention to how power relations, but also existing knowledges and available resources shape how different actors experience and respond to multiple, entangled dimensions of crisis, and particularly-in this case-to the COVID-19 pandemic. Through our intersectional lens we documented how for less resourceful agricultural actors—such as landless women—resilience in times of COVID-19 meant nothing else but finding ways to survive: working secretly, looking for alternative sources of income, juggling the extra care work with earning income. Yet, in the case of more resourceful farmers, resilience was manifested in different, creative and inventive forms of adjusting to the situation. This included changes in farming practices such as cultivating crops they traditionally use for their own consumption rather than commercial crops. Others chose to reduce the expenses of farming by using local agricultural inputs, such as seeds and manure, or recycling old inputs (e.g., old drip lines for irrigation). Women farmers played a prominent role in influencing these decisions, highlighting how their knowledges and experiences emerged as fundamental in particularly troubled times. We also documented collective initiatives of repairing abandoned wells to give a new life to the traditional irrigation system to counteract water scarcity. We also presented initiatives that were mediated by the civil society and networks of solidarity and support built over the years. What emerged clearly is how all these inventive practices involved, and were motivated by forms and relations of care, among different actors but also toward the more-than-human world (see also Ticktin, 2020). In fact, they highlight the ability of different farmers to provide for—and take care of—themselves and their household members, yet they also involve considerable work of repairing, reusing, and appreciating what is available *in-situ* (e.g., soil, water, seeds, manure, infrastructure). They suggest how small-scale farmers

tried to transform their socionatures, by—among others—becoming more self-sufficient, to rely more on existing, local resources while building new alliances and forms of solidarity, rather than being dependent on external agricultural inputs or on far-away markets and circulation chains.

We would like to end this paper by foregrounding how these narratives reiterated "from below" are important for rethinking the mainstream food production and distribution systems to give more space to much-needed alternatives such as food sovereignty, subsistence agriculture, decentralized markets and reviving agroecology approaches (van der Ploeg, 2020). They show the weaknesses of a system that overly depends on the mobility of goods, people and money, and they invite us to reconsider and appreciate the importance of local resources and diverse knowledges. This is of course not to suggest that the state should be de-responsibilized, or that resilience shall be a local, self-managed affair. Nor do we want to downplay the very real challenges and suffering the farmers are experiencing. Conversely, we argue, studying what resilience means and entails in a very grounded and situated manner may represent a starting point to shed light on existing marginalizations and exclusions and consequently to rethink (governmental and non-governmental) response programmes and support those most marginalized actors.

Coming back to the fundamental question of how resilience unfolds for different actors: this importantly relates to neoliberal economies that thrive on structural inequities and socionatural exploitation (MacKinnon and Derickson, 2012). In this regard, our feminist scholarly and activists' efforts urge us to focus and energize transformation rather than restoration of mainstream (neoliberalism-driven) economic, social, environmental dynamics, and configurations. Based on the joint learning from the experiences and practices of different small-scale farmers during the pandemic, we therefore argue that thinking with resilience should become an effort to unfold and enhance transformative practices toward more equitable and sustainable socionatures. This effort requires a vocabulary that captures what we observe and that is able to communicate its political implications. The concept of resilience can work as an umbrella term, as we have used it in this paper to describe responses to a multi-layered crisis. Yet, what resilience really means and entails needs to be carefully disentangled and described in a thick and careful manner. Conversely, an uncritical use of the concept of resilience risks to contribute to the idea that things should stay as they are, and that crisis are temporary, exceptional events. By choosing to mobilize the concept of intersectionality and focus on practices of care to disentangle what "being resilient" means in times of COVID-19 for different (groups of) people, we exposed the inequities embedded in the assumption that reality before COVID-19 was equitable or desirable for all and therefore should be simply restored. We hope that these insights and discussions can contribute to constructively engage with the different entangled socionatural challenges, uncertainties and marginalizations that agricultural actors face and bring about the lasting transformations this world needs post COVID-19.

DATA AVAILABILITY STATEMENT

The datasets presented in this article are not publicly available for the respect and protection of the research subjects. Requests to access the datasets should be directed to the corresponding author, Irene Leonardelli: i.leonardelli@un-ihe.org.

ETHICS STATEMENT

The study was conducted in accordance with local legislations and institutional requirements.

AUTHOR CONTRIBUTIONS

LB, HF, and ZK conducted data collection in Morocco. SB, SK, and IL conducted data collection in India. MFH and MAS conducted data collection in Algeria. IL worked on the first draft of the manuscript together with LB, HF, SB, and MFH. JK-S, SK, and MZ importantly contributed to the editing of the manuscript. All authors contributed to the article and approved the submitted version.

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The Emotional Dimensions of Animal Disease Management: A Political Ecology Perspective for a Time of Heightened Biosecurity

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The ongoing devastation of the Covid-19 pandemic has brought new urgency to questions surrounding the origins, management, and complex dynamics of infectious diseases. In this mini review, we use growing international concern over the pandemic potential of emerging infectious diseases as motivation for outlining a research approach to study the emotional dimensions of animal disease management. We sketch out this important analytical terrain by first locating opportunities for literature on the biosecurization of nature to intersect with the emerging field of emotional political ecology. Second, we describe three biosecurity contexts and environmental conflicts at the wildlife-livestock interface: African swine fever in wild boar, brucellosis in elk, and pneumonia in bighorn and domestic sheep. We argue that in these "contact zones," a focus on emotions can add a new layer of explanation for analyzing the manifestations, implications, and varied experiences of biosecurity.

Keywords: African swine fever, bighorn sheep, brucellosis, elk, emotion, wild boar, wildlife-livestock interface

INTRODUCTION

The ongoing devastation of the Covid-19 pandemic has brought new urgency to question surrounding the complex dynamics of infectious disease dynamics and, in particular, those with the potential to spillover between animal and human populations (Dobson et al., 2020; Laborde et al., 2020). Measures to control or limit the spread of infectious diseases, policies and practices often referred to collectively as biosecurity, increasingly target the wildlife-livestock interface and agricultural landscapes where rural livelihoods revolve around human-animal relations and risks of disease transmission between species are high (Jones et al., 2013; Wiethoelter et al., 2015). In these focal geographies of animal disease management, biosecurity projects require the participation of rural peoples (Barker, 2010; Hinchliffe et al., 2013). Yet, this work can be a source of conflict for ranchers, hunters, farmers, and herders, along with their families and communities (Massey et al., 2011; Johansson et al., 2020). As such, there is an urgent need to consider how emotions influence animal disease management, and vice versa, in line with current trends in political ecology to emphasize how "emotions matter" in environmental conflicts and struggles over issues of resource management (Sultana, 2011, p. 163; González-Hidalgo and Zografos, 2020).

This mini review calls attention to the emotional dimensions of animal disease management as important analytical terrain in a time of heightened biosecurity and growing international concern over the pandemic potential of emerging infectious diseases. To sketch out potentials for future work, we first identify opportunities for an emotional political ecology approach to biosecurity. Second, we describe three animal disease management contexts with conflicts related to biosecurity. In these "contact zones" (Haraway, 2013), a focus on emotions adds a new layer of explanation for understanding and analyzing the manifestations, implications, and varied experiences of biosecurity.

AN EMOTIONAL POLITICAL ECOLOGY APPROACH TO BIOSECURITY

Though battles between humans and disease are as old as time immemorial (Zinsser, 1935), efforts to "secure life" from infectious disease have formalized in recent decades as part of a shift in environmental governance toward security and "security thinking" (Ingram, 2010; Hinchliffe et al., 2013, p. 532). In rural areas, this era of biosecurity manifests as increased awareness of animal diseases and increased surveillance, containment, and control of lands, animal bodies, and other unruly life (Enticott and Franklin, 2009; Hawkins and Paxton, 2019).

Bringing attention to the varied dimensions of managing animal diseases is an emerging canon of critical social sciences. This literature recognizes biosecurity as a political project, or an example of *biopolitics* (Foucault, 1995), as institutions responsible for public health and environmental safety are increasingly taking up activities that valorize or legitimize the death of some life to sustain others in the name of infectious disease management (Vint, 2010; Woods, 2017). As a form of spatial control (Enticott, 2014), biosecurity practices can delineate landscapes and bodies as "clean" or "diseased," efforts often articulated through a moral geography where "concepts of purity and contamination relate to spatial flows of animals, goods, and services" (Shortall and Brown, 2020, p. 3). Further, everyday activities of biosecurity can intersect with a broader political economy to contribute to a consequential "differentiation of the countryside" (Enticott and Franklin, 2009) and reshaping of social relations, for example, among regulators (e.g., veterinarians), their regulatees (e.g., dairy farmers), and the broader public (Enticott, 2014).

While the emotional dimensions of biosecurity regimes are not frequently interrogated (for important exceptions see Convery et al., 2005; Crimes and Enticott, 2019), multiple studies argue that participation in disease management agendas and fears over the ability to manage and adapt to associated regulations induces stress for those enrolled in what Barker (2010) calls biosecurity citizenship—governance projects that compel individuals and communities to enact disease control measures (Delgado et al., 2012; Johansson et al., 2020). Interventions and regulations often divide "good" rural participants from those "not doing enough" (Nerlich and Wright, 2006, p. 452), while new practices and routines can fracture rural identities

and livelihoods and challenge local understanding of human-environment relations (Enticott, 2014; Shortall et al., 2016; Kowalewska, 2019; Urner et al., 2020). In turn, emotional responses from rural communities can challenge the effectiveness of the interventions themselves. The imposition of a biosecurity regime, hence, suggests a consequential relationship between disease measures and emotions, a complicated dynamic primed for further examination.

Critical perspectives on emotions have long been the domain of feminist scholars whose work marks the role of emotions in deconstructing dualisms, constructing knowledge (Lorde, 1981; Jaggar, 1988), and shaping social and socio-environmental relations (Plumwood, 2002; Norgaard, 2019). More recently, political ecologists have drawn these insights in line with literature on the geography of emotions (Davidson and Milligan, 2004; Pile, 2010; Nightingale, 2012), to frame struggles over access to and control over resources as not only social, political, and economic but also emotional experiences (Sultana, 2011, 2015).

To elucidate the role of emotions in conflicts such as those presented in biosecurity contexts, scholars emphasize a need to examine governance processes alongside individual and collective emotional experiences (González-Hidalgo and Zografos, 2020). This entails both addressing the role of what Nightingale (2018) calls the "socioenvironmental state" and questioning "*how* political authority emerges" within biosecurity regimes (Nightingale, 2018, p.689), as well as grounding investigations of biosecurity in the emotional conditions of everyday disease management practices and experiences (Sultana, 2011).

In the next section, we describe three disease contexts from our ongoing research into animal disease management at the wildlife-livestock interface related to African swine fever, brucellosis, and pneumonia. While these diseases have a global presence (Seleem et al., 2010), we articulate our cases through set of emotional geographies in rural landscapes in the American West and Europe where disease management regimes rely on the work of hunters, cattle ranchers, sheep producers, and public resource managers to take up biosecurity practices and adhere to biosecurity regulations. In sharing but a slice of the complexity endemic to each case, our goal is to identify ways that emotions intersect with the policies and practices of animal disease management.

FOCAL GEOGRAPHIES OF ANIMAL DISEASE MANAGEMENT: THREE CASES OF BIOSECURITY AT THE WILDLIFE-LIVESTOCK INTERFACE

African Swine Fever and Conflicted Hunters: Controlling Wild Boars in Europe

A species known for carrying multiple diseases, the wild boar (*Sus scrofa*) of Europe holds current notoriety for its connection to African swine fever (ASF). A key concern related to ASF in wild boar is the potential for spillover to the continent's domestic pig populations. Research notes that even small ASF outbreak

events in pork supply chains can result in significant economic losses and threaten agricultural livelihoods (Niemi, 2020). In response to the disease's recent expansion, some European Union (EU) countries are taking protectionist approaches. Denmark, for example, has erected an 80 km border fence to Germany and several countries have plans to follow suit (Mysterud and Rolandsen, 2019). However, wild boar hunters are the interest group most implicated in ASF containment on the ground.

EU legislation requires hunters to become "trained persons" (Regulation EC, No. 853/2004:51); hunters must identify and assess diseased animals in the field, skills typically required of veterinary professionals (Benedito et al., 2019). The convergence of veterinary and hunting practice in the name of biosecurity has proven problematic, however. Hunters have resisted perceptions of hunting as a form of clinical slaughter and instead emphasized the care, compassion, and ethics that hunting requires (Giacomelli et al., 2018; von Essen, 2019)—emotional qualities that hunters feel set them apart from butchers in the abattoir (Marvin, 2006; von Essen, 2018). The increasing threat of ASF has also made requisite new practices for hunters such as rigorous inventories of boar sightings and interactions, burdensome tasks that add to the challenges of traditional hunting practices (Urner et al., 2020). Research on hunting cultures in the Netherlands and Sweden notes that the additional administrivia has spurred some hunters to feel resentment at being the "garbage collectors of society" (Dahles, 1993, p. 178), unappreciated and overworked (von Essen and Tickle, 2020). Other hunters report costly, cumbersome, physically demanding, and lonesome hunts (often at night) and injuries and scars from wild boar skirmishes (Massey et al., 2011). Where hunters view regulating wild boar populations in agricultural landscapes as "someone else's problem," friction between farmers and hunters over wild boar culling has surfaced in debates about disease management (Keuling et al., 2016).

The emotional stakes of combating the spread of ASF have become particularly high amidst debates over the future of Europe's wildlife and wild lands (Lorimer and Driessen, 2016). For their part, some hunters feel like they are first port of call for controlling the outbreak where failure to provide security against the disease may threaten their status as stewards of wild populations—a label many see as essential to hunter identity and public legitimacy. At the same time, in Estonia, the proposition that biosecurity tasks such as boar culling might otherwise befall state appointed personnel (e.g., professional sharpshooters) has been met with animosity by hunters who feel that inviting army or police branches to cull wild boars would amount to "massacre and genocide" (Urner et al., 2020, p. 6). Elsewhere, other hunters have formed unlikely alliances with animal rights activists in opposing mass culls of wild boars and the use of live-capture traps. This research emphasizes how ASF management requires hunters to navigate a conflicting set of emotional identities, as ruthless murderers, compassionate cullers, and irresponsible sportsmen. In turn, biosecurity efforts appear to become as much about negotiating the public perception of hunting and hunters as they are managing infectious disease (von Essen and Tickle, 2020).

Unruly Elk and Worried Ranchers: Managing Brucellosis in the Greater Yellowstone, USA

Affecting multiple animal species and humans, brucellosis is a highly infectious bacterial disease that causes abortions or stillbirths in wild and domesticated ungulates (hoofed mammals). The disease is considered a significant threat to agricultural supply chains and international trade and has been a target of major eradication efforts in the US since 1934 (Seleem et al., 2010; USDA-APHIS, 2020). The nation's primary and current source of brucellosis transmission risk involves the co-mingling of elk (*Cervus canadensis)* with cattle and calves on ranchland properties in the Greater Yellowstone Ecosystem (GYE). One of the world's most iconic conservation areas, the GYE is also a touchstone for debates over wildlife management in context of amenity-driven land use transitions (Epstein et al., 2018; Haggerty et al., 2018a).

Federal and state-level biosecurity interventions for brucellosis target a mosaic of public and private lands surrounding the GYE where the risk of transmission across species is highest. Within this region, cattle ranchers are subject to increased herd testing and vaccinations; infection detection results in a cascade of management protocols such as removing, quarantining, or in some cases the forced culling of entire herds of cattle. As these interventions can cost ranches upwards of $150,000 (Boroff et al., 2016), some ranchers feel that the discovery of an infected animal could compound with existing livelihood challenges to effectively end their operation (Schumaker et al., 2012; Tilt, 2020). Simultaneously, infected herds can dramatically impact neighboring ranchers, who may also incur infection, increased regulation, or price discounts for their products based on proximity to disease (Rhyan et al., 2013; Boroff et al., 2016). Alongside the multiple challenges facing agricultural operations in the region—rising land values, changing climate regimes, and growing conflicts over human-wildlife interactions—cases of transmission can send "shockwaves" through ranching communities (French, 2015; Haggerty et al., 2018a; Mannix and Allison, 2018; Western Landowners Alliance, 2019). Thus, managing brucellosis presents both an actual and anticipated threat and one that looms over not only individual operators but the livestock industry more generally.

As such, it is the GYE's expanding elk populations and their increasing rate of bacterial prevalence that "keep ranchers awake at night" (Brennan et al., 2017; Tilt, 2020, p. 14). Because elk are quick to respond to shifts in land management (Proffitt et al., 2013), wildlife and disease experts argue that additional biosecurity measures such as defensive land use changes that separate elk and cattle or increasing hunting pressure on private lands would reduce the risk of disease transmission. However, the adoption of these measures by producers has been largely uneven (National Academies of Sciences, 2017), leaving state and federal agencies to debate how to best engage the GYE's livestock community in more comprehensive brucellosis interventions. At the same time, some livestock industry advocates contest additional biosecurity regulations and

question the ability of wildlife agencies to manage diseased elk effectively (Miller, 1997; Schumaker et al., 2012; Bonser, 2019). Policy responses aiming to ameliorate burdens for producers have honed in on the administrative and financial outcomes of the disease (Tilt, 2020); however, shifting elk populations, the politics of wildlife management, and the pursuit of livestock-based livelihoods in conservation landscapes seem to also produce particular emotions and emotional experiences. These dynamics raise questions about the co-production of psychosocial outcomes and resource governance, or how individual and collective stresses and anxieties both emerge from and ultimately implicate the practices of brucellosis management.

Trophy Sheep and Contested Land Uses: Preventing Spill Back of Pneumonia in the Western US

Whereas ranchers in the GYE worry about disease spilling from wildlife to livestock, the spread of pneumonia from domestic small ruminants to wild bighorn sheep is a major concern for public land sheep herders, hunters, and resource managers across the American West. A culturally and ecologically important herbivore that once ranged across all western North America, bighorn sheep suffered steep die-offs following EuroAmerican settlement. This "strictly wilderness animal" has low tolerance for human activity and relies on remote alpine or desert areas for summer range (Buechner, 1960), a geography largely managed by US federal land agencies. Bighorns' iconic status and the low number of tags available for conventional hunts makes makes the pursuit of the species a "once in a lifetime" hunt for resident hunters.

Pneumonia has hindered bighorn conservation efforts for decades (Cassirer et al., 2018; Pils and Wilder, 2018). The polymicrobial infection leads to high initial mortality rates in the wild sheep, especially lambs, and may be carried by individuals for years (Besser et al., 2017; Plowright et al., 2017; Dekelaita et al., 2020). Wildlife managers widely recognize that any close contact between bighorn and domestic sheep puts bighorn at risk for an all-age die-off, even as domestic sheep remain healthy (Gunn et al., 2008; Cassirer et al., 2018). While public lands sheep ranching is not as widespread as it once was, sheep grazing remains an important source of regional economic, cultural, and ecological benefits (Feuz and Kim, 2019). Importantly, many sheep ranching traditions have deep ties to Basque, Indigenous, and non-White working-class peoples—communities who have faced racial, ethnic, and class-based discrimination in the agriculture industry (Weisiger, 2011; Sayre, 2018). Whether and how sheep producers can secure access to public lands, however, has become increasingly uncertain amidst growing fears of pneumonia infections. As state wildlife officials continue to use selective culling and hunting tags to contain the threat of disease spread between species, resentment from impassioned bighorn advocates toward domestic sheep and their people builds in what has become a standoff "sheep vs. sheep" (Hoffman, 2007).

Thus, an expansion of pneumonia's threat around the American West and now northward into Canada and Alaska has fueled conflict among conservation, hunting, and ranching communities over which species of sheep (wild or domestic) get to graze where (Rovani et al., 2019). That these conflicts persist, despite years of collaborative, science-based planning efforts, reveals the recalcitrant struggles of public land management interests and the deeper tensions surrounding public lands access and grazing issues. Hence, preventing the spread of pneumonia presents not only as an issue of biosecurity, but one of wildlife conservation and land management and their varied and historied politics (Brugger et al., 2019). This patterns aligns the emotional dimensions of animal disease management with other assessments of environmental conflict where emotion-fueled debates about resource management become refracted through older and deeper struggles over identity, livelihood, and place (Martin et al., 2019; Martin, 2020).

TOWARD AN EMOTIONAL POLITICAL ECOLOGY OF ANIMAL DISEASE MANAGEMENT

Our cases highlight a set of complex dynamics at wildlife-livestock-human interfaces in the American West and Europe, a reminder that infectious diseases are global, not only in spread but origin (Jones et al., 2008; Lloyd-Smith et al., 2009; Hinchliffe et al., 2013). At the same time, efforts to manage and mitigate disease spread involve the actions, efforts, and coordination of individuals and collectives "on the ground." Here, conflicts related to animal disease management are *felt* experiences for those invested in the processes and outcomes of biosecurity measures. Hunters are asked to cull, ranchers to test, vaccinate, and monitor, while sheep ranchers risk losing access to forage resources. These activities raise questions about the implications of disease management for not only rural life and livelihoods but socionatural relations (Buller, 2016).

When emotional experiences shape participation in biosecurity efforts, as they appear to do for wild boar hunters, emotions may influence the ability for government-led interventions to manage disease (Van Bavel et al., 2020). But biosecuritization is also just one aspect of modernization influencing rural places (Marsden, 2016; von Essen, 2019). The emotions accompanying disease outbreaks like brucellosis, for example, may emerge amidst a host of resource management challenges or regional anxieties to compound with other stressors related to rural and agricultural life (Edelman, 2019; Martin et al., 2019). This signals a need to understand animal disease management, and rural peoples' participation in it, as a potential driver of rural stress and a dimension of public health. Simultaneously, much like the land use conflicts associated with bighorn and domestic sheep suggest, disease management protocols may amplify or activate latent grievances related to emotional regimes, memories of lives and livelihoods lost, or other populist sentiments (Dillon et al., 2019; Carolan, 2020). These circumstances highlight an opportunity to chart out new analytical terrain in studies of human-wildlife disease dynamics by addressing the potential for emotions to reflect aspects of rural well-being (Haggerty et al., 2018b), shape identities and

subjectivities (Nightingale, 2011, 2013), and catalyze action around biosecurity initiatives (González-Hidalgo and Zografos, 2017; Nightingale, 2018).

Our three cases locate a place for emotional political ecology in studies of animal disease management, and in particular, where cases of infectious diseases are emerging alongside agricultural intensification and environmental change, shifting politics of wildlife conservation, and an ongoing negotiation of rural livelihoods (Jones et al., 2013). Future work addressing the emotional dimensions of animal disease management would do well to interrogate how the structural context and social histories of rural economies and societies influence trajectories of biosecurity, factors that are hinted at but not fully explored in our case descriptions. Such approaches are well-developed in the political ecology lineage and, in combination with greater attention to emotions, respond to the increasing need for multidisciplinary perspectives on human-environment-disease relations (Hinchliffe, 2015; Martin et al., 2019).

Lastly, our mini review suggests a need to do more than uncover and navigate these emotions, but to actively engage with and care for them. This point is made even more relevant in the context of the Covid-19 pandemic, as other accounts in this Special Issue and elsewhere so compellingly demonstrate (cf Plagg et al., 2020). That emotions are also linked with individual and community well-being provides an opportunity and imperative for disease experts, resource managers, and the rural peoples they collaborate with to privilege care as means to generate more just and effective disease management plans and actions (Noddings, 2015; Wilmer et al., 2019).

AUTHOR CONTRIBUTIONS

KE conceived the study. All authors reviewed literature, prepared case studies, and drafted discussion comments.

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The Pandemic as a Rupture that Follows Rules: Comparing Governance Responses in India, USA, Sweden and Norway

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How a country responds to a rupture such as the COVID-19 pandemic can be revelatory of its governance. Governance entails not only the exercise but also the constitution of authority. The pandemic response thus presents a real-world disruption to verify or problematize some truisms about national governance and produce novel comparisons and insights. We present a comparative analysis across four established democratic nation-states. First, we identify concerns of relevance for national pandemic responses and map them to state characteristics. Next, we conduct thematic analyses of recent ruptures in India, the United States, Sweden and Norway, to form a baseline of truisms about governance responses to frontier moments such as this pandemic, and hypothesize their relative propensities across the concerns. We then compile comparative data on emergent pandemic responses during the first 90 days of respective, temporally proximate outbreaks. This combination enables us to link response characteristics to national propensities across the relevant concerns. We identify similarities and differences between what the pandemic responses reveal and the truisms of scholarship about the four countries state characteristics. We argue that ruptures in democratic governance contexts embody temporally discontiguous and country-specific patterns. They are conjunctures of particular possibilities for bounded reconfiguration. Such reconfiguration can intensify or shift the course of what the state is becoming. We argue that in our cases it accelerates shifts to authoritarianism (India and the United States), raises stark questions of national identity (Norway and Sweden) and underscores tensions between the reemergence of welfare states and the global project of neoliberalism. By revealing what sort of rules show resurgence across ruptures, our comparative analysis deepens a timely understanding of punctuated politics of reconfiguration of authority.

Keywords: COVID-19, rupture, governance, authoritarianism, welfare state, neoliberalism

INTRODUCTION

Considerable associated costs to life and wellbeing notwithstanding, every crisis is an opportunity. What each country makes of a rupture such as the COVID-19 pandemic shows us something about the stability of existing state formations. Lund (2016: 1199) argues that moments of rupture "allow us to see that rights do not simply flow from authority but also constitute it." Governance thus entails not only the exercise of authority (over a resource, such as a territory) but also the constitution of authority, an act of state formation. In this sense, the pandemic response presents a real-world disruption to verify or problematize some truisms about national governance contexts. These truisms are broad characteristics undergirded by a wealth of empirical research on a range of problems in diverse contexts. In a chapter entitled "Principles true in every country," Mitchell (2002: 70) characterizes the fallout of the cholera pandemic in the late 19th century in terms of the reconfiguration of debt and property by institutions with state quality that had "powers of exception." These institutions can extend to non-state actors in "areas of limited statehood" (Risse, 2011), which is particularly apt during a rupture such as a pandemic where nation-states do not necessarily have the capacity to respond on their own.

Thus—despite various caveats we mention below—studying the real-world disruption of the "Coronavirus disease 2019" (COVID-19) response in the form of pandemic measures undertaken by select countries can produce several novel comparisons and insights. The truisms drawn from scholarship on rupture in specific nation-state contexts help us hypothesize the sort of things to look for; the outcomes speak back to the extent that such truisms hold true or are worth revising in light of any new knowledge. We ask: How consistent are insights on national responses to ruptures, drawn from COVID-19 pandemic responses, with existing contextual scholarship on ruptures? Drawing on Rasmussen and Lund (2018: 393), we understand rupture as institutional orders during "frontier moments." These are "particularly intense conjunctures of crisis which suspend existing order [where] . . . the economic value of current activities is zeroed out, and the possibility of recognition as citizens is withdrawn or redefined" (ibid.). To these authors, such moments inevitably cohere with re-territorialization, where authority is reconfigured in a manner that relates to "particular institutional, legal, and economic conditions rather than to the spatial expansion of civilization" (ibid.). As Lund (2016: 1202) evocatively states, ruptures are "open moments" when opportunities and risks multiply, "when the scope of outcomes widens, and when new structural scaffolding is erected." Accordingly, our enquiry foregrounds emergent non-linearity in the progression of state quality in the ruptured state contexts that we study during this COVID-19 frontier moment.

Political ecologists have been long interested in the nature and workings of the state and the dynamics of its reconfiguration, and in ever-ongoing re-territorialization processes. Scott. (1998) notes that narrow metricization of real-world complexity through calculative logics enables the state to multiply and strategically mobilize its authority. Li. (2007) delineates the dynamics through which states

intervene in human lives in a purported bid to improve them. Furthermore, Agrawal. (2005) argues that over time state interventions shape human subjectivity itself to better suit the purposes of the state. Thus, the modalities of governance and popular perceptions of state quality are closely bound up with the impact of state interventions on subjects, e.g. through particular configurations of resource allocation and the manner in which they are normalised.

Robbins. (2008) identifies three key strains in how political ecologists depict state characteristics: the state tends toward ecological simplification; it governs through networks that reconstitute socio-ecological relations; and it institutionalizes environmental knowledge through erasure, creation and reproduction. While he takes a more fixed view of the state than Rasmussen and Lund. (2018), his review shares their concern with how the state is simultaneously a product and driver of territorialization. He sums up that the role of the state combines territorial strategies, political capabilities and an epistemological system as an effect of power at multiple scales (Robbins, 2008: 215). We approach the current rupture—the outbreak of a global pandemic with emergent state responses—as an "open moment" to study state quality through heightened forms of these dynamics of control over territory and resources, political authority, knowledge and expertise.

We proceed as follows. First, we identify concerns of relevance for national responses to the COVID-19 pandemic based on our reading of widespread coverage of the global pandemic response, and map them on to key nation-state characteristics (*Research Design and Hypothesis*). Second, we present thematic country analyses of recent ruptures in four national contexts–India, United States, Sweden and Norway–to provide a baseline of sorts for the truisms about each country's response to frontier moments such as this pandemic, and hypothesize the relative propensities of the four countries across the relevant concerns (*Ruptures and national propensities*). Third, we compile comparative emerging data on the pandemic responses in these four countries during the first 90 days of respective, temporally proximate outbreaks (*Empirical evidence by country case and by concern*). Since comprehensiveness is not a meaningful present possibility, we include data with high certainty, and analytically characterize less ascertainable aspects in our timeline of the four pandemic responses. Fourth, we link response characteristics to national propensities across the relevant concerns to make claims about what this rupture reveals (*Discussion*), and then close with the *Conclusion*.

This exercise enables us to identify similarities and differences between what the pandemic responses reveal and the truisms of extant contextual scholarship on the four countries. We do not focus on making claims about the effectiveness of particular responses, as the timing would be premature for robust analysis and it is not our specialty. We rather argue that ruptures in democratic governance contexts embody temporally discontiguous and country-specific patterns. By definition, these depart from business-as-usual practices in a country, but they are conjunctures of particular possibilities for bounded reconfiguration. If we view the state as something that is always in the making (à la Lund, 2016), then such reconfiguration can intensify or shift the course of what the

state is becoming. It can create the conditions for emergent national identities to concretize. We are interested in using this rupture to gain insight into the changing nature of the state in our country cases. Through this comparative analysis, we draw out lessons from the non-linear reconfigurations of authority that are being contested and constituted during the ongoing pandemic in our case contexts.

RESEARCH DESIGN AND HYPOTHESIS

We have selected four country cases for comparative analysis: India, United States, Sweden and Norway. They are all established democracies, but display variation in terms of political history, levels of democratic consolidation, wealth and human development, as well as in responses to COVID-19. Our scope is limited to democracies, wherein popular legitimacy is formally necessitated for major shifts in governance decisions, thus we do not feature a case of an authoritarian state, but we do attend to authoritarianism within our cases. Norway and Sweden are small countries, and while both are instantiations of the "Scandinavian Model" of democracy, they have seen very different responses to COVID-19. The Scandinavian Model refers to a broadly social democratic form of governance with a strong welfare state combined with capitalist features, notably a commitment to free market principles for trade (Kettunen, 2011). India and the United States are large and culturally heterogeneous democracies, but share four features that define governance in both countries during the study period: populism, nationalism, authoritarianism and majoritarianism.[1] They also feature great sub-national variation that we note but cannot address within the study scope.

In this section, we first identify concerns of relevance to COVID-19 pandemic responses. Then, we transpose them into generic state characteristics that link directly with the nature of authority. This is the framework with which we organize our thematic analyses of the four selected countries, to hypothesize their propensities on these characteristics during frontier moments of rupture. These hypotheses are tested in our empirical findings from the pandemic response, adopting an abductive approach where we focus primarily on two characteristics per country pairing to maximize analytical import given our initially hypothesized sense of national propensities. We thus aim to analyze tendencies related to state characteristics in the cases where extant scholarship suggests we are most likely to find them, without drawing premature conclusions on the nature of these tendencies. This affords us scope to confirm or contradict existing truisms by analyzing a rupture. The empirical analysis sets up the basis for our discussion of rupture and state re-territorialization in relation to the country cases, and the conclusion offers reflections on the implications of our analysis for political ecology scholarship.

Thus, in this section, we undertake two tasks. The first is to identify concerns that relate to global pandemic responses. The second is to transpose them into generic state characteristics. Given the specificities of national contexts, the latter is necessarily reductive, yet nonetheless essential to enable a comparative analysis that we argue—similar to Adger et al. (2001) on global environmental discourse and more recently Sovacool. (2021) on climate mitigation—offers considerable value for a political ecology understanding of governance during ruptures.

Concerns of Relevance for National Responses

During January-May 2020, and especially from March 2020 onwards, global pandemic responses received ample media coverage to discern some key patterns across countries. These feature some particularities related to COVID-19 characteristics, but are largely similar to generic pandemic measures that aim to "flatten the curve". The generic principles include slowing the virus transmission rate, r, so that it is below 1 ($r = 1$ corresponds to one transmission per infected person) and declines, in order to limit viral reproduction within medical treatment capacity and to minimize the economic fallout of pandemic measures on society. The particular strategies include washing hands, using sanitisers and facemasks, maintaining a physical distance of 1–2 m or more from others, and limiting gatherings to small groups.

Our reading of global coverage identifies four concerns that feature in all immediate and short-term pandemic responses: 1) fiscal measures and beneficiaries; 2) mobility restrictions; 3) stockpiling and distribution of medical equipment; and 4) extent of testing (infection and mortality rates, and relative to national population), until such time as treatments and/or vaccines can be developed, tested and widely deployed. These are defined in **Table 1**. We see mobility restrictions as tightly linked with employment concerns, and focus on the former since this enables us to identify fine-grained evidence for the three-month study period, which is unavailable in terms of short-term employment variability statistics. The four concerns are closely linked with political ecology concerns of control over territory and resources, political authority, knowledge and expertise.

Linking Concerns With State and Authority

Each of the four concerns above coheres with a generic state characteristic that is linked to state quality during a rupture. Many indices of state characteristics exist focused on relevant aspects: for instance, Freedom House's index of political rights and civil liberties, on whose 7-point "freedom rating" scale all four case countries fell under the "free" range of 1–2.5 pre-pandemic (Norway and Sweden most at 1, the United States less at 1.5, and India less at 2.5) (House, 2018).[2] O'Connor et al. (2019) draw on work by the Organization for Economic Co-operation and Development (OECD) to discuss the state in terms of citizen engagement, transparency, accountability and integrity, and show that these factors correspond in the short term with

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[1]These tendencies are at play to various extents in any state, including Scandinavian ones (Törnquist and Harriss, 2016).

[2]In the 2021 ratings, India was downgraded and categorized as only partly free, which highlights the changing nature of state quality. See https://freedomhouse.org/country/india/freedom-world/2021 (accessed 21.5.2021).

TABLE 1 | Defining concerns that feature in immediate and short-term pandemic responses.

Concerns	Definition
Fiscal measures and beneficiaries	This concern refers to the degree and distribution of fiscal measures undertaken as part of the pandemic response. These took the form of targeted support mechanisms (e.g. baskets of essentials delivered to the doorstep) and large financial packages passed through national legislation with criteria for distribution across sectors (e.g. to cover a proportion of fixed costs for small businesses). It is important to consider because the pandemic has had widespread impact on employment, and placed many population sub-groups at risk, both directly through risk of infection and indirectly through the economic fallout of extended societal lockdown and other response measures.
Mobility restrictions	This concern refers to the curtailment of freedoms exercised during regular circumstances, most notably the freedoms of movement and free public assembly. The rationale for this is to limit the transmission pathways of COVID-19, as public transport and large-group gatherings result in extended exposure to many people in close proximity. It is important to consider because on the one hand such restrictions are vital to the success of response strategies such as testing and tracing, whereas on the other hand any indefinite restrictions of this nature represent potential threats to democratic goals such as the ability to hold public deliberation. Moreover, their impact differs widely across those who rely on public transport and those who use automobiles, walk or cycle
Stockpiling and distribution of medical equipment	This concern refers to the procurement and allocation of critical medical equipment, including both preventive equipment (e.g. masks for health workers and for public use) and essential equipment and medicines for treatment (most notably ventilators to support critically ill and high-risk infected patients with other underlying conditions such as asthma or lung damage). The pandemic led to acute and extended shortages of such equipment and competition over procurement due to spiked global demand. It is important to consider because such stockpiling and distribution is directly linked to the extent and quality of healthcare that is possible to offer at any location, and there is a heightened risk of socio-spatial inequalities in this regard
Extent of testing	This concern refers to how widespread and intensive the measures to diagnose infection were. Early in the pandemic response, test kits were yet to be developed, and once developed and trialled, they had to be deployed to all parts of the population. Initial tests were typically restricted to prioritized cases, and as availability increased, expanded to cover a larger set of people who exhibited symptoms and believed they were carriers. Rapid widespread testing proved effective as a means to limit virus transmission, as became evident in responses by South Korea and China, which were impacted early. It is important to consider because the degree of commitment to testing was typically determined by national political leadership with inputs from health experts, and access to tests was in many cases conditioned by factors such as location and class

better quality public services and in the long term with the quality of democracy, inclusive growth, trust in government and the rule of law. While a comprehensive listing of such indices is beyond our current scope, the point is that there is some degree of consensus on varying national propensities on specific state characteristics, with clear implications for resource access and equity.

In **Table 2**, we map the four pandemic-related concerns defined above on to these four respective state characteristics: 1) each country has a degree of predisposition to elite capture of political and economic decision-making functions; 2) each country has a degree of tolerance for political leaders to act in an authoritarian manner at odds with democracy to meet urgent needs; 3) each country has a degree of commitment to affirmative action to secure the interests of vulnerable population categories; and 4) each country has a certain degree of trust in experts. These choices are fit-to-purpose based on our interest in understanding emergent changes in state quality during a rupture. They are not exhaustive, but do capture aspects of the state qualities that Robbins. (2008) synthesizes: territorial strategies (elite capture and affirmative action), political capabilities (tolerance to authoritarian measures) and an epistemological system (degree of trust in expertise).

To establish four hypotheses, each linked with one of these generic state characteristics for our case countries, we present thematic country analyses based on secondary data in *Ruptures and national propensities*. Each hypothesis takes the form of an internal ranking (1–4) representing the lowest to highest

propensity for a characteristic by our selected countries. These are not based on a retrospective reading of country-specific developments during the pandemic, but solely on a review of literature on the linked state characteristics for each country context. We draw on research about moments of rupture as much as possible in our literature review; however, this is available to quite varying extents across the four countries and for different kinds of ruptures that have limited relevance to the particular rupture that the COVID-19 pandemic and various responses represent. While for the sake of clarity and conciseness we use relatively broad characterisations below to set up our analysis, we are aware that these characteristics are debated, and indicate through caveats that we hold claims tentatively. Indeed, the point of our analysis is to not take these claims at face value, but to put them to the test in terms of how they bear out during the rupture of COVID-19 as seen in initial national responses.

RUPTURES AND NATIONAL PROPENSITIES

Our thematic country analyses focused on the key contextual aspects of the four countries in relation to recent ruptures, which we understand as "open" or "frontier" moments in the wake of diverse crises (Lund, 2016; Rasmussen and Lund, 2018). Here, we present a pointed overview for each country case, to provide a baseline for the aspects most germane to our study. For India and the United States, we are particularly interested in aspects related

TABLE 2 | State characteristics relevant to the four pandemic response related concerns.

Characteristics	Definition
Risk of elite capture.	The concern of 'fiscal measures and beneficiaries' relates to economic decision-making during a rupture. Such decisions are inherently political, as they are premised on the recognition of specific actors as ones that should serve specific functions and deserve specific entitlements. Under ordinary circumstances, a system of checks and balances ensures some degree of deliberation and transparency, e.g., national budget allocations in democracies. During rupture, time is of the essence and well-positioned actors have a larger mandate to act, greater influence, and less checks on power. Such frontier moments open up for rapidly expanded authority with increased risk of elite capture.
Tolerance to authoritarian measures	The concern of 'mobility restrictions' relates to the degree of public tolerance for authoritarian measures during a rupture. Executive power is required in order to address urgent needs. Failure to promptly remedy problems could exacerbate their adverse impact, hence there is greater indulgence of state authority than during ordinary times. When this pertains to freedoms that are important to democracy, such as freedom of movement and public assembly, there is a risk that state authority will assert itself in arenas where it would ordinarily have been held in check through instruments of public accountability, e.g., protests against fossil fuel projects.
Commitment to affirmative action	The concern of 'stockpiling and distribution of medical equipment' relates to the coverage of preventive and reactive measures by the state during a rupture. While these pertain to healthcare in this instance, the underlying issue is one of state capacity and adherence to distributive justice. The state has the imperative to govern and serve critical functions, and can take steps to be responsive and stave off the worst excesses of a rupture through emergency preparedness. It moreover has the ability to determine which population groups and territories benefit from such measures and to what extent. The wellbeing of vulnerable groups is highly dependent on the recognition of their needs and, once recognized, on the effective implementation of entitlements through affirmative state action, e.g., soup kitchens for the homeless.
Trust in experts	The concern of 'extent of testing' relates to public trust in expertize during a rupture. Frontier moments disrupt the balance of power relative to business-as-usual circumstances, as the nature of rupture calls for certain actors to take charge based on their expertize, e.g., conflict resolution mediators during violence. Yet to what extent such experts can take charge depends on the appetite shown by the state for allowing relevant expertize to be heard and heeded. National leaders can choose to ignore expert counsel, or recognize experts as decision-makers during times of crisis and empower them to direct state actions. Public approval or backlash to such shifts in the manner of state functioning conditions these choices.

to elite capture and authoritarianism, whereas for Sweden and Norway, we accord attention to aspects of affirmative action and trust in experts. Both choices are based on traits reflected in extant scholarship, allowing us to maximize analytical import from our study. We then compare this scholarship to offer comparative overall assessments in **Table 3** and populate the hypotheses in **Table 4** at the end of this section.

India

The postcolonial Indian state has exhibited a strong (but now weakly repackaged) rhetorical commitment to pro-poor policies and affirmative action (see Deshpande et al., 2019 for a nuanced discussion), coupled with a high acceptance of the state reposing authority in experts. At the current conjuncture, however, the Indian state may be described as increasingly centralized with a strong propensity for authoritarian populist forms of governance (Chacko, 2018), coupled with a relatively high degree of elite capture.

Two ruptures in particular have contributed to this development. The authoritarian populist turn commenced from the late 1960s. Pressured by social groups marginalized by the postcolonial developmentalist project, the long-ruling Congress party abandoned its commitment to liberal principles in favour of a populist, pro-poor reform agenda that boldly promised to "abolish poverty". This was coupled with the violent suppression of insurgencies and the systematic building of a large security state with more than a dozen different paramilitary services (Hansen, 2019). This particular rupture culminated in a brief period of Emergency rule during 1975–77, with a subsequent return to democratic elections.

The second rupture reduced centralized state control over the economy via policies of liberalization from the mid-1980s onwards. The state gradually facilitated the expansion of capitalist accumulation in newly opened economic sectors. This neoliberal turn reflects the rise of the capitalist class within India's dominant class coalition, and an intimate relationship between the state and big business (Kohli, 2012). The current charismatic Prime Minister Modi—in power since 2014—is enthusiastically endorsed by prominent members of the Indian capitalist class, and his successful welding of neoliberal economics, authoritarian populism, and aggressive Hindu majoritarian politics is becoming hegemonic (Kaur, 2020). The past decade has in this manner seen a coalescing of centralized political authority, personalistic rule, and attempts to circumvent civil liberties and the rule of law in the name of popular majorities (Chatterji et al., 2019).

The prioritization of capitalist growth is legitimated with rhetorical references to a vaguely defined notion of "development", but without clear plans for redistribution. This has exacerbated already high social inequality and wealth concentration among the country's economic elite (Crabtree, 2018). At the same time, surveys document declining support for democracy among the electorate. The 2017 Pew report concluded that support for autocratic rule is higher than in any other nation surveyed. More than half of the Indians surveyed would support governing by the military, and an even larger proportion supported government by experts rather than elected officials (Chatterji et al., 2019, p. 7). As recent elections show, voters are comfortable centralizing political power in a strong leader (Sircar, 2020), representing a

TABLE 3 | Overall assessment of state characteristics for the four country cases.

Country	Overall assessment
India	India exhibits a relatively high degree of elite capture and relatively high tolerance for leaders who lead with authority (but perhaps not for authoritarian leaders). It also shows a high degree of rhetorical commitment to pro-poor policies and affirmative action, but unevenly so in practice. An irrational undercurrent of scientism and chauvinist hostility (e.g. Hindutva science over western medicines) is visible.
United States	Past ruptures have accelerated tendencies toward authoritarianism and the consolidation of power into the hands of a small capitalist class. This has led to low confidence in the state to act in the interests of most citizens, while also undermining the ability of ordinary people to hold the state to account. Successive ruptures have rendered it difficult to sustain faith in the 20th century global imaginary of the United States.
Sweden	The reinvention of the Swedish economy since the 1980s enables its private sector to adjust to a swiftly changing, global economy. Coupled with a supportive state that has kept tight control over state finances since balance of payment difficulties of the 1990s, the country is well prepared to withstand shocks. Broadly consensual economic and political decision-making among political and business interests, strong state finances, and the capacity of experts to act independently imply that crisis response measures generally stem from broad agreement. On the horizon, one may nonetheless note increasing disenchantment with urban, middle-class alignment in the face of growing inequalities, growing support for right-wing groups, and increasing risks–particularly for ethnic minorities–of exclusion from mainstream society.
Norway	During ruptures in its recent past, Norway has shown the ability to resist elite capture to a large degree, and to conduct itself within democratic rules with few authoritarian traits. Despite increasing economic liberalism and political conservatism in recent years, at times of rupture its response has been characteristically inclusive and geared toward public debate rather than partisanship. The ability to maintain stability and cushion the population from global vagaries undergirds strong trust in expertize, coordinated by a state that secures rights and entitlements. Yet this is based on its economic position thanks to oil and gas export, which is itself disrupted during the current rupture and has a contested role in energy futures, thus exposing Norway to the contingencies of global economic shifts.

TABLE 4 | Hypothesizing propensities for four state characteristics by country.

Country/Characteristic	Risk of elite capture	Tolerance to authoritarian measures	Commitment to affirmative action	Trust in experts
India	Very high	Very high	Very low	Very low
United States	High	High	Low	Low
Sweden	Very low	Very low	High	Very high
Norway	Very low	Very low	High	High

clear shift toward authoritarian rule in the longest functioning democracy of the Global South.

United States

The United States presents itself as a bastion of liberal democracy, in which the state secures individual liberties, equality, and the rights of minority groups, while simultaneously incarcerating more people than any other country, with steep increases since the 1980s and the privatization of prisons (Story, 2019). Commitments to affirmative action and trust in experts have long co-existed in adversarial entanglement with white supremacist tendencies and the "capitalist-evangelical assemblage" (Connolly, 2005, p. 870). Three recent ruptures stand out to us as turning points with salience for susceptibility to elite capture and authoritarianism: the World Trade Center attacks of 2001, the 2008 financial crisis, and the 2016 election of a populist authoritarian.

The World Trade Center attack led to a series of unconstitutional measures justified by the ensuing War on Terror (Redfield, 2009). One of these, The Patriot Act, followed the trajectory of political repression instigated by the illegal "counter-intelligence program" (where the Federal Bureau of Investigation infiltrated domestic political organisations during the 1950s–60s). The subsequent systematic policing of political dissents surfaced deep undemocratic tendencies (Churchill, 2004).

One of the hallmarks of the American dream has been a strong middle class and a perceived high degree of upward social mobility; aspects that have eroded over time (Putnam, 2016). Following the 2008 financial crisis, the bank bailouts represented an unprecedented transfer of wealth from the public to the private sector, which exemplifies elite capture. To say that wealth inequality has increased barely captures the fall from grace embodied by the new precariat since this rupture (see Milkman, 2017 for detailed treatment). Meanwhile, in the judicial branch, the 2010 Supreme Court decision in Citizens United vs. the Federal Election Commission solidified the precedent for corporate personhood, effectively establishing money as free speech (cf. Klumpp et al., 2016; Greenhouse, 2018). Thereafter, corporations could openly spend unlimited amounts in advertising and donations for political campaigns, which begs the question of who elected officials ultimately represent (Chomsky, 2017). The influence of money in US politics compromised the political left's ability to counteract neoliberalism and elite capture (Karl, 2019).

In many ways, the presidential election of 2016 was a referendum on American values. By criticizing the international and unilateral institutions it helped to create and declaring "America First", President Trump abandoned the long tradition of claiming to lead the free world. This rupture has consolidated the use of media for surveillance capitalism and political polarization rather than public awareness (Zuboff, 2019) and shown the susceptibility of democratic systems of checks and balances to open authoritarian abuse in a hitherto standard-bearing country.

Sweden

It is without a doubt possible to claim that Sweden is one of the countries least used to rupture in the world, given its more than 200 years of avoiding violent conflict, major pandemics and social revolution (Malmborg, 2001). During this period, the country has moved from a poor, agrarian nation in the 19th century to build and maintain—despite intense global competition—an industrial, export-based economy, coupled with widespread government commitment to welfare for all citizens.

Sweden has, however, undergone change in recent decades to more closely resemble other OECD countries. This means increased globalization, increased privatization and increased inequality among other things (Bergh, 2014). The changes to economic policy from especially about 1985–1997 have even prompted some assertions of a systemic change to neoliberalism (e.g. Andersson and Kvist, 2015). A strong welfare system nonetheless remains in place, with universal coverage, even as many service providers are private companies in, e.g., healthcare and schooling (Kettunen, 2011). Public institutions in Sweden continue to carry significant legitimacy, led by independent experts able to act swiftly and impartially. This is regarded as core to the low perception of elite capture within the country and particularly to low perceptions of corruption (Rothstein, 1998; Rothstein, 2019).

Research on values has consistently shown personal independence as a strong response within the Swedish general public. The individualistic nature of responses in a country often perceived as socialist is evident in the emphasis on personal growth in contrast with low prioritization of religious and family ties compared to global tendencies. The role of the state in this system is thus not so much to support togetherness in a socialist sense, as to protect the individual from the enforced togetherness of family/tradition and religion in a system of "state individualism" (Berggren and Trägårdh, 2015). Correspondingly, the tolerance for authoritarian measures cuts against the grain of a strong societal will to exercise individual freedoms (ibid.).

Recent globalization, and particularly European Union entry in 1994, is increasing governance via supra-national institutions, thereby leading to an enlarged role for experts beyond the nation territory (Barrling and Holmberg, 2019). Like most other countries, Sweden has experienced increased questioning of ruling elites and advice from experts. To date, such questioning remains politically marginalized. But signs of unravelling faith in technocratic approaches do mean that the broad culture of consensus in Swedish politics—based on market-driven, globalized policies and a regulatory state with some ambition to redistribute wealth—has been gradually coming under pressure (Peterson et al., 2018 offer a nuanced backdrop of this long-term trend).

Norway

Relative to most countries and similar to other Nordic states, Norway is generally regarded as a strong state context (Christensen, 2003). It is characterized by low risk of elite capture, due to a strong system of checks and balances. It prides itself on not tolerating most authoritarian tendencies at home or abroad, with any exceptional incidents critiqued in public debate. It embodies strong commitment to affirmative action, backed by significant support to relevant global causes, albeit with exceptions to safeguard self-interest (e.g., limited societal acceptance of immigrants and European integration). It exhibits high trust in experts for governance, as evident from its considerable investments in research and a culture of rigorously using evidence to inform decision-making.

Notably, much of what enables this contemporary strong state has its roots in a rupture that began in 1969, with the discovery of some of the world's largest oil and gas resources in Norwegian waters (Haarstad and Rusten, 2018). Contrary to many countries experiences with a "resource curse", Norway undertook an exemplary political and administrative response to this windfall (at least at home, cf. Eriksen and Søreide, 2017), instituting a sovereign wealth fund that over the past half century has grown into a trillion-dollar behemoth. Fossil fuel export earnings catapulted Norway's economy from being below the European average to a global financial player. Thus, even in this disjuncture there is a marked continuity of the long-standing welfare state, subsequently backed by a strong fiscal basis for affirmative action.

A more recent rupture forced the Norwegian state and public to reflect on their sense of self. For instance, the alt-right Utøya massacre of 2011 constituted a moment of national stocktaking (Steen-Johnsen and Winsvold, 2020). It laid bare the challenges of coordination across national institutions and sectors (Christensen et al., 2015). Norway has thereafter strengthened the security state and surveillance apparatus for emergency preparedness with an emphasis on protecting strategic interests.

Bulwarked by its robust economy during the global financial crisis of 2008–2015, Norway reached into its wealth fund in 2016 during a global oil price rut to maintain financial stability and the value of its kroner (Haarstad and Rusten, 2018). This response, as with previous ruptures, shows the affordances that the frontier moment of striking oil in the North Sea in 1969 has opened up for the country's handling of contemporary crises like COVID-19, but also underscores a persistent concern with national resilience given overt economic dependence on fossil fuels with low diversification.

Table 3 presents a summary overview of the overall assessment for each of the four countries.

Based on a comparison of the above characteristics across countries, we hypothesize the expected propensity for a characteristic in **Table 4**, using a relative four-point scale of "very low," "low," "high" and "very high."

EMPIRICAL EVIDENCE BY COUNTRY CASE AND BY CONCERN

It is already evident that the pandemic will have deep negative economic consequences, but it is equally likely to impact the nature of the state and the exercise of authority, both now and in the future. As Harari (2020) has argued, "this storm will pass. But the choices we make now could change our lives for years to come." In democracies in particular, the COVID-19 rupture has most evidently exposed the tension and even trade-offs between security and civil liberties. But it has also set in motion a set of differentiated processes that may change national governance in other domains. Indeed, scholars and commentators have up to now proposed a great variety of post-COVID-19 scenarios, many of which point in opposite directions and are not readily reconcilable.

For example, the decisive role of the state in responding to the crisis may resurrect desires for a strong, interventionist welfare state with greater control over resource allocation. But it may also lead to increased authoritarianism or nationalism (Thomson and Ip, 2020). Similarly, the initial acceptance of digital surveillance technologies in the COVID-19 context may, if it becomes an entrenched technology of governance in the post-pandemic world, lend itself to more authoritarian forms of rule, advancing this biopolitical agenda in the ecology of state territories. In the field of environmentalism, the increased pressure to mitigate the looming economic crisis may torpedo earlier ambitious climate policies; but the COVID-19 crisis may equally consolidate sustainable post-materialist values as people in the Global North and nouveau riche middle-classes in the Global South see the benefits of cutting air travel, working from home, and moving activities to digital platforms (Kuzemko et al., 2020). The role of experts in governance may be re-evaluated in light of the high levels of uncertainty and occasionally poor communication of the knowledge-related side of the crisis. However, in many societies, levels of trust in national public health authorities have increased or remained high, even where states—such as Norway and Sweden–proposed divergent policy measures (Helsingen et al., 2020).

Such contradictory predictions constitute a field of possible outcomes emerging from the rupture. We see these processes of change as open-ended, but accelerated and modulated by the present rupture as the latest in a series of stacked conjunctures over time. We argue that outcomes will vary between different democratic countries, and that the direction of change needs to be empirically explored rather than asserted a priori.

Unlike the country hypotheses in the previous section, our choice of empirical concerns themselves is informed by relevance to the measures adopted by governments in pandemic responses globally: distribution of financial support, mobility restrictions, medical equipment stockpiling and distribution, and infection testing. In this empirical section, we first present strictly descriptive evidence, followed by a more analytically oriented tabulation, and finally reflect on the implications of uncertainty. We draw on some raw national data as well as more fine-grained but less comparable and reliable contextual analysis.

Empirical Evidence

We have strong evidence on national measures to adjust to the pandemic along a similar timeline. We organize this in four categories ordered along matching timelines: fiscal measures and category of beneficiaries, mobility restrictions, stockpiling and distribution of medical equipment; and the extent of testing conducted with results in terms of infection and mortality and as population proportion. Day zero (first known incidence) is specified for each country. This evidence allows us some commensurability across four distinct contexts. For a visual overview, please see virus spread (based on positive tests) in the four case countries in **Supplementary Appendix A**, drawn from the "Our World in Data" and "Worldometer" websites (also see gray literature data sources by country, provided in **Supplementary Appendix B**).

India (Day Zero = January 30, 2020)
Fiscal Measures and Beneficiaries
None During the First Month. Day 30–60: State Chief Ministers announced various economic "stimulus packages" and/or daily wage payments for labour categories. The Union Finance Minister announced a USD 24 billion national relief package, primarily for migrant labourers and daily wage earners, with USD 2 billion targeted to strengthen the healthcare sector. Wages worth INR 4431 crore (USD 600 million) pending under a national employment guarantee program were released. Heavy food grain subsidies were announced for 800 million Indians. The PM Citizen Assistance and Relief in Emergency Situations Fund (PM Cares) fund was set up with the PM as Chairman, to enable tax-deductible "micro-donations" to fight COVID-19. Day 60–90: PM Cares allocated INR 3100 crore (USD 400 million) to purchase ventilators and help stranded migrant workers. Various direct benefit transfer schemes targeted farmers, women, self-help groups, pensioners, widows and the homeless. Day 90-: Economic aid package worth USD 265 billion announced.

Mobility Restrictions
Day 0–30: Thermal Screening of Foreign Arrivals from Select Countries. Day 30–60: All non-essential traveller visas, land border crossings and air travel suspended. The government issued an advisory encouraging social distancing measures. Different states began to restrict mobility and close educational institutions. This was followed by a one-day national "people's curfew" as a trial run for a 21-days nationwide lockdown on day 55. Day 60–90: Nationwide lockdown extended by 21 days. Day 90-: Nationwide lockdown extended twice for altogether 28 days. The lockdown and restrictions on mobility were graded into red, orange and green zones, depending on the degree of viral spread.

Medical Equipment Stockpiling and Distribution
Day 0–15: The export of personal protection equipment (PPE) including masks, gloves and ventilators, was banned, then permitted a week later. Day 15–30: Concerns arose over future medical production, given broken supply chains with COVID-19-hit China. Day 30–60: Major hospitals reported shortage of

PPE. Concerns were raised about possible shortage of government hospital beds and ventilators. PPE exports banned again, including the export of raw material for protective masks, and the export of anti-malaria drugs believed to work against COVID-19. Day 60-: Shortage of ventilators, import of used ones allowed. Concerns over testing and treatment capacity persisted, as infection numbers continued to increase.

Testing degree (per thousand people), infected (% of tested population), mortality (% of tested population): Day 0–30: testing <0.01, infected <0.01%, 0% mortality. Day 60: testing <0.01, infected (1,251 cases), mortality (29 dead). Day 90: testing 0.03, 4.29% infected, 0.131% mortality. Day 115: testing 0.07, 4.57% infected, 0.127% mortality.

United States (Day Zero = January 20, 2020)
Fiscal Measures and Beneficiaries
None initially. Day 60: Initially, USD 8.3 billion was targeted to public health agencies and vaccine research; and USD 192 billion for the Families First Coronavirus Response Act, addressing unemployment insurance benefits, increased Medicaid and food-security spending, free testing, and tax credits to offset costs for employers obligated to offer paid sick leave and family leave. Day 90: The USD 1,721 billion CARES Act included USD 500 billion for loans to large companies deemed critical to national security, and to state and municipal governments; and USD 380 billion for loans to small businesses to avoid laying off employees with costs related to rent and payrolls, and to utilities eligible for loan forgiveness. Taxpayers with annual incomes up to $75,000 were to receive a one-time payment of USD 1,200, with an additional USD 500 per qualifying child. Unemployment benefits were expanded. USD 150 billion was earmarked for healthcare providers, and various tax incentives instituted, including deferral of payroll taxes that fund Social Security and Medicare.

Mobility Restrictions
Day 0–15: A federal 14-days quarantine was issued for returnees from China; a presidential order denied entry to foreign visitors to China from the past 2 weeks; a high-alert travel advisory discouraged US citizen travel to China. Day 60: A travel ban denied entry to non-US citizens who had visited Iran or the Schengen area within 2 weeks. 19 states, and Navajo and Yakima nations, issued stay-at-home orders. Day 90: 42 states, and Guam and Puerto Rico, had state-wide stay-at-home orders in place, whereas 19 states had eased such orders. Three cities in states without orders had issued their own orders.

Medical Equipment Stockpiling and Distribution
Day 30: Health professionals warned about impending dangerous shortages of PPE and ventilators. Day 60: Federal, state and local governments competed in the market to secure medical supplies at inflated prices. Day 90-: 90% of the federal stockpile of medical equipment had been distributed to states, and the Defense Production Act had been partially enacted to produce ventilators and m95 masks to meet nationwide shortages.

Testing degree (per thousand people), infected (% of tested population), mortality (% of tested population): Day 15:

negligible testing, 0.78% infected; 0% mortality. Day 30: negligible testing, 0.66% infected; 0% mortality. Day 60: testing 0.62, 26.78% infected; 0.4% mortality. Day 90: testing 12.19, 18.85% infected; 1.09% mortality. Day 120: testing 38.09, infected 12.23%, mortality 0.69%.

Sweden (Day Zero = January 31, 2020)
Fiscal Measures and Beneficiaries
None during the first month. Day 30–60: Repeated and updated fiscal measures were announced by the government and Central Bank. These measures received support from opposition parties, who pushed for even larger measures in a shift from earlier broad political agreement about fiscal prudence as a key political goal. The specific thrust related to unemployment benefits, improved sick leave remuneration, and support to companies forced to retrench employees. Day 90: Fiscal measures reached 10.4–16.1% of GDP (SEK 523–811 billion, approximately USD 55–85 billion) in 3 months. The government continued to reiterate the state's financial strength and existing political consensus supported continued spending. A clear message from the government was that the historical break from 30 years of fiscal prudence to state-backed financial crisis management was far from reaching its limits.

Mobility Restrictions
Day 0–15: No restrictions. Day 30: No restrictions. Day 60: Incoming international travel was restricted in Sweden as part of European Union legislation. Recommendation issued to citizens not to travel to high risk countries drastically reduced non-essential travel while keeping borders formally open. Recommendation issued to reduce domestic mobility between cities and regions. Advisories specifically targeted people above age 70 to refrain from any social interactions outside the household. Breaches to recommendation not liable for fine or other form of penalty, in line with the overall Swedish approach to combating COVID-19 based on personal responsibility. Day 90: Air travel down 90%. Initial recommendation not to cross municipal borders relaxed to a recommended travel radius of 1–2 h by car.

Medical Equipment Stockpiling and Distribution
Day 0–15: Significant scarcities were reported across all forms of supplies other than ventilators. Preparations were slow and stock stayed low. In the 1990s, successive governments reduced all military and strategic medical stocks, selling or discarding the last in the 2000s. Day 15–30: Shortages became particularly apparent in elderly care homes. The supply system lacked a national thrust. The government Social Board only acted as an advisory body to regional hospital administrations, which slowly coordinated supplies with hundreds of care home providers. Several international orders for essential supplies were cancelled due to closed borders. Day 30–60: Ad hoc supply arrangements and repurposing old equipment largely met needs despite rapidly increasing patient numbers. Day 60–90: No significant shortages were reported after orders worth SEK 1 billion, as domestic industries and civic initiatives fulfilled demand and imports commenced.

Testing degree (per thousand people), infected (% of tested population), mortality (% of tested population): Day 15: testing 0.51, infected 20%, mortality 0.01%. Day 30: testing 3.65, infected 0.06%, mortality 0.05%. Day 60: testing 5.44, infected 27.18%, mortality 3.94%. Day 90: testing 14.67, infected 20.46%, mortality 2.45%. Testing proved difficult to scale, first due to uncertainties with the technology and specific supplies, and later due to logistical and staff constraints. Testing was not prioritized by the Public Health Authority.

Norway (Day Zero = February 25, 2020)
Fiscal Measures and Beneficiaries
Day 15: the first fiscal measures were introduced, with preliminary rules published on changes to working life and unemployment benefits. Essential services–healthcare and consumables–were maintained, whereas other activities–including kindergartens and schools–were conducted remotely or suspended. Day 30: Notably, by day 19, a crisis package of NOK 100 billion (approximately USD 10 billion) enabled loans to impacted businesses. The lockdown continued, with health advisors and the government adapting policies in concert. The large welfare state safety net offered support to laid-off employees. Day 60: Some lockdown rules were eased, with non-essential services reopening with mandatory social distancing. The period for unemployment benefits was prolonged by 18 days. Day 90: The right to seek compensation for laid-off employees was temporarily extended to cover workers from outside the European Economic Area. Almost all economic activities gradually resumed.

Mobility Restrictions
Day 15: A national lockdown was announced and rapidly enforced. Only essential travel was permitted, with restrictions on incoming foreigners, including 14-days quarantine. Norwegians abroad were asked to return to Norway unless stationed abroad long-term. Day 30: The northern region Nordland banned travel from southern regions, despite central government contestation. Municipal measures often exceeded and preceded similar national rules, e.g., on business closures. Those exhibiting mild symptoms were mandated 14-days self-isolation. Day 60: Air travel abroad was down 90 percent. Limited use of public transport was encouraged, and socially distanced hikes recommended. Kindergartens and schools partially reopened, while remote work was recommended. Day 90: Schools reopened fully, and most employers resumed near-regular work practices, with minimal use of public transport encouraged. Buses and trains ran with half their capacity marked as non-use.

Medical Equipment Stockpiling and Distribution
Day 0–30: Initially, total respirator capacity was not revealed to strategically avoid panic. Then, Norway announced it had 682 ventilators. An industry-defense collaboration ensured production of 600–1,200 emergency ventilators to meet estimated needs. The government assured funding for 1,000 of these, which health experts however criticized as inadequate for COVID-19. Day 30–90: The pandemic measures flattened the curve and demand for ventilators stayed far below maximum

estimates. COVID-19 hospitalisations peaked at 325 patients by Day 35, and declined steadily to below 40 by Day 90.

Testing degree (per thousand people), infected (% of tested population), mortality (% of tested population): Day 15: testing 1.52, infected 11%, mortality <0.01%. Day 30: testing 12.25, infected 5.74%, mortality 0.02%. Day 60: testing 24.20, infected 5.76%, mortality 0.15%. Day 90: testing 38.48, infected 4.01%, mortality 0.11%.

We have anecdotal evidence and emerging detailed reportage on the effects of pandemic responses on different societal actors. We organize this in terms of: distribution of state support (where transparency is not sufficient to assume a match with formal allocations); repercussions on vulnerable categories (e.g. migrants, hospitality sector, temporary workers, tourism sector, the homeless, self-employed and small businesses); protection for healthcare personnel and other frontline workers; and maintenance of law, order and personal freedoms. This reflects political ecology concerns related to resource allocation, equity and rights, and the exercise of authority. Our evidence base is limited to online coverage (in English, Swedish and Norwegian languages) and we aim not at comprehensiveness but at sufficient coverage to support and enrich analytical characterization of variation across countries and conjunctural explanation for each case. We present findings in **Table 5**. This also highlights the varying challenges the countries faced in terms of state capacity.

The Implications of Uncertainty
In terms of uncertainty, there are moreover a number of unknowable facts, both at the time of writing and possibly also later. These include actual numbers of deaths caused by COVID-19, for which testing and monitoring is insufficient, especially in India and to some extent the United States, but also in Sweden based on comparisons of death rates during the same time period in recent years, which exhibit a wider difference than deaths attributed to COVID-19. This also holds true of infected person counts, where testing matters even more; testing rates varied widely and remained abysmally low in India, with Norway having the most rapid rollout among the four cases. Even more challenging to understand at present are the alternative costs to lockdown, i.e., the decreasing wellbeing that stems from a lack of other medical care for serious ailments such as cancer or cardiovascular diseases with severe long-term consequences, as well as from the socio-economic effects of the lockdown. The latter includes joblessness and social isolation, both with well-known effects on personal health. Similar health challenges have been noted from past economic downturns (Zivin et al., 2011), and there is no reason to think that the deep economic difficulties caused by the pandemic and societal responses will not follow similar future patterns.

Importantly, we cannot know at present how well or otherwise containment strategies work over time in terms of infection transmission and mortality effects, and in terms of economic and socio-political repercussions. These uncertainties place clear limits to the scope of our analysis, but because our research design recognizes this, they do not affect the validity of the claims we put forward, which have a basis in evidence.

TABLE 5 | Analytical characterisations of cases by effects (sources: see **Supplementary Appendix B**).

Country/ Effects	Distribution of state support	Repercussions on vulnerable categories	Protection for frontline workers	Maintenance of personal freedoms
India	Shortage of equipment, hospital beds and trained doctors is a general feature of India's poor public health system. COVID-19 exposed 'the gap' between rural and urban healthcare, as well as those between public and private, facilities	High impact on migrant workers and the homeless who cannot "stay at home" and who lose their work, and live stranded with high exposure in camps, where there are some reports of protests. Weakening of labour laws in many states, to supposedly enable reemployment after COVID-19. High indirect impact on the agrarian economy as supply chains are broken and the harvest delayed	Frequent reports of lack of PPE among health staff and frontline workers. Doctors and nurses report being censored from reporting PPE shortage and being attacked and spat on "in the field" as people fear them as carriers	Full national lockdown from late March under the national disaster management Act. Near-total ban on all mobility; all but essential service establishments closed Concentration of power in the executive. Courts functioning at heavily reduced capacity Police brutality reported against people in breach of curfew, especially migrant workers returning home Muslim missionary organization widely blamed for spread
United States	Distribution of federal stockpile of medical supplies to states was uneven, with no logic published on who gets what, and assertions of partisan biases Support to dependent territories and native tribal territories was minimal	Significantly higher rates of infection and mortality in long-term care facilities, homeless shelters, native tribal territories, communities of color, prisons, migrant detention centers, and meat processing plants (which stayed open by presidential order) (CDC, 2020)	By april, the majority of health institutions had less than 2 weeks supply of PPE, 20% of those surveyed had no remaining supply of respirator masks, gowns or face shields (GetUsPPE, 2020)	No federal stay at home orders were issued. Each state declared different restrictions on personal freedoms with some issuing none. Black and latino people were arrested and fined at higher rates for violating social distancing regulations (kaplan and hardy, 2020)
Sweden	Stockpiles of medical equipment were low, but alternative supply was swiftly identified and distributed, along with rapidly updated recommendations and training. Intensive care units were scaled up to cope with the large patient influx The state was active in budgetary support but not in the core public health policy, which was left to, and led by, public health experts	There was high impact in elderly care homes and among minority populations Death rates were higher than normal but still comparable to regular flu seasons	Initial lack of PPE, but hospital staff were not widely infected, with low mortality rates Lack of protective equipment and lack of skills within elderly care homes appeared to be significant reasons for high rates of infections and mortality among the elderly	No lockdown orders, no closure of schools, shops or offices. Recommendations rather than strict orders were issued to train the population to change behaviour long-term, and to protect vulnerable groups. Many office workers shifted to working from home, and universities switched to online education. Most other aspects of everyday life remained the same
Norway	Moderate but manageable pressure on intensive care units when the virus peaked, with ample financial support Wide-ranging support to all categories of the population, although tilted in favour of large businesses	Very low rates of infection and death in the population. The death rate in the population during COVID-19 and its social profile is comparable to an average year. More adverse impact of the lockdown on precarious workers	Rules were made and implemented to ensure that frontline workers (healthcare, supermarkets, cargo) had adequate PPE, and medical personnel were supplied with sufficient PPE through mass imports and domestic efforts	National borders were closed with 14-days quarantine imposed on return. Educational institutions and many public offices closed. Many businesses were closed temporarily but reopened with social distancing measures. Working from home was encouraged, and non-essential travel was discouraged

DISCUSSION

The Pandemic as a Rupture That Follows Rules?

Having taken stock of the emerging empirical evidence in the previous section, we discuss key similarities and differences between the truisms from extant scholarship focused on rupture-relevant characteristics on the one hand, and the pandemic-specific findings for each of the four countries on the other hand.

India

What is confirmed by COVID-19? COVID-19 has confirmed and even accelerated India's turn toward authoritarian populism, with its attendant implications for the concentration of power and privilege. The political response to the virus has certainly been populist, insofar as it has been strong on rhetoric and symbolism, but relatively weak

on substance. It was announced relatively late compared to other countries, and with severely inadequate preparation and planning on implementation and consequences. However, the strict nationwide lockdown signalled Modi's individual capacity for decisiveness, determination, and sacrifice, thus enhancing his standing as a strong national leader. Concurrently, the authoritarian tendency surfaced clearly in violent police crackdowns on people unable to observe curfew, such as the homeless and returning migrant workers, highlighting low commitment to affirmative action and equitable resource allocation in remedying pandemic impacts. The lockdown period has also confirmed India's adherence to neoliberal economics. Economic stimulus packages were announced late and were small compared to most other countries in terms of additional resources allocated. Fiscal conservatism was prioritized over economic aid so that even the large stimulus package announced in May with much fanfare and populist rhetoric reportedly left both business leaders

and social activists "underwhelmed". In a similar neoliberal and authoritarian vein, the lockdown period has been used to push through dilutions to labour rights and environmental protection in the name of economic growth, with very little parliamentary debate. This shows a tendency toward elite capture. And, in line with dominant Hindu nationalist tendencies, the Muslim organization Tablighi Jamaat has been blamed for bringing the virus to India and spreading it via "corona jihad", which shows an effort to channel blame away from the state apparatus and toward a vulnerable group in an increasingly Hindu fundamentalist context.

What is challenged by COVID-19? Rather than outright challenging hypothesized propensities about India, the COVID-19 crisis shines a clearer light on aspects of these propensities. In this regard, COVID-19 potentially helps us see the contours of state capacity and authority more clearly, especially in the domain of poverty reduction. Specifically, the inability or unwillingness of the government to aid the millions of migrant workers who were immediately affected by the lockdown tells us several important things. First, it indicates that the Indian state has–for ideological reasons that align with neoliberal ethics of individual entrepreneurship and responsibility–now more decisively abandoned its commitment to welfare, redistribution, and pro-poor interventions. The state, in other words, can be tough on dissent (when people break curfew) but indifferent to social suffering, constructing territories of exclusion and conditions for injustice. Second, it also indicates that the Indian state, in spite of being hailed as an emerging market with high growth rates for many decades, remains a relatively poor state with limited capacity to address situations of intense crisis, which reflects poorly on the role of expertize in governance. Third, the inability to handle the humanitarian fallouts of the crisis and the lockdown shines a light on the lopsided nature of economic growth encouraged by the Indian state over decades, where precious little has been channelled into improving public infrastructure such as the health system. Decades of high economic growth may well have lifted hundreds of millions of people out of poverty, but only barely so. And the COVID-19 crisis has already pushed 75 million of them back into poverty.[3] This suggests a political ecology where the state commits resources less to vulnerable groups and more to shore up its own authority; ironically, this rupture's stark exposure of this tendency may itself undermine such state authority.

United States

What is confirmed by COVID-19? A crisis situation like COVID-19 could perhaps lead us to expect that existing institutions would reassert their value in trusted modes of governance and in the value of science. This has, however, not happened. On the contrary, lack of initiative, misinformation, and radically uncertain blame games have characterized the US response. Dissonance between the imagined greatness of the United States and the realities of domestic poverty,

disenfranchisement and partisan polarization have crippled public debate. Characterized by "post-truth" (cf. McIntyre, 2018), the pretence of accountability has been abandoned. A continuum across discontiguous ruptures from 9/11 to COVID-19 can be seen to concentrate power in the state apparatus while undermining accountability across sectors (cf. Daoudi, 2020). The federal state's attention is mainly focused on business, and its initiatives are accompanied by the risk of elite capture, as tax credits and spending benefit large companies and already-wealthy large business owners. The vulnerability of many groups as exposed through past ruptures continues to deepen, with little to no commitment to affirmative action in the national COVID-19 response in the study period. In some ways, the state response to COVID-19 has exacerbated the challenges faced by marginalized communities.

What is challenged by COVID-19? The pandemic appears to challenge the United States's role as a global leader in the world. Trust in the state apparatus use of experts may be even lower than hypothesized, with the then-president announcing that he is taking chloroquine to prevent contracting COVID-19, a drug that experts agree is not proven to be effective and could lead to harm (cf. Yazdany and Kim, 2020). While anti-vaccination groups had been marginal before the pandemic, they have been bolstered by the then-president, increasing the challenge of eventual vaccination drives and revealing little respect for expertize in formal governance mechanisms. By contrast, tolerance to authoritarian measures may be lower than hypothesized. The lockdowns and stay-at-home orders represent the first time a large section of the population has so viscerally experienced authoritarian measures, which until now had mostly impacted marginalized groups. While previous erosions of the constitution in the name of countering terrorism and economic collapse went largely unchallenged, this temporary restriction of personal freedoms in the name of public health has been met with vehement and sometimes armed opposition in several states. This underscores limits to state authority and suggests an evolving political ecology where individual power can be exercised to erode formal authority.

Sweden

What is confirmed by COVID-19? Prior to the COVID-19 pandemic Sweden was experiencing, on the face of it, one of its most successful periods of sustained economic growth, low unemployment and strong state finances. And yet, national politics were under strain with increasing inequalities apparent, rising concerns of violent crime and populist, and heightening anti-immigrant sentiments. Rather than putting further pressure on national authority, COVID-19 appears to have strengthened a weak coalition government under pressure, and generated greater overall confidence in the government and the need for a strong state among the general public. This is evident from a number of national polls carried out since the start of the crisis. Similarly reaffirmed trust is exhibited in government experts who were otherwise undermined by the widespread outsourcing of activities to the private sector, and the growing support for populist parties who challenge elites and technocratic knowledge. General trust in the national approach to COVID-19 has been supported by the political opposition which has

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[3]Source: Covid pandemic pushes 75 million more people into poverty in India: Study accessed on 16.4.2021 at https://www.cnbc.com/2021/03/19/covid-pandemic-pushes-75-million-more-people-into-poverty-in-india-study.html.

refrained from critical remarks, other than to request increased state spending, marking a move to expand state authority over resource allocation. As the pre-pandemic mainstream political consensus appeared under challenge from right-wing populism, this rupture marks a reassertion of the welfare state model of governance.

What is challenged by COVID-19? Challenges in the short term appear modest, in large part due to coalescing political and technocratic elites keen to see out the crisis before any wider debate or reckoning takes place. The somewhat retreating Swedish state with its emphasis on fiscal prudence and market forces is, as noted above, reasserting its usefulness during the crisis. State spending has regained popularity with a wave of economic packages and forms of support granted for citizens as well as businesses, revealing a broadly egalitarian governance approach to resource allocation. Relatedly, emergency response systems and particularly emergency supplies are also back in favour, if not to replace then at least to ascertain the need for national emergency preparedness of critical items. In recent decades, these have been procured through a globalized, efficient supply system with China at the center. On a complementary note, poor worker conditions within elderly care homes have resulted in reduced education, skills and overall quality of treatment, and here, neoliberal policies and forms of governance may require a rethink. However, major reforms reducing employment security have been proposed in the meantime, based on earlier promises during coalition government formation in early 2019. This marks an evolving political ecology where care workers, instead of being supported through affirmative action as a vulnerable group, are further marginalised.

Norway

What is confirmed by COVID-19? Norway's response to this pandemic is closely aligned with its state characteristics at times of previous ruptures. The population relies on the state to safeguard its interests, and in rising to this need the state simultaneously secures its own interests—of political stability, of a strong large industrial presence as an economic backbone, and of a well-functioning political-administrative democracy. The leverage Norway gained from its adept handling of the 1969 rupture is evident in how it navigated the early stages of COVID-19, responding rapidly with preventive measures at significant economic cost, and being adaptive in the extent and duration of lockdown based on health expertize and administrative savvy. It is hard to separate political coordination and financial leverage when attributing reasons for its response—having a financial cushion made pandemic response easier. While this seems plausible in hindsight, the step-by-step response was nonetheless marked by uncertainty: would people accept stringent lockdown measures before a major outbreak? And would the economic burden be justified as the pandemic continued, potentially for over a year, requiring less expensive measures? It appears that the state, by acting decisively and being responsive to changing needs, was able to create political appetite and a constituency that backed its stringent response, enlarging its authority and control over resources.

What is challenged by COVID-19? Despite strong public approval of the state's response to COVID-19, and broad agreement across political parties, the pandemic brought out a weakness that marks a

persistent rift in Norwegian politics—its future in the global economy. Demand for oil slumped globally during the pandemic, and the Norwegian kroner fell sharply, highlighting the complexity and contingency of a governance approach so reliant on the global ecology of fossil fuel. A scandal emerged contemporaneously, with Norway's oil major posting a NOK 200 billion (approximately USD 20 billion) loss in its US operations (NRK, 2020). The political right made a push to go all-in on jobs and abandon environmental considerations in the face of layoffs and rising unemployment. The green party pushed for a green economic recovery package and environmental commentators critiqued state support to oil interests. These political dynamics are notable beyond Norway in Europe and elsewhere, but for Norway they pose a question of future identity and deepening divides in what governance approach enjoys public legitimacy and drives resource use. Thus, this rupture constitutes an antithesis of the 1969 rupture where the national "oil adventure" began; it forces a stocktake on how and when Norway can exit this adventure without courting economic disaster, and what can replace its dominant industry. Unlike the 2001 and 2011 ruptures, when the security state united political interests, or the 2016 exception when the sovereign wealth fund bolstered a faltering kroner, this rupture brings to the fore a question of national interest where a single direction of consensus is as yet unclear. It is clear that the state must urgently confront its own identity.

Cross-Cutting Concerns and Characteristics

In considering how these concerns cut across our four cases, we note that the COVID-19 response provides us with a crystallization of existing trends within each country setting. The pandemic has accelerated reluctance to use the central government as a tool of intervention when it might upset the fiscal balance, leading to a delayed response carried out in haste in neoliberal India and the United States. Conversely, state spending has increased in Sweden and Norway. Previously frugal national budgets compared to earlier decades of state spending are here coming in for a major revision. In all cases, the rupture has accelerated existing tendencies in the political ecology of resource governance.

The comparisons across our four countries focused especially on India-USA and Norway-Sweden for reasons of commensurability in terms of scale and heterogeneity. We saw India and the United States as major countries with large and diverse populations, and increasing central concentration of political economic power, constituting a move to governance with increasingly authoritarian characteristics that tend to concentrate power and privilege. Norway and Sweden being neighbouring Nordic small states with similar, relatively homogenous populations and welfare state functions (cf. Kristensen and Lilja, 2011) were not easy to separate along the four criteria in our country analyses. And yet, it is imminently clear that both countries have taken quite different approaches to dealing with COVID-19, aiming to expand state authority in contrasting ways.

The form and execution of responses aligns with pre-existing trends toward authoritarianism in India and the United States: both played the blame game more or less openly, Trump by accusing China for the spread, Modi and his Hindu nationalist

TABLE 6 | Revised ranking of hypothesized propensities for four state characteristics by country.

Country/Characteristic	Risk of elite capture	Tolerance to authoritarian measures	Commitment to affirmative action	Trust in experts
India	High	Very high	Very low	Very low
United States	High	High	Very low	Very low
Sweden	Very low	Very low	High	Very high
Norway	Very low	Low	Very high	High

government by blaming a Muslim missionary organization. To the extent that there has been a blame game in Norway, it has rational roots in blaming people who broke the national "dugnad" (teamwork) of mobility restrictions by going shopping in Sweden, or visiting countryside cabins, without subsequent quarantine. The lack of precise and binding regulations in Sweden has meant reduced scope for apportioning blame, but also a lack of accountability. Thus, the apportionment of blame—transnationally in the United States, internally on a vulnerable group in India, on sub-groups with formal violations in Norway and negligibly in Sweden—reveals diverse political ecologies linked with national discourses of viral spread pathways.

The rupture has also exposed hitherto debated truisms for which there is now hard evidence: the callousness of the leadership in the United States and India. This throws into question the romanticized American dream. The United States is undeniably a country of poor people: in 2016, 63% of US citizens lacked USD 500 in savings for an emergency, 34% had no savings at all, and the official poverty rate was 12.7 percent (Edelman, 2020). Comparably, while India has been regarded as poor but ascendant, the nationalist myth of "India Shining" perpetuated by the ruling party now appears very hollow in light of the COVID-19 pandemic. Not only does India lack a public health infrastructure equipped to deal with crises, its state apparatus has been unable to, and perhaps even unwilling to, tend to the needs of poor workers, urban migrants and rural dwellers who are rendered almost entirely dependent on state support in emergencies. A large number of officially non-poor Indians in reality live precarious lives, as Cyclone Amphan of May 2020 served as a stark reminder of, exacerbating COVID-19 adversity. In both countries, the rupture reveals failures of governance to adequately address inequity in their initial pandemic responses.

One apparent outcome of this reasoning is that the United States is no longer an unquestionable global leader. American exceptionalism has made it difficult to compare with other countries until now. Its inability to cope with the pandemic reveals weaknesses that tilt global geopolitical dynamics in favour of China, whose authoritarian state apparatus enabled more efficiently coordinated top-down action. Norway has closely followed trends in the US, such as the war on drugs, the invasion of Iraq, and neoliberal economic policies, but future political appetite for such commitments may well diverge. With US elections taking place in late 2020, the pandemic struck at a crucial moment in its national politics, in a notably contrasting manner to India, where the incumbent was re-elected in 2019.

As we note a range of worrying concerns, particularly in India and the United States, we ask: has the pandemic created new opportunities to exercise public control over governance decisions

such as resource allocation? In the United States, some Trump supporters were displeased by restrictions on personal freedoms and defied the state. India's COVID-19 response accelerated existing trends in the remaking of the state and consolidated its authority, while also exposing uncomfortable truths and state weaknesses that may open up new spaces for future political contestation. But our analysis of this rupture is also revelatory in relation to uneasy political phenomena that have surfaced in Sweden and Norway. In Sweden, trust in experts for governance seems to continue undeterred, supported by a political calculus to boost public spending and return the welfare state centre-stage, increasing its resource control at a time when many of its services have already been contracted out to private providers. In Norway, the rupture highlights a critical tussle as the harbinger of the coming choice for its future national identity: will Norway remain contented with continued dependence on an oil economy, or will this recognition of its vulnerability to global economic and environmental vagaries catalyze more vigorous debate on diversification for resilience, with public opinion swaying governance decisions?

In light of the above, we revisit our hypotheses of the four countries in **Table 6**. We argue that the rupture reveals some departures from the truisms of scholarship. India and the United States exhibit strong risks of elite capture, both display low levels of commitment to affirmative action, and both show a lack of trust in experts in their governance approaches—we had hypothesized that the United States would fare better in all three regards. This poorer than expected performance may be linked with the specific political moment the United States was experiencing during the pandemic, with pronounced authoritarian traits comparable to political developments in India. Norway performs better than Sweden on commitment to affirmative action, albeit marginally, for its safeguarding of high-risk populations through a broad approach. On the other hand, Sweden displays less tolerance to authoritarian measures than Norway. We explain this by noting that while both countries have strong trust in experts, their modes of acting on this expertize differ: Norway coordinates thematic and administrative expertize whereas Sweden takes a sector-specific approach with experts in charge. This could well play out differently in other kinds of ruptures than COVID-19 and sectors other than healthcare, hence we are careful not to over-generalize from this analysis.

CONCLUSION

In this article, we have compared and contrasted responses to COVID-19 across four countries to understand core, dynamic characteristics of governance—and thus the political ecology of

governance—in each country. This approach is based on the urgent need for more scholarly engagement with realpolitik and international relations as these take shape during dramatic ruptures with emergent consequences, something that political ecologists have been found wanting at (Braun, 2015). It is only by embedding analyses within uncertain and still unfolding ruptures that we can understand already emerging conjunctures clearly and in a timely manner (Sultana, 2020). What we argue for is thus the crystallizing function of a crisis such as COVID-19 for critical scholarship on the state that challenges existing truisms.

During the present rupture, we note stronger recognition of the role of the state across our countries. Expressions of stateness, however, take on widely different characteristics, with a concentration of power in top leadership with authoritarian and anti-science policies in India and the United States, but a recommitment to state support for marginalized groups and an expanded role of the state in Norway and Sweden, albeit with lacunae related to care workers in Sweden. The welfare state is clearly back in favour, and perhaps so is the need for a welfare state, having seen gradual erosion in all four countries. This characterization may not seem to square easily with the United States case, given the particular political moment it was experiencing during the study period, but we point to Trump's extensive use of executive orders to act in deeply impactful ways through the state apparatus. While many of these interventions served to roll back the regulatory role of the state, ironically they also underscored just how significant state presence is in people's lives, through centralized state control over resources and territory (including mobility), and over knowledge production. In both the United States and India, there are notable sub-national differences in initial responses to the extent that states exercise discretionary authority; while beyond the scope of our study, this merits attention.

In the varied national responses to the pandemic, we find that some issues have become depoliticized while others have become repoliticized by drawing in new constituencies. Particularly in Sweden, the almost complete placement of control in the hands of the Public Health Authority and its technocratic experts, with the government acting as financial backer rather than administrator, has depoliticized the response. Science has served as a tool to depoliticize resource allocation decisions and the exercise of state authority on domains such as freedom of personal mobility, in marked contrast with the more direct role of politics in Norway. It is possible to attribute this to the Swedish constitution's strong emphasis on individual freedoms, which we see as co-constitutive with contemporary national identity. This identity is in turn itself socially reinforced; Sunnercrantz. (2020) argues that media coverage strategically deployed narratives of Swedish exceptionalism and the state epidemiologist contra other domestic and foreign experts. While the Norwegian response appears well in tune with science based on study period results, the government adopted stricter guidelines than those recommended by its public health experts, relating to the stringency of lockdown, which raises questions of the scope of its control over significant long-term resources, notably the trillion dollar sovereign wealth fund. These differences are perhaps best explained by different cultures of crisis

awareness, and a Swedish coalition government that was weakly poized to act swiftly on complex issues at the time. The moment in political dynamics when the pandemic arose has clearly had some bearing on each of the four state responses.

Returning to our concern with political ecology research on state quality and rupture (Lund 2016; Rasmussen and Lund 2018), we reflect on the value of a comparative analysis of emergent state responses to a major contemporary global rupture. This exercise has enabled us to identify the key characteristics that are in play during emergent reterritorialization dynamics for this particular rupture. These dynamics include the sharpening and acceleration of existing governance trends (e.g., elite capture and shifts toward authoritarianism) as well as the emergence or contestation of suppressed ones (e.g., welfare state expansion, the marginalization of specific vulnerable groups). Political ecologists can extend such enquiry by reflecting explicitly on the territorial strategies, political capabilities and epistemological systems (Robbins, 2008) mobilized by specific states in response to COVID-19. Such accounts can link empirical analysis of the effect of power at multiple scales (which Robbins is concerned with) to conceptualisations of emergent contestation over state quality and the changing nature of statehood (a concern that runs through Lund's work) in greater depth than we are able to offer in this four-country analysis. Norval. (2016): 150) notes that "It is necessary to retain an analytical distinction between the event of the crisis, and the discursive articulation of that event as a crisis." We hope to have conveyed a situated sense of territorialization dynamics linked to this rupture in its initial phase and to have thus furnished a basis for deeper analyses of its protracted aftermath, in a manner that enables political ecologists to draw approaches to characterizing governance into generative entanglement.

To conclude, our comparative case analysis in four established democracies indicates that longer-term trends of independent institutions able to counterbalance authoritarian leaders—and to thus maintain public checks to the concentration of power and privilege in resource governance—appear dramatically missing at "frontier moments" of rupture. Iterative ruptures over time allow for radical institutional change or an intensification of a tendency that serves the interests of well-positioned actors, notably incumbents.[4] These are worrying traits for proponents of democracy, and for those who cherish the concern of political ecology with equity, access and rights in relation to the reconfigured governance of changing ecologies. A wider range of state—including sub-national—responses to such ruptures merit closer attention. We hope this attempt will motivate others to study COVID-19 responses in other contexts over time, and identify what sort of rules show resurgence across ruptures, leading to a curious punctuated politics of reconfiguration.

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[4]As an instance of the latter, see government responses in terms of planned higher fossil fuel production after COVID-19 in this report, which includes India, the United States and Norway, accessed 16.4.2021: http://productiongap.org/2020report.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

SS: Conceptualization, Methodology, Project administration, Data curation, Writing—Original draft preparation and

Review and editing. KN, PO, DR (in alphabetical order by last name): Data curation, Writing—Original draft preparation and Review and editing.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fhumd.2021.636422/full#supplementary-material

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Practices of Care in Times of COVID-19

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We argue that the COVID-19 virus has been a trigger for emerging practices of care by being an actor with agency that transforms the everyday life of subjects by placing them under uncertainty. Therefore, this paper aims to show how practices of care emerged or were maintained as vulnerable groups were confronted by restrictions to movement and uncertainties following the outbreak of COVID-19. We demonstrate this using two case studies of the Maasai pastoral community in Narok, Kenya and the community kitchens in the city of Berlin, Germany. Thus, we seek to show how practices of care for, care about, and care with are carried out by the members of these communities during pandemic times. Granted that care remains highly contentious in feminist literature, this paper contributes to a growing body of literature on care in Feminist Political Ecology by broadening the conceptualization of care. The research builds on a typology of care relations based on practices of distribution, exchange, and reciprocity. This allows us to show when care is exercised in a unidirectional and hierarchical way and when in a multidirectional way reinforcing social bonds of responsibility and collective care that transcends the socio-nature boundaries.

Keywords: COVID-19, care, uncertainties, non-human-others, feminist political ecology, agency

INTRODUCTION

We are neither in the same boat, nor do we navigate in the same waters. The health crisis we are currently experiencing is a consequence of an ecological crisis. Arguments for this are based on deforestation, new plantations and monocrops, and the transformation of ecosystems that force the displacement of species to ecosystems they do not belong to. This leads to unusual contact to pathologies among species (McNeely, 2021). Evidence suggests that 71.8% of zoonotic diseases such as, Ebola, Yellow Fever, Spanish flu, Asian flu, HIV, AH1N1 originated from animals and were transmitted to humans. The spread of these diseases from wildlife to humans is significantly correlated with socio-economic, environmental, and ecological factors (Jones et al., 2008). Whatever the primary cause that initiated this pandemic, whether it is the natural course of the virus jumping from an animal to a human, the mishandling of food within the food supply chain, or the mishandling of the virus in a laboratory, we as humans are part of it. This is because we are also part of that nature and have played a significant role in accelerating the ecological crisis. This health crisis is the ideal scenario for rethinking and listening to other forms of life and to recognize diverse practices of care. We must learn something from this catastrophe where reinventing ourselves, rethinking our ways of life, as well as repairing and caring for our planet is a matter of urgency in this day and age.

In this context, this essay seeks to broaden the theoretical conceptualization of the concept of care by building on the existing typologies of care in Feminist Political Ecology to expand on how care can

be understood and used in analysis. We do so by showcasing the circumstances under which practices of care about, for, and with others emerged or were maintained in relation to community food provision and community care during the pandemic. FPE as an analytical tool also allows us to think about the COVID-19 within the spectrum of more-than-human-others (Desai and Harriet, 2018), and we therefore demonstrate the virus as an agent that deploys power relations (Bajde, 2013; Bettany, 2015) and constrains or drives the political practice of care. The article, thus, points out on the importance of questioning the conceptualization of nature on dichotomous perceptions (Harcourt, 2018; Van den Berg, 2019). Hence, we argue that the virus acts as an agent that mobilizes everyday uncertainties by placing subjects in uncertain scenarios. Uncertainties, therefore, play an important role in the development of care practices. Both, care practices and uncertainties, exacerbated during the pandemic (United Nations, 2020). The article also highlights the exclusions, inclusions, or privileges surrounding care practices that define the roles of caregivers and care-receivers (Fisher and Tronto, 1990; Maeckelberghe, 2004).

Existing work on care shows us that care is a contentious practice that can be expressed as social reproduction (Pateman, 1988) or as a vehicle for repairing our world and making it a better place (Fisher and Tronto, 1990). The latter definition helps us explore care practices toward humans and non-human-others (Harcourt, 2018). It also helps us understand the agents involved in care practices, such as the caregiver and care receiver, as well as the ways in which care is developed through practices of care about, care for, and care with humans and non-human-others. However, we believe that this literature still needs to question more deeply the unidirectional and multidirectional relationships in which care unfolds, such as uncertainties or the conditions of the health and ecological crisis we are currently experiencing. This is because care practices, even if they operate as practices to repair our world, may be reproducing hierarchies and relationships of conflict between the caregiver and care receiver. Building a typology of care relations based on practices of distribution, exchange, and reciprocity allows us to move forward to understand more clearly the power relations that develop from dynamics of care about, care for, and care with non-human-others.

We represent our analysis through two case studies in different contexts. One is the Maasai pastoral community in Narok, Kenya, whose livelihoods depend on livestock rearing, while the other is the grouping of mobile community kitchens in the city of Berlin, Germany. We decided to stress these two cases because we see two major similarities: both communities had to explore new forms of mobility in the context of confinement and uncertainties and both communities carried out contingent practices of care for and with others that they did not carry out regularly before the onset of the pandemic. Thus, we position the study of care practices as practices of resistance in the everyday life and we seek to answer the following questions: Who can do care work and under what circumstances do these practices arise? What kind of inequalities or inclusions may be produced by care practices? We aim to answer these questions by bringing together case studies from the global geopolitical south and north to demonstrate how practices

of care for others can be turned into political practices that can arise from privilege or necessity. Consequently, they can create spheres of inclusion and exclusion that might encourage hierarchical/unidirectional practices of care or that, on the contrary, trigger practices of reciprocity and care with diverse subjects.

MATERIALS

Feminist Political Ecologies

FPE is a useful framework to question existing relations of power, such as domination, exploitation, and conflict, between societies and nature. It also takes a stand in favor of gender justice and ecological justice (Rocheleau, 2016; Sundberg, 2017; Bauhardt, 2019), that explores alternatives to the predatory capitalism in which a shift in the conventional care work practices among humans and non-human-others is imperative (Harcourt, 2017). In this section, we begin problematizing care work from a feminist perspective and along these lines we seek to disclose how care work is fully intersected and exacerbated by the outbreak of the COVID-19. We think of the virus as an agent that mobilizes care work and that aggravates uncertainties in the society. Then, we move on to show how FPE help us understand care work as a collective practice that needs to occur between humans and between humans and non-human-others. Lastly, we will present a typology to show how care work can be understood through practices of distribution, exchange, and reciprocity and the limitations each practice entails.

Feminist Political Ecologies and Care

The outbreak of COVID-19 led to the concentration of care work in private households (United Nations, 2020; Wenham et al., 2020). This consequently increased what feminist have for decades reiterated: The strong link that reproductive work, unpaid work, and invisible care work has with inequalities based on gender, race, class, ethnicity, among others (Waring and Steinem, 1988; Benería et al., 2015). Before the outbreak of the COVID-19, care work was already disproportionately borne by women at 76% on a global scale (Addati et al., 2018). Due to the pandemic, care work in homes increased as home offices were launched, home based schooling started, and home-based health care of infected people multiplied (United Nations, 2020). Likewise, uncertainties about a stable future escalated due to loss of jobs and lack of health insurance, something that mainly threatens women who work in the frontline of the health workforce, tourism, domestic workers, food providers, and other feminized activities (Wenham et al., 2020). COVID-19 increased care work for the reproduction of capital, work that has historically made women responsible for carrying out domestic work that is not part of wage labor (Pateman, 1988).

In the feminist tradition, the concept of care has been quite contentious. Both ecofeminists (Shiva, 1989) and feminist economists (Waring and Steinem, 1988; De Vault, 1991; Mellor, 2006; Budlender, 2010; Bollier, 2016) have already pointed out that the everyday life is embedded and immersed in diverse routine activities that require care work. Both

paradigms demonstrate that power relations arise from care practices, which are intensified through patriarchal privileges and exercised inequalities that marginalize the needs and interests of "non-masculinized bodies" (Mellor, 2006). Care work is an everyday practice that relegates and obscures certain bodies, and creates relations of domination, exploitation, and conflict. Thus, we argue that the way to fight against these relations of power is by shifting care from an individualistic practice to a reciprocal responsible and communitarian practice (Federici, 2010; Gibson-Graham, 2006). In this sense, recognition of the diverse phases involved in care practices, such as care for, about, and with others are of great relevance to ground less conflictive practices of care. FPE helps us in this aspect by enabling us to recognize that the inequalities that arise from care practices are experienced differently by bodies that suffer from domination, exploitation, and conflict through intersected patterns of power such as race, gender, sex, class, ethnicity, among others (Elmhirst, 2011). But most importantly, FPE allows us to realize that these patterns of power affect the complex interrelationships we have with the socio-nature network we inhabit (Harcourt, 2018). Any practice of care, therefore, implies maintaining a care relationship with the world that surrounds us.

The conceptualization of care we want to develop in this work is that of care that subverts the idea that it is women's work (Waring and Steinem, 1988). We argue that a shift in the care work dynamics must take place in the private space, such as home, and in the public spaces. We seek to broaden the conceptualization of care as a collective process (Federici, 2010) carried out in multidirectional ways and to show how care is applied in analysis. In doing so, we are not abandoning the proposals of the feminist economist to foster budgetary initiatives that are addressed to diminish inequalities and invisibilization of unpaid care work (Marx, 2019). We seek to go beyond the frameworks that conceptualize care under an ethic based on ideas of autonomy and rationality (Zechner, 2021), and beyond those that understand care in public spaces as a responsibility of the state (Weisman, 1998). The latter is relevant since the response of the state to contain the spread of the COVID-19 virus was based completely in the displacement of care to the private space. In other words, states not being able to guarantee care for everyone made subjects responsible for their health by adopting confinement measures. Evidence shows that this has extenuated workloads and has increased the lack of supplies to cover care needs, mostly in developing countries and in rural and marginalized communities (United Nations, 2020). For this reason, the need to rethink care as a collective practice turns out to be relevant specially in the context of a pandemic when inequalities increase when taking care for ourselves and our environment.

FPE provides us with the tools to understand care as a strategic political act that goes beyond the reproduction of labor force, considering care as a vehicle for the reparation of life and the world in which we live (Mellor et al., 2010; Harcourt 2013). This allows us to embrace inequalities, power relations, and uncertainties in a broader perspective, in which more-than-human-others are also considered to be part of care dynamics

(Harcourt, 2017). From an FPE framework care can be thought as a collective care work dynamic (Zechner, 2021) that develops across relationalities and co-responsibility (Elmhirst, 2011). The COVID-19 crisis confirms that individualistic dynamics of care only strengthen inequalities and care workload. It is evident that women and minorities suffer mostly from these inequalities. Even though this paper does not engage directly with the analysis of gender relations, it engages with dynamics of care, a power relation intimacy related with gender inequalities (Waring and Steinem, 1988). Thus, to understand care work as a collective practice is paramount to have a brief introduction of how this work generates dynamics of inequalities.

Towards Collective Practices of Care

The health crisis we are currently experiencing reminds us of the urgency with which we must take collective action to repair our world. As early scholars that position ourselves from the perspective of FPE, we are convinced that the epistemological and ontological (Castro-Gómez, 2000; Santos, 2011) shift required to repair our world must be accompanied by a practice of care. Therefore, we understand care as "a species activity that includes everything that we do to maintain, continue, and repair our "world" so that we can live in it as well as possible. That world includes our bodies, our forests, and our environment, all of which we seek to interweave in a complex, life-sustaining web" (Fisher and Tronto, 1990, p.40). This definition invites us to reflect on care as a dynamic practice that involves not only a duty for social reproduction but also as a voluntary and willing practice. At the same time, this conceptualization of care allows us to demonstrate the tensions and hierarchies that arise from care practices when asking who cares, how to care, and whom to care for. FPE accounts for this by highlighting that care is intersected and played out by inequalities such as race, gender, class, ethnicity etc. For this, we outline the tensions care entails while accounting for the power relations that arise from this. We also seek to present a typology of care as a collective process through three main dimensions: distribution, exchange, and reciprocity.

Tronto. (1998) mentions that there are four phases that constitute the act of practicing care, which are the act of caring about, caring for, caregiving, and care receiving. According to this author, caring about refers to the moment in which the caregiver becomes aware and recognizes the need that someone has to be cared for, which is mostly an act of disposition to care for the other (Tronto, 1998 p.16). Caring for refers to the moment in which someone assumes the responsibility of caring for the other (Tronto, 1998 p.16). This entails organization and materialization of certain acts as well as wear and tear on the part of the caregiver. Furthermore, caregiving involves acts of knowledge about how to care for another, in this regard, "competence is the moral activity of caregiving" (Tronto, 1998, p.17) and therefore this action is accompanied by value judgments that qualify this work. Care receiving involves a moral burden just as it requires an act of response that could imply the cessation of care or greater attention (Tronto, 1998) as well as the evaluation of those. Thus, care is an act that involves "moral judgments, political

judgments, technical judgments, and psychological judgments in (the) everyday caring activities. Caring, then, is neither simple nor banal; it requires know-how and judgment, and to make such judgments as well as possible becomes the moral task of engaging in care" (Tronto, 1998, p.14).

The performance of care can be full of tensions starting from questioning who cares, what to care about, and how to care about it. Thinking of care practices as moral acts that are triggered in a unidirectional way, takes us away from thinking of care as a vehicle for social change. We have all practiced care in family spaces, among friends, among colleagues, or among strangers. Our daily life is embedded in diverse care practices that always allow the reproduction of individual and social life. However, not all care practices maintain, continue, and repair our "world" so that we can live in it as well as possible, to paraphrase Tronto's definition. Some, in fact, only maintain and perpetuate relationships of domination. Thus, in the act of caring we come across unidirectional and multidirectional practices of care that are defined by the caregiver and the care-receiver (Maeckelberghe, 2004). For instance, in a unidirectional way, the caregiver has the sole responsibility of performing care work to improve certain instantaneous conditions of their everyday life, or of those that receive care. This is what feminists denounce as reproductive labor. In a multidirectional way, care is performed between different objects and there is no passive recipient of care since all are involved in practicing care at some levels. To understand this clearer, we present three ways in which care takes the form of unidirectional and multidirectional practices: care as distribution, exchange, and reciprocity.

Care as an Expression of Distribution

As we have mentioned before, care has been historically understood as women's responsibility that is practiced in a hierarchical way (Waring and Steinem, 1988). Care work sometimes takes place under circumstances of domination and conflict that place the caregiver in situations of inequality (Mellor, 2006; Budlender, 2010). During the pandemic, for example, we see this in complaints by nurses about working conditions, the double or triple workload at home due to home schooling and home office, as well as the uncertainties of not being guaranteed to keep the job. We argue, however, that care work given on a willing basis disrupts the hierarchies of domination to which the care giver is subjected. For example, in care work that is given willingly in a community kitchen, where the provision of food is an act of care about and care for others in which care work is not expected in return. We call this care work based on distribution practices. That is, care is practiced from the center to the periphery, as a unidirectional practice. This care dynamic produces passive care receivers who remain at the expense of what the care giver can give. Thus, care given on a distribution basis inhibits the agency of the care receiver since they are seen only as agents that receive and not that act. Care given in a distributive way can speak of a position of privilege. This is because the caregiver is endowed immaterially or materially with that which enables him/her to become a care giver.

Care as an Expression of Exchange

Contrary to the dynamics of care based on distribution practices, care as an expression of exchange occur in a pendulum manner, as a barter (López-Córdova, 2014). Care practices in this sense are given under the condition of a response from both the caregiver and the care receiver, and it is expected to be a gain and satisfaction for both sides. It seems that in the exchange, care practices cease when the barter concludes, and no relationships are built that make the subjects responsible for maintaining a care practice after this act. This is mainly because the conditions that allows the emergence of relations of exchange require an agreement between both parties to exchange something, in addition to the fact that something needs to be exchanged. In the practice of care in a relationship, care is given with the expectation that it will be returned in the same way as the pendular movement of a clock. For instance, in a hospital, where health care workers give their care knowledge in exchange of a salary. In this sense, care is conditioned to the individual benefit or to the benefit of the parts that are involved in the exchange, and not directly to the reparation or well-being of a collective in the long term. This practice of care can generate exclusions given that in order to participate in an exchange it is necessary to have something that can be exchanged, whether material or immaterial. Thus, care is conditioned to the privilege that each subject has to offer something that allows them to participate in a relationship of exchange and benefit.

Care as a Practice of Reciprocity

Contrary to what we have seen in care practices based on distribution and exchange, we see in care practices based on reciprocity as a vehicle that decreases the aforementioned inequalities in care practices based on distribution and exchange. This is because reciprocity involves giving, receiving, and returning what has been given (Mauss, 1974) allowing for the development of social bonds of long-term commitment (Temple, 2000). Approaching care practices from the dimension of reciprocity implies thinking about care as a multidimensional practice among subjects through practices that respectfully acknowledge the agency of all beings in the world, meaning, among humans and non-human-others (Harcourt, 2018). For example, the communities of Los Zapatistas in southern Mexico where reciprocity and solidarity are the foundational basis of the social fabric. All members of the community are responsible for showing practices of care for, about, and with humans and nature (Millán, 2014). In this context, the caregiver and the care receiver enter in a dialectical logic of care that goes beyond the relationships of care about and care for and are conceived within a practice of care with (Tronto, 2013). The work that involves carrying out practices of care is collectivized and assumed as a practice of benefit to those that seek to maintain, continue, and repair their "world" so that they can live in it as well as possible (Tronto, 1998). Care practices based on reciprocity do not escape conflict and domination among members, since not all of us have the same capacities to exercise care practices. However, reciprocity can lay the foundations for

building more inclusive practices of care and build stronger social ties (Mauss, 1974; Temple, 2000).

So far, we have explained three forms that we consider relevant to understand care practices that are based on practices of distribution, exchange, and reciprocity. We consider it necessary to understand care practices from this typology because it allows us to clarify when care is an individual and unidirectional practice that creates exclusions or reinforce privileges, and when it is collective and multidirectional. This clarifies, for example, when care is performed by disposition or from a trench of conflict, privilege, or domination, as in the case of care based on distribution. or when care is a practice of care for and care about but conditioned by exchange and self-benefit, where once the exchange ends, care practices also end. This is not the case with reciprocity, whereby care practices are collectivized and carried out with the intention of continuing the practices of care for, about, and with others on a long-term basis. In times of crisis as the COVID-19, guaranteeing stable and long-term care practices is a necessity to rebuild and ensure the recreation and well-being of life. In this way, thinking and practicing care through practices of reciprocity opens the possibility of embracing uncertainties collectively and allows us to translate them into a political concern.

More than Human Others

As mentioned above, the health crisis we are currently experiencing is intimately linked to the current environmental crisis (Jones et al., 2008; McNeely, 2021). For this reason, we need not only to rethink care practices among humans but also to rethink the care practices with which we relate to nature. This pushes us to assume care as a practice of "reciprocity among the human and non-human natural world through practices that respectfully acknowledge the agency of all beings in the world" (Harcourt, 2018, p.4). Since the outbreak of the COVID-19 started, the virus has had and will continue to have the capacity to mobilize and influence our everyday life through its distributive (Bajde, 2013) and relational (Bettany, 2015) agency. COVID-19 can be said to have distributive agency in that it requires specific actions, conditions, and practices in order to be a contagious virus. As it is argued, viruses are considered to be non-living organisms since they require living cells to reproduce (Lwoff, 1957). In this sense, the agency of COVID-19 is distributive because it requires conditions such as closed and unventilated spaces, oral expressions such as speech or sneezing, among other corporeal actions that allow the virus to incubate in a living body. We find the relational agency of COVID-19 in the need for the virus to enter a living body in order to survive.

It is through the distributive and relational agency exercised by COVID-19 that care work is exacerbated. The current situation we are in reminds us that we must rethink the way we relate to nature in order to avoid both ecological and health catastrophes. Thinking of COVID-19 as an agent implies making it part of what we call the non-human-others given that it is now part of the socio-nature network that interconnects all actors. Understanding the "non-human others" "as another kind, a kind whom/that calls for our attention as ethical subject" (Desai and Harriet 2018, p. 42). With this perspective, we do not call to take care of the virus, but to take care of ourselves from the virus and to rethink the practices with which we interrelate with nature. By understanding how the virus relies on the interconnectivity it maintains with other actors to ensure its survival and replicability, we also understand how non-human-others have agency over us in our everyday life. The virus, for example, performs agency when hiding from our senses; we cannot see it, nor hear it, nor smell it, nor touch it. It forces us to cover our eyes, mouth, nose, and ears as preventive measures. It puts us on alert and makes our everyday life uncertain. The virus can take away our sense of taste and smell. It can take away our lives and has reminded us that we do not have the power to fully control nature as the only agent that mobilizes the network we inhabit. The virus can influence daily life and exercise power even in its absence.

The FPE framework helps us think of care beyond an anthropocentric perception where ecology lies not only on the terrain of the biophysical but on the understanding of "The dialectical and non-linear relations between nature and society" (Paulson et al., 2003, p.8). FPE scholars point out that recognizing nature as an active agent (Van den Berg, 2019) allows us to rethink the classic dichotomous society/nature to rethink ourselves as a complementary whole with nature. From this post-humanist perspective of FPE the human subject loses the quality of administrator, dominator and controller of the world that surrounds it and is placed on the same level as the system that composes and constructs nature. In this sense, agency is not a unique and proper characteristic of human subjects but also for inert and animate beings that maintain a mutual relational and distributive agency (Bajde 2013; Bettany, 2015). Contrary to the anthropocentric thinking that seeks to dominate the agency of humans, post humanism recognizes that agency is a process constituted in a community manner.

The agency that COVID-19 has over our everyday life has conditioned us to a daily practice of exacerbated care that is empowered through fear embodied in our bodies. We see it in the strenuous care of using mouth covers or antibacterial gel or even in providing adequate workspaces for home office or homeschooling. The COVID-19, its source, subsequent spread, and measures to curb its spread deeply illustrates the intrinsic and interconnected nature between humans and the more-than-human-others. Being part of a socio-nature network means recognizing that no action is merely the responsibility of a single actor. This means that the interconnectivity of agents and their actions will always be interwoven in a series of dialogical acts. Agency within this network provokes the continuous act of negotiations that allow actors to be created among themselves (Haraway, 2016). Agency in this way is constructed from an angle of interdependence in which the actors involved complement each other, co-operate, or benefit from each other through different actions. Thus, the interconnectivity among the actors does not refer to a mutual and equitable dependency, but rather a conflicting, unequal, and contradictory one. Hence, negotiation and the exercise of relations of power between actors who exercise agency in turn exercise relations of domination, exploitation, and conflict.

Uncertainties in Political Ecology

COVID-19 has increased the uncertainties of daily life and with it the complexity of practices of care. The magnitude and suddenness of the emergence of the pandemic brewed immense uncertainties across sectors such as healthcare, the economy, food production and distribution among others, calling into question their survival (United Nations, 2020). In this sense, the virus acts as an agent that mobilizes everyday uncertainties by placing subjects before ambiguous scenarios. Uncertainties have become inevitable as they reflect our social political world, privileges, and inequalities as is the case with the ongoing pandemic (Leach and Scoones, 2013; Arora, 2019; Scoones and Stirling 2020). The predominant understanding of these uncertainties has mainly focused on statistical models that are based on macro data from past standardized data (Atig, 2020). This narrow understanding poses a risk of missing out the nuanced experiences at the micro level that come with the sudden novel developments posed by the pandemic. At this level, individuals, and community's uncertainty on the permanency of the imposed measures, the security of their livelihoods, their lives and even the availability of essential supplies was rife. This is demonstrated by the panic shopping of food stuff and toiletries clearing the supermarket shelves reported in some populations across the globe (Reis et al., 2020). However, these responses to uncertainty remain context specific as they are filtered through wider social economic contexts (Adams-Prassl, 2020).

Uncertainties play an important role in the development of care practices. Arguably, communities that live with and from uncertainties in their everyday lives navigate them by drawing from collective care actions and mutualism through kinship, religion, spiritual affiliation, and social networks (Leach et al., 2010; Nori, 2019). Uncertainties can be scenarios of danger or opportunity. Despite consensus that different actors experience and perceive uncertainties depending on their social cultural histories, their governance has remained rather technocratic and hierarchical in nature (Scoones and Stirling 2020; Mehta et al., 1999; Mehta et al., 2019). For instance, during the Ebola epidemic, the failure of initial interventions was attributed to disregard of local knowledge and ignorance of local cultural aspects, like funeral rites, and practices for the demised. Not only does that exclude the marginalized populations in local communities, who are disproportionately affected by uncertainties in their everyday lives (Mehta et al., 1999; Scoones 1999; Nori and Scoones, 2019), but it is proven zero-sum and even dangerous (Leach et al., 2010; Scoones and Stirling, 2020). Therefore, this health crisis is the ideal scenario for rethinking and listening to other forms of life and to recognize diverse practices of care. It is a call to reinvent ourselves and think how to heal the imbalance created between society and nature and assume ourselves as part of it and embrace uncertainties.

Methodology and Research Strategy

The research is supported by a qualitative comparative study that seeks to explore the contingent processes of care that emerged to cushion the inequalities faced as a result of COVID-19. We utilized data collected from primary and secondary sources as tools to carry out formal and systematic analysis of causality between both cases, synthesizing the dialogue between ideas and empirical evidence (Ragin, 2006). The analysis was based on the integral study of qualitative variables, considered as a unit composed of a complex combination of properties. The collected date for each case study was coded using NVivo according to the themes of care and its diverse practices, uncertainties, and COVID-19. These allowed us to develop a theoretical and intentional sampling based on logical procedures, identifying causes, similarities, and differences of each case in an analytical-descriptive way (Flyvbjerg, 2004). Due to the early stage of data collected and the outbreak of the COVID-19, the research was constrained to a qualitative comparative desk research and not to an in-depth study. Therefore, the exercise of interpretation and close dialogue with theory were paramount. Given that we did not use methods like interviews or narratives from the concerned people, there is a possibility of missing out nuanced explanations to phenomenon.

Secondary data formed the bulk of the methods used and included peer reviewed articles published in scientific journals, government speeches and press releases, newspaper articles and reports, op-ed pieces writing on the subject matter and online platforms. Primary data included observation of turn of events in both Berlin, Germany and in Narok, Kenya. The observations started when cases of COVID-19 were confirmed in these areas and continue up to date. In the Kenyan case, one author was in the region collecting data for an ongoing project and she observed first hand as the community self-organized following the pandemic and implementation of measures. Analysis of 12 presidential speeches was done with the aim of establishing various state led measures and interventions. Documentaries by the Nation media group, Voice of Africa, Food and Agriculture Organization, EBRU Television and the Coalition of European Lobbies for Eastern African Pastoralists to the European Union, were analyzed to understand the impacts of COVID-19 measures to the pastoralists, and community responses to the uncertainties that came with the pandemic. In the Berlin case, information was sought from social networks, newspapers, and from the websites of the Kitchens in Berlin, namely, Die Tafel, The Food Sharing Movement, The Junk Food Project, Restlos Glücklich, the Fahrrad Tour für Obdachlose Hilfe, and the Berliner Obdachlose Hilfe e. V.

Description of Case Studies
Mara Region of Narok, Kenya

Upon the first confirmation of COVID-19 in Africa, there was rife debate between those who predicted doom for the continent (Africa Check, 2020 20th April; Gabriel Power, 2020 26th March) and those who believed the continent had unique ways of dealing with it based on their vast experiences with uncertainties and epidemics (Alexander, 2020 29th September; Anne, 2020 8th October). Kenya had 88,579 confirmed cases and 1,531 COVID-19 related deaths[1] by 8th December 2020 and had handled the

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[1]Coronavirus cases. Retrieved from: https://www.worldometers.info/coronavirus/.

pandemic relatively better than predicted. Despite the concentration of actual infections being in the urban areas, the effects of the measures were felt countrywide, although unevenly distributed along social economic and socially differentiated lines. COVID-19 arrived in the country against a backdrop of an ongoing invasion of desert locusts (FAO, Kenya, 2020; Smith and Kayama, 2020) and just ended devastating weather events of floods[2] and mudslides[3]. These events predominantly occurred in the arid and semi- arid areas that are home to the country's pastoralist communities. Thus, the pandemic posed an additional layer of crisis to the community, their livestock, and livelihoods. These challenges, coupled with their aforementioned marginalization, resulted to the community being severely affected by the pandemic and the measures put in place to stop its spread.

The Kenya case study focuses on the Maasai pastoralist community located in the Mara region of Narok country. The region comprises the Maasai Mara National Reserve, Community based conservancies which is community land demarcated for biodiversity conservation, and pockets of human settlements in and around two urban centers of Talek and El Baan (County, 2020). Both the reserve and conservancies host a myriad of high-end tourist camps and hotels that act as alternative sources of livelihoods for the community, in addition to leasing their land for conservation and engaging in livestock production activities (MMWCA, 2019). These alternative activities that comprise of providing labor in the camps, operating tour and wildlife spotting enterprises, selling beaded jewelry and curved artifacts to tourists, entertaining tourists, are heavily reliant on international tourism (Bedelian and Ogutu 2017). Therefore, the banning of flights, closure of borders and restriction of inter-county movements were a big blow to the community members. Further, the imposition of a dusk to dawn curfew, closure of markets, schools, churches and a ban of all sorts of social gatherings and events cut out all trading avenues for the community (MOH, 2020; Ongwae and Kennedy, 2020).

Although implemented countrywide, these measures were experienced by diverse communities differently and in varying degrees. For the pastoralists, mobility is not only a strategic and rational strategy for survival of their herds and flocks (Niamir- Fuller and Turner 1999; Cossins 2003), but also, an avenue to form and strengthen kinship and alliances and to market their livestock and their products (Cossins, 2003; Kakinuma et al., 2014; Niamir- Fuller and Turner 1999; Turner and Schlecht, 2019). Hence, the measures called for a re-organization of the community to ensure continued access to key resources like pastures and water for their livestock, and to ensure survival of the community (Cossins, 2003; Kakinuma et al., 2014; Niamir- Fuller and Turner 1999; Turner and Schlecht, 2019). Given that most community members have leased their land out for conservation, the community has

already devised alternative forms of mobility to navigate erratic weather patterns and other forms of uncertainties that plague the region (Bedelian and Ogutu 2017). With the restriction of mobility, the community and herders utilized some of these alternative mobility strategies and devised new ones to care for each other and for their livestock.

Berlin, Germany

The first case of COVID-19 in the city of Berlin was announced on the May 2, 2020, while in the rest of Germany, more than 310 cases had already been reported (Berlin.de, 2020). Europe was one of the first continents struggling to contain the spread of the virus after witnessing a confusing collapse of the health care system, the shutdown of the food and beverage industry, educational centers, and the paralysis of the economic sector in Italy (Horowitz, 2020). Based on the experiences of China and Italy to contain the spread of the virus, the Berlin government decided, in mid-March, to implement a partial lockdown. In Germany each city has had the independence to handle the pandemic according to its own regulations. This partial lockdown limited the number of people in gatherings, the gastronomic sector worked until 10 pm, and schools and universities were completely closed (Šustr, 2020). This led not only to the restriction of everyday life activities, but also to the restriction of political activism. Neighborhood house meetings (Kiezhaus), gatherings in community spaces and community gardens, as well as alternative food networks were affected by these regulations. However, curfew restrictions laid the groundwork for looking for other means of interactions, with social media networks playing a crucial role in this. Thus, people managed to get organized to continue performing some political activism, among this, the continuation of alternative food networks and food provisioning practices.

Although the city of Berlin does not suffer from a problem of hunger, it is estimated that around 125,000 people in the city are likely not to have access to the three meals established by the world health organization in order to lead a full and healthy life (Naumann, 2013; FIAN, 2017). This has prompted various groups and communities to act, joining together in Alternative Food Networks (AFN) to reduce the existing gap in access to food. In general, AFNs seek to consolidate strategies to challenge the basis of the conventional food systems by establishing alternative ways of food production, distribution, food provisioning, and disposal (Goodman et al., 2012) in order to broaden the access to it (Whatmore and Lorraine, 1997). There are several examples of AFNs, some of them are the community-supported agriculture, community gardens, food banks, community kitchens, among others. In the city of Berlin is estimated that over 30 AFN operate as community kitchens that are dedicated to the provision of food to others for free or at low prices (Goetle, 2016). These community kitchens were directly affected by the outbreak of the pandemic since they operate as indoor spaces and were considered part of the gastronomic sector. Moreover, the mobility and gathering restrictions implemented by the

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[2]Flood list. Retrieved from: http://floodlist.com/africa/kenya-floods-homa-bay-january-2020.
[3]Overall Green alert Flood. Retrieved from: https://www.gdacs.org/report.aspx?eventtype=FL&eventid=1100349.

curfew in March 2020 contributed to the lack of accessibility to these spaces.

Contingent Practices of Care in Berlin and the Mara Region
Mara Region, Kenya

The marginalization of the Maasai community in the form of exclusion from national agenda, delegitimization of their livelihoods and under-representation dates the colonial era (Homewood, 2008; McCabe et al., 2014). It was therefore not surprising when the Government led measures against the spread of the COVID-19 once again had little to no consideration of the communities that contribute an estimated an estimated Euros 750 million per annum to the country's Gross Domestic Product (GDP) (Troos, 2020). The restrictions of movement failed to consider the community's innate and essential need for mobility. Government led restrictions to movement are not new and have on several occasions been used a weapon to delegitimize pastoral livelihood and sedentarisation of the community (Niamir-Fuller, 1998). This has been codified by the constant reference to forms of livelihoods that depend on mobility as inherently backwards, unnecessary, chaotic, archaic, and whose time has passed (Niamir-Fuller, 1998; Scoones, 1999). Granted that providers of essential services and products like food providers were exempted from restriction to movement, the pre-requisite for exemption was membership to formal unions or co-operative societies (PPU, 2020). However, as evidenced in studies previously done on the community (Homewood, 2008; McCabe et al., 2014), and observed by one of the authors, the Maasai predominantly operate under informal forms of social organizations that draw on social capital. Therefore, they could not access the exemption as those applied only to members of formal organizations. This oversight led to a disruption of livestock supply chain, as fewer herders managed to trek their livestock to the slaughterhouses located in big towns. Given that "….90% of livestock supply in the country comes from pastoralist communities…," (Troos, 2020), countrywide shortage of livestock and a subsequent 20% rise in the price of beef per kilograms was recorded (Corps, 2020). More so, with the shutdown of the local markets, we observed perishable livestock products like milk failing to reach the larger trading points that remained open. This led to reports of massive loss of income for individuals and households that rely on selling milk as a livelihood (Troos, 2020). The inability to trade livestock and their products, coupled with the loss of income from tourism activities, cut all income streams, exacerbating the communities already vulnerable situation.

Additionally, state led interventions that aimed to cushion citizens from the impacts of COVID-19 and measures against its spread systematically left the community out. Despite the presidential speech reading, "…My administration has made and will continue to make targeted state interventions to cushion every Kenyan from shocks arising from COVID-19" (PPU, 2020, 25th March), none of the 12 presidential addresses to the date of writing this manuscript reflected the recognition of the struggles that the pandemic had placed on the pastoralists. The interventions that included waiving or reduction of taxes, cash transfers, lowering of interest rates and transactional tariffs,

mainly targeted employed people, business operators, crop farmers, hoteliers, artists, and comedians (IMF, 2020; PPU, 2020). The exclusion transcended generational boundaries with lack of support given to school going children from the community. While the government launched the 4G google loon service to enable children to continue with online learning (PPU, 2020, 23rd March), the service was of no use to the marginalized, who have no infrastructure and equipment like electricity and electronics to support its usage (BBC, 2020). Further exclusion was recorded with the launch of a 3-year post COVID-19 social economic recovery strategy. With economic sectors country-wide being cared for by the state (PPU 2020, 24th May), the pastoralists were once again not mapped out as an economic-sector that required care in the post covid program. Given that the Mara region drives an estimated 8% of the country's economy (MMWCA, 2019; County, 2020), it would be prudent and caring to consider the community in the measures against the spread of COVID-19 and in the subsequent stimulus and the Kes. 56.6 billion post- covid recovery packages.

As a result of the aforementioned historical and ongoing exclusion by the government, pastoralists like the Maasai community have devised strong care practices in all forms to enable them navigate uncertainties (Mehta et al., 1999; Scoones, 1999; Nori and Scoones, 2019; Scoones, 2020). In this health crisis, community members were observed by one of the authors stepping out of their socially ascribed roles and deploying care reciprocally to other members of the community. Like in many communities around the world, the duty of care in the everyday live is primarily carried out by women as communities seeks to reproduce themselves (Addati, et al., 2018; Wenham et al., 2020) and capitalism seeks its reproduction (Budlender, 2010; Pateman, 1988). Maasai women are normally charged with day-to-day caring responsibilities like taking care of children, building and maintaining households, preparing food and water, fetching fuelwood, washing and taking care of sick livestock among others (Wangui, 2014; Smucker and Wangui 2016). Upon the outbreak of the pandemic and subsequent measures, the first response we observed that was aimed at beating the looming food shortages was women sharing out their extra food stuff to households that had finished their supplies. As this was done by women who are charged with the responsibility of provision, it took care as an expression of exchange since households that participated in this initial practice had existing relations (Tronto, 1998). For those without an existing relationship, borrowing and repaying of foodstuff between households was witnessed on several occasions. The aim of these forms of exchange was to ensure that no one in the village slept hungry, while others had extra hence collectively caring for each other. Although this can be interpreted within the confines of care as an expression of re-distribution, it can also be argued to fall under reciprocity as it occurred within the confines of social contract and kin making while embracing uncertainty collectively (Harcourt, 2013; Zechner, 2021).

The caring role of men that is normally passive became clearly visible as the community got deeper into crisis. As the community grappled with deteriorating livelihoods, lack of support from the Government and diminishing supplies, men between the age of 20–40 years were observed actively performing practices of care by the author. This was the first-time since arriving in the Mara,

6 months earlier, that she observed men engaging in a communitarian practice of care. These men mobilized basic supplies for the common use by the members of the community by reaching out to their social networks from far and wide. Some leveraged their roles as elders to negotiate for humanitarian aid from the campsite owners and conservancies management. Sourced aid was used to procure and distribute all sorts of essential supplies comprising of dried food stuff, washing soaps, water tanks for washing hands, sanitizers, masks, and other sanitary wear. Due to the lack of deeper data collection, it would be challenging to establish under what circumstances men in the community become care givers and what motivates them to cross the socially ascribed gender roles. Nevertheless, literature on gender relations and pastoral livelihoods within the community, indicate shifts in gender relations heightened in uncertain times like during extreme weather patterns such as droughts or floods that plague the region (Homewood et al., 2008; Nori and Scoones 2019; Nori, 2019). Thus implying the observed shift to be a contingent practice of care that emerged during the pandemic with the aim of caring for the community.

One would imagine that a livestock rearing community would not encounter food challenges given the availability of meat and milk. Whereas the excess milk was re-distributed to households that did not have their own livestock, the relationship between the Maasai and their livestock has been likened to that of kinship and therefore hardly slaughtered unless deemed absolutely necessary (Nkedianye et al., 2011; Nkedianye et al., 2020). This convivial and caring treatment of their livestock is observed from the manner and the location they construct the livestock sheds. The sheds are centrally located in the homestead, and is surrounded by a line of huts, with all their doors facing it. As explained in previous studies (Nkedianye et al., 2011), and in data collected for an ongoing study, this strategic location is a security measure that ensures easy access to the shed should there be need to provide the livestock with extra protection. Unlike the huts that are constructed by women using relatively weaker materials, the sheds are constructed by men using stronger camouflaging materials, that protects the livestock from predators and cattle rustlers (Nkedianye et al., 2011). Further, the community is renowned for co-existing respectfully with wildlife for centuries without any hard borders, with consumption of any wildlife considered taboo with possible ostracization from the community (Homewood et al., 2008; Nkedianye et al., 2011). This demonstrates the community's caring practice of reciprocity for the more than human others in a multi-dimension dynamic.

Observation of care as an expression of reciprocity was done in several other instances by the author. For instance, younger literate community members were seen spearheading translation initiatives. These initiatives aimed to demonstrate and translate the COVID-19 measures, especially the social distancing, checking of symptoms, proper wearing of mask and washing of hands to the Maa language. Furthermore, with the physical re-opening of schools becoming more uncertain and seemingly unachievable within the year, college, and university students self-organized to teach small groups of younger pupils in informal forums. Children in their final years of primary and secondary schools were tutored by the trained teachers from the region. Whereas the quality of the education provided in these forums may be debatable, we perceive it as a better option than missing out on learning entirely for lack of infrastructure and facilities. Given the high rates of illiteracy and school drop out in the region (Homewood, 2008), these efforts may have played a significant role towards retaining children in school amidst the pandemic that saw schools closed for a year. This care for the illiterate members of the community and school going children forms part of the social contract of caring for each other in the dynamic wheels of social relations (Elmhirst, 2011) and illustrates value judgement and know-how from the caregivers (Tronto, 1998).

Due to the outbreak of the pandemic, the Maasai community in the Mara had to perform practices of care based on reciprocity. The pandemic's arrival amidst an aftermath of a locust infestation and severe floods in the region added an extra layer of struggle to the community. As a result of living with uncertainties and marginalization from the state, the community has devised ways of self-organizing that are based on social contract (Nori, 2019; Nori and Scoones, 2019). These relational ways are reciprocal and practiced more collectively in times of crises like the ongoing pandemic (Scoones and Stirling 2020). There is a danger of idealizing the capacity of communities to live with and from uncertainty. This can generate further exclusion due to the assumption that communities can solve their own problems, being excluded from public assistance (Mehta et al., 1999, Mehta et al., 2019; Leach et al., 2010; Scoones and Stirling, 2020). The contingent practices of care like transcending socially ascribed gender role of food provision or the teaching of fellow community members in a time of crisis demonstrates the communities caring with, about and for each other and illustrates the potential of communal caring practices to maintain and repair our world (Federici, 2010; Harcourt, 2013; Zechner, 2021). Taken all together, this study attributes these contingent practices of care, in the form of reciprocity to the social contract by members of the community. We corroborate previous research by Nori and Scoones. (2019), that this social organization stems from decades of marginalization of the community and their need to maintain social relations.

Berlin, Germany

In community kitchens, gathering and close care work relations are key to the proper functioning of the community (Marovelli, 2018). The division of labor in these spaces is neither fixed nor obligatory, but voluntariness is expected to fulfill the duties of the community. Thus, the congregation of diners and gatherings are a fundamental part of these kitchens. Moreover, at the end of the meal service these spaces seek to provide room for talks on current national and international politics, exchanges of daily stories, quick meetings, artistic events, among others (Goetle, 2016). Within community kitchens, food provisioning is the key element of the organization and is the activity that allows the congregation of diverse subjects to share life experiences and live new ones surrounded by people involved. Community kitchens can "shape a new food geography and a particular politics of caring and food provisioning, recovering more autonomous forms of social reproduction" (Morales-Bernardos, 2019, p.74).

However, these activities require human gatherings and a constant flow of bodies in the space of the kitchen and outside it when collecting and purchasing food. These activities were completely affected by the spread of COVID-19 that led to the closure of community kitchens and subsequent cessation of practices of care though food provisioning.

In Berlin, only some community kitchens managed to continue with food provisioning activities as they had the means to provide food in an itinerant and mobile community kitchen concept. These are Die Tafel, The Food Sharing Movement, The Junk Food Project, "Restlos Glücklich, the Fahrrad Tour für Obdachlose Hilfe, and the Berliner Obdachlose Hilfe e. V.". According to information found on their websites, these kitchens have been dedicated to the distribution of meals in various parts of the city of Berlin and their operation system is through bicycles or vans in which they provide food to those who need it. These initiatives tend to use food recovered from supermarkets, this way avoiding large quantities of food waste. This action is of utmost relevance within these initiatives as they express a concern about the constant and unnecessary waste of food derived from the current food system. In this sense, community kitchens are not only concerned with caring for and providing food for others, but also with practicing care relationships with the environment. Retrieving food from food waste can be a practice of care about and care for, since the caregivers, which are the community kitchen members, become aware and recognize the need that someone or something (food) has to be cared for. In this sense, the willingness to care for the other entails the organization and materialization of certain acts on the part of the caregiver (Tronto, 1998).

In the mobile community kitchens, the congregation, and the open invitation to cook is no longer key to the development of these spaces, nor is sociability. Instead, the main objective of these kitchens has become only to provide food to those who need it. In these terms, the health crisis led to a shift in the politics of food provisioning of these spaces and turned some of the existing community kitchens into a political instrument for mobile food distribution. This is because the outbreak of the health crisis that arose from COVID-19 was a watershed moment that allowed for the embracing of the uncertainties that certain vulnerable groups experienced and opened the opportunity for the development of creative forms of food provisioning to address these uncertainties. According to information obtained from social networks, the mobile community kitchens sought to cover most of the food needs of vulnerable homeless groups and at the same time sought to raise awareness with a digital campaign about the importance of maintaining active solidarity ties in times of crisis. although the hours of operation are not clear, provision of meals usually takes place once a week. The place where the meals are offered is usually the same, although the mobility of the kitchen allows them to roll around the city.

Community kitchens are a clear example of care for and about others as they seek to reduce existing inequalities in access to food for certain groups. However, within food studies, the practice of food provisioning and food waste management has been widely criticized. As a major critique, food provisioning is a palliative practice for a major problem that does not directly address inequalities in the access to food and food insecurity (Yngfalk, 2016; Devin and Richards, 2018; Kenny and Sage, 2019). Moreover, managing food waste to provision meals to others can suggest that leftover food or discarded food from supermarkets is the food that can be given to people in need (Pettenati et al., 2018) reinforcing inequalities. In addition to this, having the possibility to be politically active in the context of a health crisis speaks of a privileged situation in which leaving the house and seeking care for and about others does not limit the ability to care for themselves. Due to the lack of exploratory and field material, it is not possible to draw any major conclusions, but for further study it would be interesting to know what motivates these communities to help others and who are these people that operate these community kitchens.

Due to the outbreak of the COVID-19, mobile kitchens in Berlin had to perform practices of care based on distribution, remaining in a unidirectional level. The COVID-19 cut off the possibility of gatherings, cooking together, and the reciprocal care. Thus, the virus triggered community kitchens to take the streets, but at the same time limited the existing care relations to be sustained on the basis of reciprocity or exchange. We found, however, that the management of food waste worked as a strategic practice for food provisioning that brought along practices of care for food, in other words, for more-than-human-others (Alhonnoro et al., 2020; Närvänen et al., 2020). Although the care practices we observe in these mobile kitchens poorly scape from unidirectional practices of care, such initiatives can lay the foundation for future transformations towards more collective practices of care. In this sense, the management of food waste can also be considered as a practice of care towards more-than-human-others (Alhonnoro et al., 2020). For instance, the more food waste that is rescued, the greater the opportunities for food provisioning. Likewise, the appearance that the rescued food has can conditionate its use for meals since there is always a risk to be rotten. In addition to this, the risk of being infected by COVID-19 always limits any collective action. This is an example of how COVID-19 portrays agency and mobilizes the network we all inhabit.

The unidirectional care relationships developed by these community kitchens were mostly built on hierarchical basis because these practices developed under contingent circumstances and were dependent on various factors. One of these was the emergency of a soft lockdown that restricted the mobility across the city to get food and to save food from waste. Another one was the risk of being infected by COVID-19 that always limited any collective action. Therefore, the lack of opportunity for social interaction brought about practices of care that did not allow the care receiver to become an active actor. This made the care receivers, those who benefit from the food provisioning, to become passive recipients of care. This was an inevitable consequence of hierarchical and unidirectional practices that do not consolidate reciprocal processes among actors. These caregiving relationships are similar to relationships of welfarism and leave little space to build relationships of reciprocity and exchange. In addition, these unidirectional relationships are far from founding social

relationships or social bonds that strengthen sense of community and reciprocity. Likewise, the relationships that are built between the subjects do not have the scope to solve a major problem such as the unfair access to basic food, which has increased with the outbreak of the COVID-19.

DISCUSSIONS

This paper contributes to the growing body of literature on care in feminist scholarship and FPE, which is developed from a materialist and post humanist perspective (Harcourt, 2018; Desai and Harriet, 2018; Van den Berg, 2019). Although care in feminist scholarship is highly contentious, the research builds on a typology of care relations based on practices of distribution, exchange, and reciprocity (Mauss, 1974; Tronto, 1998; López-Córdova, 2014; Temple, 2000). Therefore, this work conceptualizes care as practices that maintain, continue, and repair our world when it is performed under reciprocity or exchange practices. However, we show how care can foster inequalities and exclusions and perpetuate relations of power when performed in a distributive way, this is to say, in a unidirectional way, from the center to the periphery. This paper also speaks to the socio-nature debates that show the intrinsic link of humans and more-than-human-others in terms of distributive and relational agency (Harcourt 2017; Harcourt, 2018; Federici, 2010; Elmhirst, 2011). This link illustrates how actors are interconnected to each other as demonstrated by the COVID-19 virus influencing mobility in the socio-nature network. Finally, the paper contributes to the debates on care within FPE since the core of caring is not only the subject that defines the practice of care, but a relational interaction of circumstances, uncertainties, and agencies performed by humans and more-than-human-others, in this case, the COVID-19.

The two case studies present similarities and differences in caring practices. The participants in both cases rely heavily on mobility for them to function and were therefore adversely affected by the measures that curbed movement. At the same time, they faced inequalities in the face of the pandemic, with the Maasai being excluded from state interventions (IMF, 2020; PPU, 2020), and the food recipients having no access to food (Naumann, 2013; FIAN, 2017). The cases highlight how different practices of care emerged. While the community kitchens in Berlin predominantly exhibited a distribution form of care that was unidirectional, care as reciprocity was dominant in the Mara region. This may be argued to result from the essence of formation of these assemblages of the populations. Whereas the participants of the kitchens in Berlin were brought together by the common need to take care of their own need for food and the care of others and of food, the Maasai's are bonded together by sharing a common ancestry, language, history, social norms and even struggles like marginalization. Therefore, the social contracts that activates the dynamic wheel of social relations, is absent in Berlin and more pronounced in the Mara. On the other hand, navigating the measures against movement had differing effects on sociability within the group. While the post dinner activities of social political engagements that fostered social encounters ended in Berlin, there was enhanced sociability among the Maasai as members of the community became more closer in performing caring practices communally.

The health crisis is also a crisis of care practices. One of the greatest challenges we currently face is the exacerbation and sustainability of care in times of uncertainty. The threat of collapse of health centers and hospitals has highlighted the lack of capacity of the States to manage and provide spaces for care and welfare for citizens. The call to stay at home has proved to be a call for individual care. In this pandemic, every individual, every household, every group has had to take care of itself. COVID-19 has intensified uncertainties and life-threatening conditions. Against this backdrop, finding ways to ensure effective sources of care that guarantee access to well-being at home, access to food, health, and a dignified life has become a primary care task. The crisis has strongly hit the marginalized individuals who depend on the daily flow of income and goods and those who seek to build alternative economies that require alternative care practices from the socio-nature network in which we live. This is more visible in countries from the geopolitical south, according to what we saw in our case studies and what the United Nations. (2020) in its Policy Brief on the COVID-19 affirms. Thus, this crisis forces us to think about care and the work it entails from a condition of uncertainty, limited movements, and the sudden interruption of alternative flows of food and other goods. We are facing a scenario in which rethinking the practices of care and the daily means by which we carry out this work is a fundamental act to ensure a dignified life in the face of uncertainties.

Building on Haraway's provocation of staying with the troubles, FPE scholars have successfully challenged the socio/nature dualism and its related hierarchical relations. They opine that the hierarchical dualism normalizes human and patriarchal privileges, that result to the marginalization of subjugated groups like women, indigenous communities, the poor, non-human others, among others. Thus, they propose a reflexive immersion in care practices for others without reducing them for not being human (Haraway, 2016). By having direct contact and recognizing non-human agency in the everyday interactions between humans and non-humans can trigger care and response-ability (Greenhough and Roe 2010). This would see a reduction of cruel and insensitive practices towards the non-human others as facing each other as kin would entail respecting our differences, while acknowledging how we are co-produced along them. The care of the more-than-human-others by rescuing food from being wasted or by according to livestock agency was observed as practices towards non-human-others both in the community kitchens and in the Maasai community. In Berlin mobile kitchens ensured the continuation of alternative food networks and other political engagements through redistribution of food. The Maasai community negotiated access to the national reserve to graze their livestock and that of their kin-people and translated, demonstrated, and taught fellow community members. Both cases indicate care practices that enabled the communities embrace uncertainties collectively.

We acknowledge that the research may be limited in terms of available empirical data used, that could have been obtained by use of more engaging data collection methods but could not be used due to the ongoing restrictions. It would be interesting to have a further inquiry on the topic, including the motivation of the people engaging in these practices of care using participatory research methods. We further acknowledge the pandemic is still ongoing and the circumstances around it remain highly dynamic and contentious. Thus, it would be helpful to delve deeper on the long-term impact/relevance of the alternative forms of mobility or the contingent practices of care that emerged in a post COVID-19 time.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

Written informed consent was not obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

GM contributed to classify practices of care through redistribution, exchange and reciprocity practices. As well as asserting that reciprocal actions are the most contentious practices capable of founding relationships and moral systems of responsibility to repair and maintain the long-term welfare of a community. Likewise, she contributed to the understandings of the COVID-19 as a non-human-others capable of maintaining agency within the socio-nature network in which we cohabit. She contributed to the methods and empirical part and the Berlin case study and wrote the findings. She contributed to the reference management. M-WE contributed to the materials and methods section and contributed to the discussions of uncertainties and non-human-others sections of political ecology. She wrote the methods and empirical part and the Narok case study. She collected data on the case study, analysed it and wrote the findings. She contributed to the discussion and funding parts and also did reference management.

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Critical Reflexivity in Political Ecology Research: How can the Covid-19 Pandemic Transform us Into *Better* Researchers?

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It is not just the world but our ways of producing knowledge that are in crisis. The Covid-19 pandemic has exposed our interconnected vulnerabilities in ways never seen before while underscoring the need for emancipation in particular from the hegemonic knowledge politics that underpin "business-as-usual" academic research that have both contributed to and failed to address the systemic challenges laid bare by the pandemic. Political ecologists tasked with knowledge generation on vulnerabilities and their underlying power processes are particularly well placed to envision such emancipatory processes. While pausing physically due to travel restrictions, as researchers in political ecology and rural development at the same university department, we want to make a stop to radically rethink our intellectual engagements. In this article, we aim to uncover "sanitized" aspects of research encounters, and theorize on the basis of anecdotes, feelings and informal discussions—"data" that is often left behind in fieldwork notes and personal diaries of researchers—, the ways in which our own research practices hamper or can be conducive to emancipation in times of multiple interconnected health, political, social, and environmental crises. We do so through affective autoethnography and resonances on our research encounters during the pandemic: with people living in Swedish Sapmi, with African students in our own "Global North" university department and with research partners in Nepal. We use a threefold focus on interconnectedness, uncertainty and challenging hegemonic knowledge politics as our analytical framework. We argue that acknowledging the roles of emotions and affect can 1) help embrace *interconnectedness* in research encounters; 2) enable us to work with *uncertainty* rather than "hard facts" in knowledge production processes; and 3) contribute to challenging *hegemonic knowledge production*. Opening up for emotions in research helps us to embrace the relational character of vulnerability as a pathway to democratizing power relations and to move away from its oppressive and colonial modes still present in universities and research centers. Our aim is to contribute to envisioning post-Covid-19 political ecology and rural development research that is critically reflexive and that contributes to the emergence of a new ethics of producing knowledge.

Keywords: reflexivity, political ecology, COVID-19, vulnerability, knowledge politics, affect, emotions, uncertainty

Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next. We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it.

(Roy, 2020)

INTRODUCTION

It is not just the world but our ways of producing knowledge that are in crisis. The Covid-19 pandemic, or the *Virocene* – this "period in which viral activity has evolved as a dominant force shaping human-nature relations" (Fernando, 2020a, 686) - prompts us to confront and question our current world order. As such, the Virocene "exposes the vulnerabilities in, and moral and pragmatic failures of social and ecological systems in safeguarding both social and ecological wellbeing" (Fernando, 2020a, 687), while underscoring the need for emancipation in particular from the hegemonic knowledge politics that have both contributed to and failed to address the systemic challenges laid bare by the pandemic.

The pandemic has more than ever made visible what we understand as the crisis of hegemonic knowledge politics: the counter-hegemonic challenges faced by decolonial, feminist and indigenous scholarships. Among the concrete manifestations of this crisis, the pandemic has exacerbated the digital divide in higher education with consequences for counter-hegemonic sites of knowledge production, as students, teachers and researchers struggle to access funds, computers, internet, laboratories, and institutional support, particularly in the Global South. Additional care responsibilities have unequally impacted female and minority scholars (Pinho-Gomes et al., 2020; Deryugina et al., 2021). Many early career scholars with insecure contracts have lost their jobs (Levine and Rathmell, 2020; Herman et al., 2021). Halted research projects have jeopardized the livelihoods of research assistants and translators in the Global South. In general, in the Global North, scholarly and everyday attention has been refocused on a privileged "we" or the "center" to which "we" belong. These are places where health care is broadly functioning and for which vaccines are developed, while the "periphery," already distanced epistemologically, has suddenly also become far-away geographical places due to travel restrictions.

As researchers in political ecology and rural development at the same university department, we wanted to make use of this moment of involuntary break in fieldwork, to reflect over our own roles and actions as researchers in this moment of heightened vulnerability. We do not only pause physically due to travel restrictions but also intellectually to radically rethink our intellectual engagements: this is for us a moment of no return. Political ecology scholarship has been central for research on vulnerabilities and their underlying power processes. Therefore, we suggest it is the ideal arena for a deeper interrogation about how our own knowledge production both contributes to the vulnerability of others, and makes ourselves vulnerable. To counter the reproduction of unequal power relations in research processes, reflection and dialogue are necessary transformative practices (Freire, 1996); yet, this is not a common endeavor in our academic world. We argue that, as researchers, we need to reflect critically and constructively on the ways in which our own practices hamper or can be conducive to emancipation in times of multiple interconnected health, political, social, and environmental crises. Only by better understanding how our own research practices sustain hegemonic knowledge politics, will we be able to truly envision and engage with emancipation.

In what follows, we first present our conceptual and methodological approaches. We then share three vignettes of self-reflection and resonances on research practices during the Covid-19 pandemic. In the discussion, we argue that engaging with affect and emotions in knowledge-making processes as well as with relational vulnerability in research encounters can help go beyond hegemonic knowledge politics in academia.

RECENTERING AFFECT AND EMOTIONS TO ENGAGE WITH THE CHALLENGES HIGHLIGHTED BY THE PANDEMIC: INTERCONNECTEDNESS, UNCERTAINTY AND THE CRISIS OF HEGEMONIC KNOWLEDGE POLITICS

In this section, we argue that the pandemic has highlighted that affect and emotions must become central in knowledge production processes. This starting point has made us come together *here and now* to collectively rethink our ways of generating knowledge through our research encounters.

Our exercise is first and foremost intellectual, yet it has emancipatory potentials: we start from the idea that imagination and hope are already something radical (Freire, 1996; hooks, 2003). Indeed, a "critical consciousness" of individual experiences and oppressive social contexts can become a basis for empathy and action to overcome oppressive conditions. From reflection on the causes of oppression "will come (...) necessary engagement in the struggle for (...) liberation" (Freire, 1996, 30). The type of emancipation that we envision needs to give more meaning to affect and emotions as we are not looking for emancipation as an end-point, but rather as a process. As we explain below, affect and emotions can be drivers for agency and empowerment. Empowerment is best understood as a continuous performance (Butler, 1990) and through cultivating empathy and "critical consciousness," "la conscientização," (Freire, 1996,

16), not something that can be indefinitely "achieved" with "better" and more "precise" data and scenarios.

Affect and Emotions

Focusing on affect allows us to think through the emotional, experiential, and embodied relations that underpin knowledge claims, and can trigger emancipation (Anderson, 2012). We do not aim at theorizing affect but we understand affect as what makes the socio-material hold together or fall apart (Müller, 2015). Especially useful for our discussion on research encounters is understanding how affective encounters help to shape collectives (Singh, 2017; Nightingale, 2019). We start from the premise that emotions, affect and affective relations will help us envision the types of emancipatory research practices needed to confront the crisis we are currently in. Emotions, affect, and affective relations can, for example, help us to think about how anger, indignation, empathy or love and our affective relations with differently situated others bond us into a group and can lead us to work more productively with the fact that emotions and affect determine the politics of knowledge creation (Anderson, 2012). That is, affect and emotions understood as ways of learning, experiencing and responding to changes help shift attention from individual responsibilities to collective ones.

In the three sub-sections that follow, we explain how the pandemic has magnified how acknowledging the roles of emotions and affect 1) can help embrace interconnectedness in research encounters; 2) enables working with uncertainty rather than "hard facts" in knowledge production processes; 3) contributes to challenging hegemonic knowledge production. This threefold focus constitutes the analytical framework for this paper.

Interconnectedness

Affective relations are the cement that holds together the commonness of life (Pile, 2010). These relations or interconnectedness have become more apparent than ever under the pandemic. Bolivian anarcho-feminist thinker Maria Galindo (2020) suggests that we all have coronavirus even if we have not been contaminated in our individual bodies: the politics of pandemic management has permeated our everyday lives from its global (Oldekop et al., 2020) to its most intimate spheres. Interconnectedness, as we understand it, does not erase inequalities and injustices: we are still aware of the fact that those who are seen as "disposable," subaltern, black, indigenous and peasant peoples, undocumented migrants and workers, care providers, among others, are the ones unequally bearing the burden and brunt of this pandemic (Dyer, 2020; Mbembe, 2020; Menton et al., 2021).

In addition to being and performing physical bodies that are more or less vulnerable to the virus in a particular place and time, the pandemic has brought to the fore how vulnerabilities are constituted affectively through relations. The pandemic has highlighted how vulnerability is not just an outcome of the interaction between factors often understood as external, exogenous and structural (like the virus' biological features, or food insecurity) and bodily susceptibilities (such as high blood pressure or diabetes). Vulnerability should not be considered as

an attribute that characterizes individuals or groups of people. Instead, the pandemic has brought to the fore the relational character of vulnerability as the ability to affect and of being affected (Butler, 1997; Tschakert and Tuana, 2013): vulnerability is a process and a state that changes over time and context. In this understanding, vulnerability is created in relations through connections. Vulnerability is a process of becoming: we become vulnerable as we enter in contact with others, both at the physical and the emotional level.

This relational and affective understanding of vulnerability has important consequences for how to conceptualize emancipation. For us, for being able to envision emancipation, research needs to focus on the relations through which transformation happens or, to the contrary, through which the status quo is maintained. Emancipation is thus the processes through which radical changes come about.

Uncertainty

Affect theory is useful for drawing attention to the uncertain, random or "aleatory dynamics of lived experience" (Anderson, 2012, 18) as ways of knowing, but also ways of relating. Focusing on affective processes helps us to better understand the relations that underpin research processes as well as their unpredictable characteristics. These characteristics require us to reflect on our own research practices: how to avoid falling into the trap of the constant pressure for finding "hard," "more," and "better" data? How to better engage with the unintended oppressive and exclusionary consequences of our research practices initially, and maybe naively, aimed at producing emancipatory knowledge? And if we do so, how can this help us to envision an emancipatory scholarship that has the ambition to contribute to building just and sustainable socio-environmental relations?

We wish to practically embrace and bear the consequences of the fact that "the only certainty is uncertainty" (Welsh, 2014, 15), as made exceptionally visible by the pandemic. Uncertainty about the future in the context of the pandemic pushes us to stop and reflect as usually we tend to be engaged in a competitive race for more and "better" data to support our research findings and comply with our institutions' and funders' expectations. The uncertainty and unknowability about the future of our world order that the pandemic has amplified, provides an ideal proxy for the context in which future political ecology research has to be imagined and carried through. As it is widely acknowledged in research engaging with societal transformations, transformative and emancipatory processes must disrupt current pathways yet, such disruptions are not fully controllable or predictable (e.g., Feola, 2015; Stirling, 2015; Patterson et al., 2017; Blythe et al., 2018; Scoones et al., 2020; Scoones and Stirling, 2020).

However, when such research is mobilized for the sake of tackling societal problems, for example regarding climate change, most efforts focus on trying to control transformation as well as the knowledge about it (promoting for example technical fixes) but avoiding debates both on the possibilities for radical transformations and the constant reproduction of hegemonic power processes (Eriksen et al., 2015). Similarly, from what we have seen so far, the type of demands for knowledge generation about the pandemic follow largely in the trajectory of wanting to

control transformation (e.g., what are its future scenarios and possible economic impacts?), striving to avoid, not only inconsistencies, but also the unknown. To face the fears of uncertainty, the purported efficacy of quantitative research and generating "hard" data such as statistics and models seems to override what experiential knowledge could offer to tackle the pandemic. For example, while since 2020 the way scientists have been researching the virus and developing vaccines is unprecedented, overall, there has yet been less attention given to academic and activist debates about the need for more systematic and long-term changes in our lives, including the need for rethinking our ways of living in common. Crises situations such as the pandemic put extra-pressure on policy-makers to take swift and informed decisions. Due to competing views and public pressure "the quantitative framing and false certainties of a model are appealing, and caveats are easily pushed aside" (Leach et al., 2021, 5). Embracing the unknown and the uncertain would instead allow us to think and act in new non-normative ways, in order to accommodate affective processes that we accept are inherently unpredictable.

Our efforts to re-think knowledge production practices in academia in ways that embrace rather than eradicate uncertainty are part of broader initiatives to re-think the politics of transformation (Scoones, 2016) and the politics of uncertainty (Scoones and Stirling, 2020) beyond rendering them technical and techno-administrative issues (Ferguson, 1990; Li, 2007). To achieve this, knowledge politics have to be understood in relation to hegemonic regimes of accumulation and truth (Scoones, 2016): whose interests is it to hide certain realities and silence uncertainties? Only by engaging with these questions will we be able to go beyond technocratic and marginalizing discussions of why development projects and policies constantly fail (Paranage, 2019). Indeed, the problem may not be in that "others" do not understand "us" but that different knowledges, ways of seeing uncertainty, place, time and scale are not put into conversation on equal grounds. Collective debates on transformation need to be based on the dialogue between different truth regimes seen as equally worthwhile (Behn and Bakker, 2019). Ontological plurality goes beyond adding different types of knowledges together or integrating them. It means asking critical questions about the framing of socio-environmental problems (Nightingale et al., 2020). Of particular concern for us in this paper is how we, researchers in political ecology and rural development contribute to making certain knowledges authoritative. Engaging with the fact that we also co-produce the issues we study (e.g., climate change but also the politics of uncertainty) "makes framings more accountable, transparent and open to scrutiny from other ways of knowing" (Nightingale et al., 2020, 346).

Crisis of Hegemonic Knowledge Production in Political Ecology and Rural Development

There is a long tradition and substantial literature within the social sciences, especially after the cultural and postcolonial turn and the feminist critique of epistemology, arguing for a decolonized and reflexive approach to knowledge production.

Our article is inspired by seminal work on ethnographic authority in anthropology (Clifford, 1983; Clifford and Marcus, 1986; Britzman, 1995; Lassiter, 2005; Gold et al., 2014) and especially the need to question the "unreciprocal quality" (Clifford, 1983) of research encounters. In addition, we find inspiration in ethnographers' attempts to address some of the limitations of fieldwork, among them the colonial representation of the "Other" and the overwhelmingly Western-centric basis of ethnographic authority. We agree with them that research is a performance that is inscribed in power plays, and that it is important to highlight in particular those questions emerging in research processes that most researchers usually do not or cannot hear (Shah, 1999; Pillow, 2003; Manning, 2016). This is because omissions and silences can affect and afflict the process of research (Shah, 1999; Scheper-Hughes, 2000; O'Reilly, 2008) and its real-world consequences.

Mbembe (2001) points out that while social theory makes universal claims, it is built on defining itself in terms of modernity and rationalism, two things also often defined as uniquely Western. Social theory is based on "enlightened" European theories and worldviews, defined as opposed to the "necessarily inferior peoples" of other parts of the world. Is it possible to use such theories to understand those "inferior" peoples? Mbembe asks. The Enlightenment also shattered the bonds of ancient beliefs, differentiating between public and private lives and privileging academic reason and free will. Challenging this heritage in our academic institutions, demands us to incessantly identify and make visible any signs of that which is less rational and more chaotic and affective in our academic work.

Before us, researchers in feminist political ecology and critical development studies have already greatly benefited from insights and approaches described above (e.g., Elmhirst, 2011; Mollett and Faria, 2013; Nightingale, 2013). Yet, despite the fact that these fields build on a critique of how a western-centric bias and colonial gaze has dominated knowledge production, we constantly experience instances where the manifestations of hegemonic and colonial knowledge politics within our fields remain present. As our vignettes indicate, there is a seeming lack of connection between the theoretical acknowledgement of the need to move away from unreciprocal research encounters and hegemonic knowledge politics, and how research is performed on practice. In that sense, research processes that claim to be based on knowledge co-production may find difficult to work creatively with historically inherited unequal power relations that normalize the vulnerabilities of for example indigenous peoples or women (Wijsman and Feagan, 2019, 72).

Simultaneously, the emotional challenges, contradictions or tensions we experience in carrying out our research in ways that align with our ideals of emancipation rarely end up discussed in publications. An important reason for this is, precisely as Mbembe (2001) emphasizes, that academia builds on an Enlightenment rationale that separates reason from emotion. As a result, uncomfortable problems, unexpected and uncertain affect and emotions, are hidden and not publicly discussed. This is what we mean by a continuing crisis of hegemonic knowledge production.

However, this moment of the pandemic constitutes an opening for emancipation as an affective process, or at least for radically interrogating the socio-environmental processes that contribute to creating and maintaining our world order (Leach et al., 2021). Taking this opportunity, we paused to rethink our ways of accompanying differently situated and unequally affected others in common struggles (Singh, 2017; Velicu and García-López, 2018). This article constitutes our response to the call made by academics in the context of the Covid-19 pandemic to deconstruct academia and reconstruct a different, more just one (Corbera et al., 2020; Motala and Menon, 2020; Van Hecken et al., 2020).

Our intention is to contribute to re-thinking knowledge politics by discussing the process of making knowledge. We focus on research encounters, which we understand broadly but in a problematized, manner as "always emotion-laden *and* imbued with power, reproducing and legitimating social hierarchy" (Militz et al., 2020, 429 italics in original). We understand research encounters as those encounters with persons who we call colleagues, other researchers, research participants, research allies and activists, and any other actors and institutions outside or inside this "research industry" that allow us to produce knowledge (Roy and Uekusa, 2020). We acknowledge that all encounters are with people differently situated in terms of hierarchy, discipline, interests, funding, histories, intersectional differences, emotions, embodiment, and experiences.

AFFECTUAL METHODOLOGY TO UNMASK AND EMBRACE THE WORKINGS OF POWER IN RESEARCH ENCOUNTERS

To navigate methodologically and collectively the fact that "research-encounters are always emotion-laden and imbued with power, reproducing and legitimating social hierarchy" (Militz, et al., 2020, 429), we use Militz, Faria and Schurr's affectual methodology. Affectual methodology is defined by Sara Ahmed as "how we come into contact with objects and others" [Ahmed, 2014, in Militz et al. (2020), 429]. Affectual methodology situates the researchers and the research participants within research encounters in ways that call for transparency and positionality in particular to lay bare the researchers' privileges. Just like Militz, Faria and Schurr's endeavour, our process of writing this paper was aimed at becoming a collective affectual writing process that would not be about writing "about affect, but through and with affect" (Militz et al., 2020, 430).

Affect and emotions have come to prominence in the wake of feminist and more-than representational theorizing in geography and political ecology (Schipper and Pelling, 2006; Thrift, 2008; Pile, 2010; Seyfert, 2012; Singh, 2013; Müller, 2015; Singh, 2017; Dawney, 2018; González-Hidalgo and Zografos, 2019). Affect is what makes the socio-material hold together or fall apart (Müller, 2015). Emotions such as love, hate, anxiety, fear, irritation or in general affective relations that for example create discrimination (Talaska et al., 2008) are crucial ingredients of politics (Lorimer, 2008; Müller, 2015).

The insufficient engagement with affect and emotions in research on socio-environmental crises has diverted attention from how affect, emotions and socionatural emancipations are interrelated (notable exceptions are Nightingale, 2011; Sultana, 2011; Nightingale, 2013; Sultana, 2015; González-Hidalgo and Zografos, 2017; López et al., 2017; Singh, 2017; Velicu and García-López, 2018; González-Hidalgo and Zografos, 2019; Graybill, 2019; González-Hidalgo, 2020). One important consequence has been that "detachment, objectivity, and rationality have been valued, and implicitly masculinized, while engagement, subjectivity, passion and desire have been devalued and frequently feminized" (Anderson and Smith, 2001, 7).

The publications mentioned among the exceptions have essentially focused on environmental change and conflicts rather than reflecting on the very process of researching these. For example, they have shown how processes of environmental change and conflict are not only "economic, social or rational choice issues, but also emotive realities that have a direct bearing on how resources are accessed, used, and fought over" (Sultana, 2011, 163). The perseverance of feminist scholars, together with decolonial and activist scholars among others, has thus facilitated a recent "emotional turn" in political ecology research. However, this turn cannot be completed if the political ecology scholarship in particular, and the academy in general does not systematically use affect and emotions to reflect on and transform its own knowledge generation practices. If the acknowledgement of the ambivalent role of emotions and the aleatory character of affect can let us better understand and engage with grassroots movements engaged into action (González-Hidalgo, 2020), our claim is that we can also bring those experiential, emotional and affective ways of knowing into our everyday practices as researchers and academics.

A reflexive process for discussing the workings of power in research encounters and knowledge-making practices is key in the practice of feminist political ecology (Harcourt et al., 2015). By discussing our positions of privilege as researchers (England, 1994), how our research foregrounds some interpretations and silences others (Jackson, 2006), and how research is embedded in imperialist and colonialist projects (Smith, 1999), we are starting to challenge the practices that reproduce the status quo in academia. Reflexivity is usually an individual practice in which researchers discuss their research interactions and the power relations in which they are embedded. In this collective exercise, we want instead to reflect and learn, not only as individual researchers, but also as inter-related researchers, as a collective. Through dialogue and reflection, we open up a democratic and emancipatory process and want to break with a culture of silence (Freire, 1996). This is because we need to become a critical mass that is self-reflexive about how its practices may be oppressive, and how we may strive to go beyond egoistic academic experience.

Like Militz et al. (2020), we engage with two methods: auto-ethnography and resonances. Auto-ethnography is intended to "make the emotions and positions constituting research encounters and knowledge production more explicit" (Militz et al., 2020, 430) and to help unravel the workings of power in research processes. However, as Foley (2002) puts it,

incorporating the researcher's personal self and utilizing a more affective way of knowing is not without problems: autoethnography has been criticized for being a self-indulgent, narcissistic or excessively subjective and shallow process. And, nevertheless, critical autoethnography has the potential to force us to position ourselves, question our responsibilities and reconsider our power to affect others. Militz et al. (2020) also report some of these limitations, explaining how autoethnography can challenge the reader's assumption, without necessarily challenging the researcher's biases. To try and overcome these limitations, just like Militz, Faria, and Schurr did, in this article we engaged in a collective affectual writing process-via resonances-, to make us individually and collectively problematize what we tend to take for granted, the reasons of feeling uncomfortable in certain situations, and how we sometimes tend to "normalize" discomfort, thereby reinforcing unequal power relations.

Our second method, resonances, implied engaging with the emotions triggered by the reading of others' auto-ethnographies during the Covid-19 pandemic. The ways in which we related to our colleagues' emotions during research encounters, and discussing our own emotional and experiential knowledges of research, helped us unmask the privileging involvement of our bodily histories in research encounters (Militz et al., 2020). We are convinced that feelings of connection, disconnection, anger, frustration, irritation, and helplessness (Lee, 2019) expressed in relation to our colleagues' account on their research encounters during the Covid-19 pandemic contribute to revealing what normally tends to be silenced. Our resonances allow us "to share experiences of vulnerability that, potentially, illustrate research encounters in a much more nuanced, multi-layered way" (Militz et al., 2020, 434). This exercise, we argue, can help us to re-think our knowledge production practices seriously.

Concretely, we use vignettes to "write affectually" (Militz et al., 2020, 429), to immerse the reader momentarily in our research. To write up the vignettes, we asked ourselves: *what, in some specific research encounters of ours, makes us feel uncomfortable with the ways in which we have engaged with (i.e., acknowledged, worked with, problematized) interconnected vulnerabilities (our own vulnerabilities, that of our colleagues' and our research participants')?* This question assumed that we all feel or have felt discomfort, and that we have gut feelings about our own problematic, unequal, unjust engagements that may reinforce (but also help us to challenge) our interconnected vulnerabilities.

Each of the ten co-authors wrote up a vignette that was reflected on by the other co-authors individually in writing. Afterward we discussed each vignette in small groups of three or four and reflected on how we shared and connected similarly or differently with these discomforts and vulnerabilities. In this article, we share three of these vignettes that for us reflect affective and emotional relations through interconnectedness, uncertainty and critical aspects of hegemonic knowledge production. We analyzed these vignettes and the resonances using a broad threefold lens of interconnectedness, uncertainty and critical aspects of knowledge production. In addition, we reflected on the collective process of writing this article as a proxy for how we engage in and access research, how we treat each other, yield

authority and legitimacy, even in research encounters with our most direct colleagues. We presented our preliminary findings to other colleagues in our department and in our analysis presented here we also draw on their reactions to the vignettes and to our call for this broader self-reflexive emancipatory process.

We envisioned the process of writing this piece together as empathetic, supportive and friendly. We agreed to strive for appreciating all forms of input to the conversation (be it empirical, theoretical, just a little bit or more), being more attentive to the process than the result. We wanted to discuss and experience how we can become better researchers in our connectedness with differently situated others. While we were committed to be self-critical about our own research practices, ambivalences, and contradictions, in order to build a safe environment among us, we made clear that it was not our intention to criticize ourselves or each other. While this was important for building a safe environment among us, the process was not without some tensions and the fruitful consequences of this process in our future work and work environment are yet to be seen. Perhaps, we hope, we have unleashed an affective and emotional anti-hierarchical pandemic in academia.

In the following section, we present three vignettes about the affective and emotional experiences of being a researcher during the Covid-19 pandemic with some of the resonances of the co-authors. While the vignettes are rich in sharing different contradictory emotions, we have labeled them outlining three main emotional expressions: "Shame and Powerlessness," "The Racialized Burden of Care" and "Uncomfortable Privilege." We have anonymized all the names in the vignettes and resonances. All the names have been changed to unisex names. As pronoun, we use "she" invariably of the actual gender identification of the person.

AUTOETHNOGRAPHY AND RESONANCES

Shame and Powerlessness

Leo, a PhD student who conducted field work on mining and state-led extractivism in Northern Sweden in March 2020 during the onset of the Covid-19 pandemic, shares some ethical dilemmas during the process of doing field research, which have been amplified by the pandemic.

(**Leo**): *I sit in my expensive rental car looking up at the house on the hill. I'm bracing myself once again for the strange practice that I have found works best for finding interviewees on my study of mining conflicts in the Swedish north, in the homeland of the indigenous Sami[1] people. In order to engage with people in the valley where a mining company seeks to open a gigantic nickel mine, I have to barge into people's homes – just opening the door, calling out "Hello! Is anyone home?". They won't open for strangers who knock (it might be peddlers of religion or mines), they rarely answer the phone if you call in advance and if they do, they say that*

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[1]The Sami people are an indigenous Finno-Ugric people inhabiting Sápmi, which today encompasses large northern parts of Norway, Sweden, Finland and the Kola Peninsula within the Murmansk Oblast of Russia.

they don't have anything to add to my research, that the mining project is a looming threat but one that is too technical for them to address. (**Nicky**): I would also feel strange about doing this, but only because we are in Sweden, in the Global North. This way of finding interviewees is completely the standard way in the countries where I have been working in the Global South, when it comes to interviewing ordinary people – even with officials, when you try to plan a meeting they sometimes say they don't have time, but showing up at the office often works better. (**Elya**): I had a similar reaction to Nicky's: while doing research in Nicaragua I used to go directly to people's houses to interview them. But somehow in Hungary, I feel more uncomfortable about doing that. I sense that this discomfort relates to differences in how time is apprehended differently in these places. Thinking about it now, I may have a presumption that in Nicaragua farmers "always have time" while in Hungary "they are busier."

(**Leo**): *We sit and talk, sometimes for the whole afternoon, about the mines, about the history of a valley marred by a century of violations of the Swedish state. We talk about hunting, of wood craft, of living in this remote place and about the conflict between two Sami groups, about incursions and injustices that have made life unbearable for some and they have turned to the bottle or even ended their own lives. I'm horrified and ashamed and powerless. What can I add to this? What will my work accomplish? Am I just another researcher who siphons their experiences for my own gain? As our conversation inevitably turns toward the subject of the Corona pandemic, I hear how they feel that it is creeping up from the south, about to become another threat that will make the withdrawal of the welfare state even more obvious. There are no hospitals and the small health center in town will not be able to cope if there is a larger outbreak. There is talk about what will happen to the tourism if the southerners and the Norwegians don't show up, and talk about what will happen if they do. Pandemic or loss of livelihoods? And I have become the plague bearer. They don't see it that way, not yet. I'm still welcomed but I feel that I'm becoming another threat, meeting and talking to people and walking from house to house. Many of my research participants are elderly, some are already ill in other diseases, and I don't know if I'm infected. The chances are small, but there is also a chance that I bring death with me as I walk into someone's house and have a chat about everyday life over a cup of coffee.* (**Nicky**): The "barging in" without knocking thing is what I find most unusual and strange, and that they would not open if you do knock! I reflect that your description makes it sound so brutal, like a violation, while I imagine they think of it as simply a guest coming to visit. (**Elya**): I feel it is very brutal, especially in these times of pandemic when you don't know whether you may contaminate people. I may be a bit dramatic but it made me think about the colonization of the Americas by the Spanish and Portuguese when so many indigenous people died due to the fact that the colonizers brought diseases such as chicken pox with them.

(**Leo**): *My need to understand becomes unethical and yet I persist, fearing that I might not get enough information, not enough data. And then I stop and cut my fieldwork short, I need to get home to my family and I can no longer justify my visits. As I drive south, I cannot shake the gnawing feeling that I*

might have hurt people and nothing else will come out of it. (**Nicky**): I could really relate to that. How in research you sometimes feel that you shouldn't be insisting on getting more data but you have the pressure of publishing, the pressure of your supervisor, the pressure to produce data . . . It is a classical ethical dilemma, the fear of somehow hurting people with your interview, and yet with a Covid twist that it makes it so much more pressing. Earlier you might have visited while experiencing mild flu symptoms and an elderly interviewee might have caught something and even died without us really condemning that behaviour in society. Now it has become highly condemnable and I feel when I read like "no! you have to stop!". (**Elya**): Yes, the ethical dilemma is not just so much more pressing now with the pandemic but it has also become embodied (**Alva**): I think giving voice is a responsibility we have when we interview and have achieved the trust of people. Then with all pressures, I still bear with me many stories I have not been able to reflect upon, due to new tasks and academic commitments. Then it feels even more in vain. The researcher's guilt continues when we later on, are unable to return and give back. How can we give back even to those who we share sympathies with? So if we come back we might add to the poison? Make conflicts worse for those we share sympathies for? What are our arenas? And how can we pursue the cause we feel is "righteous"? What are our instruments? Where can we make a difference? Can we make a difference?

Leo's vignette exposes the unpleasant emotions of shame and the ambivalence related to barging in the private homes of people in Northern Sweden. Leo humbly recognizes two sides of a coin: on the one hand, powerlessness to help interviewees directly to whom one feels deeply connected, and on the other hand, being in power and even being a threat, possibly a deadly one, to already vulnerable people. This type of self-reflection working with vulnerable communities, highlighting affective relations, complicates the power and legitimacy of the researcher. This issue is not new for us: several of us have wondered about how we may affect the lives of our research participants when we, due to ideas about what is possible and where the limit for our engagement should go, might refuse to help them when they face difficulties that we view would fall beyond our research related engagement. Even worse, we may burden them with our presence during times of hunger, conflicts or the danger of carrying infectious diseases.

The reflections of other participating researchers on the vignette were mostly related to the dilemma of giving voice in researcher driven inquiries which expose feelings of coming short and inadequate. Often it is the researcher's agenda that is creating the frames of concerns that are to be addressed. Despite our effort to give voice to the concerns of our interviewees, the potential "use-value" of our research is seldom able to remedy the direct concerns of the people who gave their personal time and dedication to our work. This highlights why emotional and affective relations underlying knowledge production practices need more focus: they have the ability to uncover those hegemonic frames that silence the experiential knowledges and alternative knowledge claims.

Moreover, the pandemic exposes extreme inequalities, new, and not yet reflected upon potential burdens inflicted upon

research participants, making the injustices embedded in research processes more apparent since the sole presence of the researcher could and may have literally killed interviewees. These ethical concerns and the consequences we should take regarding fieldwork when researchers may spread the coronavirus were heatedly discussed in our group. Some of us felt that Leo's testimony should be problematized by involving the PhD supervisors so that clearer rules on ethical fieldwork practices for the future are put in place. Nevertheless, all of us co-authors working across the Global South and North had experienced similar emotional dilemmas during fieldwork before. Some others felt that if we if we confronted Leo's supervisors about the risk he put his research participants in, the danger would be closing down opportunities to openly discuss our emotional and ethical concerns in the future if these may get reported. Our discussion uncovered not only the kind of colonial legacies shaping most of our research practices, it also showed how strong is the instinct of finding solutions through institutional and regulatory fixes, rather than fully embracing affect and emotions to help us think beyond current hegemonic academic practices. We as political ecologists are yet to establish decolonial research agendas and decolonize our own mindsets, first and foremost.

The Racialised Burden of Care

Charly is a female professor of African origin living and working in Sweden since 1988. While it is not part of her official duties, she most often takes the "guilt trip" responsibility (as she calls it) for African students far away from their families. This is not different in pandemic times: she supervises many of them and undertakes the responsibility to find them a place to live. She takes them out and shows them around. During the pandemic, she has been more than ever trying to take care of their emotional well-being while also struggling with own problems, as everybody.

(**Charly**): *April 2020: "Everyone in Sweden has a responsibility to prevent the spread," the Public Health Agency's general director Johan Carlson said in a statement announcing the new guidelines[2] (thelocal.se). The blue link meant I could click on it and get to the guidelines and I did exactly that. I was directly taken to the Swedish website of Folkhälsomyndigheten (the Public Health Agency). I searched for the English icon, clicked on it, and came to the welcome page of the Public Health Agency. What a lot of information – then I wondered how many of my foreign students even knew about the existence of this website. For a while, much of the information about Covid-19 was purely in Swedish, written for people that could speak Swedish, could navigate and find information on the internet in Swedish. They were a forgotten group in terms of general Covid-19 communication. I had at that time three foreign students visiting our university. Sandwich students – that come, stay three to six months, and then go back to their respective countries. I had to inform them of the risks, and that perhaps they should return home to their country. What if something*

serious were to happen – did I even understand the formal protocol of how to manage this situation? The weight of the responsibility for the lives of these three students lay upon my shoulders like a cloak of thick mist. To assuage their anxiety, I called them for a WhatsApp audio meeting firstly to let them know I was there for them. Secondly, to ask them that all-important question: would they like to return home to be with their loved ones. They told me that they would confer and get back to me with an answer. The response was one of unity and determination to continue with their studies. The quest for higher education at a price, for a price, and enormous sacrifice. I was unable to shake the thought of one of them getting terribly sick in a land far away from their home. The next WhatsApp session we discussed their fears of being away from their loved ones, the familiar and the loneliness. Interestingly the singular most important thing that they found daunting was if one was to die who would know how to send them off in a way that was befitting of their culture. As one of them emphasized "my mother asked if there are other Africans that can cry for me should I die here." Even in death, we think of that what binds us together culturally and with Covid-19 and for foreign students, this is no different.*

(**Thando**): I have experienced over the years how you Charly have taken on a lot of responsibility for all our African students. All that you have done for these students commonly "fall between chairs" in the Swedish formal system of responsibility and some take this as an excuse not to help out. This resonates with several feelings in me- I get frustrated with that our university provides limited help with all the things around the actual studies, but also I get sad that we as native Swedes are so used to that "the system" takes care of everything in our social life- that there are support networks in the form of a well-established social security system etc. that makes us think that we only need to, and only are morally obliged to, take care of ourselves and to do what is stated in our work-descriptions. This support structure, which in many ways is a good thing, has also led to this individualized behavior which I find distressing. (**Alva**): My experience from having been a PhD student from overseas in Canada was that the university had an International Office that had a multifaceted engagement with us including practical and social matters. I feel both personally inadequate for not having been more personally engaged, but also feel that our university should show more engagement for overseas students. The burden should be on the institution. (**Nicky**): I agree with Thando's comment above, but also, I see that even if there would be better structures at our university, they would still turn to you and you would still feel more obliged than most others, Charly, because of this thing about being an "other African." (**Sam**): It reminded me of when I first arrived in Sweden as a PhD student, and how I knew nothing about the system. Friends and colleagues from my corridor back in Gothenburg were the ones helping me to get "into the system." One of them even offered to host me for a few months if I could not find a place to say. That person became my best friend today! My experience, from the other side of the coin, is that I do not expect the system to help me, as it hardly ever did back in my own country (Thailand). Instead, I rely on my own informal networks and who I know, or who I get to know. I totally understand Charly's frustration and appreciate Charly's generosity of being that

person who provides support. Charly's story reminds me that I should help more. (**Leo**): Reading this I get angry and frustrated. First it reminds me of how we at our university, a self-proclaimed bilingual university, continuously fail to provide information in both English and Swedish. For better or worse, English remains the lingua franca in Western academia and yet time and again there are examples where English-speaking colleagues miss out on vital information or get an abbreviated version. Secondly it makes me think of how the administration of Region Västerbotten (a county in the north of Sweden) posted the topic about local recommendations about Covid-19 in Somali on a website that were supposed to be written in Northern Sami. The text in Sami was missing important characters needed to make it understandable. When the Swedish Sami news pointed this out to the Region, they responded with "These things happen, but we think that the message comes across and we don't think the taxpayers should have to pay for the same site twice so we'll keep it this way." That these links do not provide the information needed can be waved away as "Well, it was a human error" point toward how people in Sweden are treated differently during crisis, in this case making indigenous people more vulnerable to a pandemic that is harvesting lives all over the globe. It is an example of colonial practices that have shaped relations between the Sami peoples and the Swedish state for centuries and continue to do so to this day.

Charly's vignette expresses a deep sense of responsibility, and the burdening feelings of worry and sadness for foreign students' isolated situation in Sweden during the Covid-19 pandemic. Several scholars have identified the burden of invisible work in academia contributing to further social inequalities with repercussions on time use, the minority tax, especially by minorities that are largely women (Menges and Exum, 1983; Social Sciences Feminist Network Research Interest Group, 2017). The "cultural tax" (Padilla, 1994) or the "identity tax" (Hirshfield and Joseph, 2012) places enormous expectations and responsibility on certain minority people. According to Padilla, cultural tax is defined and understood as:

> The obligation to show good citizenship toward the [academic] institution by serving its needs for ethnic representation on committees, or to demonstrate knowledge and commitment to a cultural group, which may even bring accolades to the institution but which is not usually rewarded by the institution on whose behalf the service was performed (1994, 26).

While Charly's colleagues may express their thanks and gratitude to Charly's strong commitment and the cultural bonds she has with the students, they can never fully experience or comprehend the physical, emotional and mental responsibility that Charly bears on behalf of the academic institution (Hirshfield and Joseph, 2012). Indeed, students can open up about their greatest fears and need to be guided through extreme and uncertain situation while institutions such as the university or the state fail to provide timely support to those who do not understand neither Swedish nor the nuances of the Swedish culture. (Hirshfield and Joseph, 2012) refer to this as

physically shouldering duties that other staff members may not have and that affects academic production and social integration within the academic department or institution. While Charly, also coming from Sub-Saharan Africa, helps to build trust with the students, there is little academic or institutional reward in providing these services - the invisible work of academia (Social Sciences Feminist Network Research Interest Group, 2017; Jimenez et al., 2019). Her skills and abilities are often referred to "soft skills" or "feminine" unlike those required in research and administration that are referred to as "hard skills" or "masculine" and that are evaluated differently in the reward system. This "care of burden" relies precisely on the affective relations based on a feeling of interconnectedness between foreign people in a foreign country. While they are important and need to be valued (without Charly's extra care and responsibility, many foreign students would suffer more or even not finish their PhD), the Covid-19 pandemic has enabled us as a collegium to highlight this issue in a way that may not have been possible before the pandemic.

The resonances with this vignette reflect anger about the invisible work and minority tax that minority staff shoulder and labor unlike their non-minority counterparts. Exclusionary institutional practices which lead to mental, physical and emotional burden are seldom addressed or applied in assessments of minorities. Similarly, isolation and uncertainty of individuals that need more active nurturing to engage is totally missing as are the resources to work with these issues on a long-term basis. At the same time, several of the co-authors recognize that it is our responsibility as researchers to care for our foreign colleagues and students, without expecting that the system will work. While this demonstrates that the practice of reflections through vignettes helps to raise awareness and the will to help among researchers, it also shows how a deeper engagement with this racialized and naturalized burden is needed: while many Swedish colleagues think that "the system" will take care of students, Charly's work becomes hidden, or seen as "natural" as she is African herself, or a "nice add-on." Being the host institution for overseas research on the Global South implies a commitment by all researchers that the research conducted is not only of importance for our academic environment but that it also builds ethical collaborations. This assumes stepping outside what we perceive as acting according to the "normal" state of affairs, i.e., the needs of "normative" citizens and the assumption that the "good state" has taken care of legitimate needs. The reflections by colleagues remind us of the ethical boundary-making dilemmas of researchers indicated earlier. Our commitment as researchers does not end where the boundaries of our own research concerns end. We have a collective responsibility in our research encounters that we need to fully take up. We need to reward the burden of invisible work, the identity tax in academia and inculcate minority tax in the goals of our academic institutions.

Uncomfortable Privilege

Lin is a researcher from Germany who has spent long periods in Nepal. Being back in Europe just when the pandemic began, Lin shares how the pandemic is exposing her to unpleasant paradoxes of research from a distance.

(**Lin**): *Being absent, physically, cognitively and emotionally from what I define my "field." My colleagues and research*

assistants in Nepal, who juggle with internet connectivity, working from family homes, and even face harassment in the Covid-19 lockdown world in Kathmandu. My respondents in the villages, whom we can only reach via phone, to whom we have limited, and officially sounding questions, receiving official replies. Information I cannot further probe, as I'm not there during the interview which is conducted through my research assistant. Usually I often adjust questions when I'm in the field, react to whom I meet, what I see. When I don't have this exposure, my mind and work focus wander off to conferences, publications, twitter, my own promotion. After leaving Nepal I became a European academic, who only sometimes is exposed to collect data to write about. Who only sometimes is touched. While these loads of local NGO and national documents which I brought from Nepal are piling up, and my transcribed interview data and field notes are waiting to be analyzed, I prioritize preparing yet another presentation to my European-based academic colleagues. I try to think hard about how to present the data to form an argument to the academic community, but less about the very rich details, the immense reading I should be doing to know better. This may lead me into superficial directions, like of those academics I despised, losing the richness and diverse meanings while trying to form an academic argument. Working remotely during Covid-19 makes me uncomfortable as I realize my distance to other ways of perceiving the world, other meaning making, not being able to be in the field more regularly to organize workshops, expose myself to village life, come closer to the research subjects, to uncover layer, by layer, by layer of social relations, of everyday practices, of change over time, by seasons, by years, and still being far from close to lived realities, but being closer than now. Covid-19 reflects my own privilege and comfort, to think in larger time spans, beyond the next day, the next season, having trust in having job security for years.

(**Thando**): Like you, I have my field work sites far away from home, across the globe. And I have not been able to go there now during Covid. While Covid has led to a temporary halt on travels your thoughts relate to something larger for me that I have thought about for many years. How do we justify doing research far away in countries where there are researchers, who if they could get the funding we get, could do the research instead? When we publish our research in academic journals, what difference does it make? Should we not instead spend our time trying to lobby for change? Talk to policy makers and write accessible texts and share with those in power? We are flying across the globe, contributing to climate change, and what do we contribute? I justify it to myself with that I as an outsider can see things that you cannot see when you study a society close to your own, and that I, because I am not part of that society, can be more direct in my critique of injustices, than if I relied on that same society for my living. But is this really a relevant and true reflection? To really make this contribution should I not spend more time trying to create change, than trying to publish in high-ranking journals? (**Alva**): The dilemma of knowing from inside is also part of being in our academic "bubble," which prompts the importance of moving closer, exposing ourselves. Meanwhile, one is bound up with requirements in one's "bubble" inhibiting one from giving feedback and engaging. (**Elya**): I feel a deep discomfort about this argument that as an outsider you can see better or more things

than as an insider. Don't you think that this assumption relates to this argument on the need of being objective and detached? And if so, are we not better see-ers and knowers when we are more connected emotionally, when we are more affected in our hearts, when we feel our research participants' problems because they are also our own ones? (**Nicky**): I don't think this is an either-or situation, insider research has some clear advantages and outsider research has others. I struggle with the same guilt as Thando on why I am doing this from Sweden. I try to involve local collaborators and share the money I get but also that can be difficult. In South Africa most of the prominent people in my field still seem to be white, which is really frustrating, at the same time as I feel bad for even considering skin color when I choose who to work with, I don't want to think in those terms at all.

Lin's vignette exposes our everyday contradictions of being researchers based in Sweden- with our material privileges such as generous salaries, excellent working conditions and access to health care, - while doing research in other parts of the world, with the collaboration of locals who not only have no access to such good living conditions, but are frequently exposed to acute conflict, economic poverty and hunger. Additionally, it is us, academics in the Global North, who get most credit for the research. The vignette and resonances not only highlight these recognized but usually seldom debated privileges, but also the unpleasant feelings associated with our limited power as researchers to radically transform local and global inequalities as well as the coloniality of knowledge. While some of us feel complicit of reproducing this coloniality, we admit that we do not do much to change it. In particular, the resonances also present how we, as academics, build on self-justifications – such as the possible benefits or absolute limitations of being an outsider- to be able to cope with or silence those unpleasant feelings. The resonances therefore invite us to discuss how these contradictory emotions can be collectively embraced to envision emancipation despite our everyday obligations and our need to have a job in the academic industry.

DISCUSSION: AFFECTIVE EMANCIPATION CHALLENGES THE STATUS QUO IN ACADEMIA

So, how does the previously described self-reflexive process carried out by ten researchers in the midst of a pandemic help opening up for emancipation?

In what follows, we argue that being critically aware of the importance of affect and emotions in our research processes, being able to recognize them and give space to them is one important step for engaging in emancipatory processes that embrace interconnectedness, uncertainty and challenge hegemonic knowledge production practices.

Relational Vulnerability: Research Encounters as Affective Space

We argue that our analytical focus on interconnectedness helps to better engage with the relational character of vulnerability

(Taylor, 2013; Tschakert and Tuana, 2013). Vulnerability has been a central topic for political ecologists (Forsyth, 2008; Fazey et al., 2010; Cuomo, 2011; Tschakert et al., 2013; Djoudi et al., 2016; Nagoda and Nightingale, 2017; Nightingale, 2017; Velicu and García-López, 2018; Arifeen and Eriksen, 2020; Fernando, 2020b). Yet, the relational and interconnected processes through which vulnerabilities are produced and challenged (and sometimes both at the same time) via research encounters have been much less discussed in political ecology scholarship. We argue that engaging with vulnerability in a relational way, as the ability to affect and to be affected, can help (more) meaningful and just research collaborations. For example, Leo, in her process of doing interviews in Northern Sweden during the pandemic feels that she can potentially "bring death" to the people who she visits (and also risks getting contaminated by the virus). This shared sense of vulnerability makes her (and us through our resonances) question our responsibilities as researchers: research encounters do not only solely produce "data." We also produce vulnerabilities at the same time in which we become more vulnerable. Yet, hegemonic knowledge politics that do not give enough space to discuss the relational making of these vulnerabilities contributes to reinforcing the status quo in academia. An academia that is still far from properly deconstructing and understanding its own problematic history as a Eurocentric construction and the implications of this (Mbembe, 2001).

To open up the ways for emancipation, extraction of data and imposition of knowledge claims must be replaced by affective connections and relational becoming through shared vulnerabilities. A more coherent theorization of spaces of research encounters as affective spaces is required to recognize that the technologies, social relations, and arenas of participation are interdependent and that the modalities and spaces of power and empowerment are entangled (Kesby, 2007).

When we engage with relational vulnerability within our research collectives, we should not lose sight of the fact that we have differential vulnerabilities that depend on our personal, historical and collective situations as well as our positionality at a given time and in a given place. For example, by opening up for our own vulnerabilities in this process of writing this article, we do not risk losing our jobs. This is not the case for people who, by opening up to emotions may open up for being harmed. One way of mitigating this risk is the focus on relationality: it helps to decenter from individualized emotions and replace them with affective relationships with others. Then, if we take seriously how vulnerability flows in our collective, we can open up for the practice of "slow scholarship" (Caretta and Faria, 2020), so that we and others involved in the research process take the time to reflect, discuss and decide what is needed for our scholarship to become emancipatory.

The question however remains: with their pervasive focus on power and inequality, can political ecologists practice and produce honest "collaborative ethnographies" (Lassiter, 2005; Gold et al., 2014) with their research participants? Our response is that what first needs to be deconstructed are our current practices and assumptions about research collaborations. First, our vignettes show that we all bear the institutional and sometimes self-imposed burden of collaborations. Yet, due to our incapacity and sometimes unwillingness to question the comfortable status quo in which we are embedded as researchers, we continue reproducing unequal power relations and processes that make our research participants vulnerable in and because of these collaborations. If we were to describe and reflect on the process of writing this article as a "collaborative auto-ethnography" between scholars, our analysis would have to discuss how our process may have reproduced some of the same unequal power relations and inequalities that served as the initial motivation for coming together. One manifestation of these unequal power relations that have to some extent marked our collaboration for this article are for example the fact that both the co-authors who are PhD students were suggested by their supervisors: they did not initially respond to our open call. While this may not imply that they benefitted less from the collaboration, it definitely raises questions about the voluntary character of research collaborations such as this one, especially for junior colleagues. Also, while we had envisioned a caring and supportive collaboration process, there were moments when discussions on the auto-ethnographies created tensions in the group: we have not been able to achieve consensus on all interpretations. For example, comments on auto-ethnographies made with the intention of promoting a decolonial approach, emphasizing indigenous people's quest to define participation in research, were by some understood as being judgmental toward the researcher and enounced from a position of authority. Also, the writing-up process beyond the ethnographies did not end up being as collaborative and mutually supportive as we had initially envisioned it- again with time being a constraining factor.

Second, based on our reflection through the auto-ethnographies, but also on the process of writing this paper, we see a contradiction emerging between our will to resonate with each other and our desire to contribute to emancipation. Indeed, reflecting back on the process of writing this article, we wonder whether frictions, misunderstandings and (productive) conflicts could have been more conducive to envision pathways for emancipation. As stated by Wijsman and Feagan, "rather than collaboration at all cost, conflicts, contradictions, and friction are the critical points for transformative interventions" (2019, 73–74). This discussion goes beyond the purpose of this paper, nevertheless, we need to bear in mind that there is no recipe to open up for emancipatory pathways.

Embracing Uncertainty and the Unknown in Research Processes can Provoke us to Think Differently

The very definition of academic inquiry as rational, modern and free from any shackles of subjectivity, unsubstantiated beliefs or affectual understandings is closely connected to the portraying of non-Western societies as inferior, irrational and chaotic. Upholding this academic self-image in fact requires the disguising and hiding of those less rational and objective instances of our own knowledge production that we all know take place. However, we are no longer able to play along with those academic standards that help uphold a colonial and

problematic image of academia, and this is why we need to insist on revealing, discussing and problematizing the more chaotic, affectual, aleatory, and irrational aspects of academic knowledge production. Only through dismantling and rebuilding our own institution to become more engaging and inclusive can we better understand the multifaceted, complex, uncertain, unknowable and chaotic world. An understanding that values the different ways of making sense of our world is needed in order to break free from our current trap of co-producing oppression, inequality, vulnerability and exploitation.

Affect draws attention to the uncertain dimensions of both research processes and research outcomes. Because of this, our preoccupations should not be about results such as whether Leo will have enough data for her PhD thesis, if Charly's African students will make it through the Swedish PhD program or if Lin's project will be able to collect field data despite the travel restrictions. Rather, what matters for emancipation is the kind of relations that we as researchers are establishing when we are involved in research processes (interviewing in the Swedish North, mentoring African PhD students in Sweden, interviewing remotely and through a research assistant in Nepal). *How do these relations reinforce unequal power relations, vulnerabilities, the colonial legacies of our academic practices? And how can they become emancipatory?*

If we focus on the types of relations we want to build rather than on outcomes, uncertainty should not contribute to paralyzing our actions and to maintaining the inertia in academia. In the case of writing this article, we initially agreed that if we did not manage to publish anything, our endeavor should still help us to feel better in the difficult context in which we are living.

Again, just like embracing interconnectedness, working with uncertainty requires time and slow scholarship (Caretta and Faria, 2020). While it is difficult for us to envision how our academic department could shift to slow scholarship from one day to another, we see the establishment of a small research laboratory as a potentially feasible start. In such a laboratory, a group of researchers could pilot a research and mentoring project based on the building of meaningful and affective relations, fostered though time and care, and geared toward radically transforming research relations.

Space to Discuss Affect and Emotions in Knowledge-Making Practices, and to Challenge Hegemonic Knowledge Politics

Our vignettes and resonances show how our knowledge generating practices are always mediated by and constituted through affect, emotions and embodied experiences. Our autoethnographic exercise with resonances also revealed how we tend to silence our emotional and vulnerable sides as academics and how we tend to downplay the importance of affective relations underpinning research encounters. While feminists and emotional political ecologists and geographers have acknowledged how these emotions and embodied experiences can "shift (. . .) notions of essentialisms and question (. . .) relational privileges, struggles, and differences"

(Sultana, 2021, 4), our emotional engagements in academia still tend to be considered as "secondary," "subjective," and "feminine" or as something to be hidden or discussed in private conversations.

The feelings of discomfort about privileges and disadvantages—which our self-reflexive process has shown to be more common than we individually might have thought it would be - appears to be key in that they potentially represent openings for putting emancipation back on the academic agenda. Racialized privileges and oppressions come particularly to their crystallization point in times of crises as shown through Charly's account. As the only professor of African origin in her department, African students have been long under Charly's responsibility. But the resonances to Charly's testimony shows how her case reflects only the tip of the iceberg. This exercise helped us recognize that our own fields of research, as we practice them, are constrained by what Oswin (2020) calls the "systemic injustice" in her own discipline of geography, which is reproduced globally and institutionally often in imperceptible and naturalized ways. Emotions and affective relations are catalyzers for helping to think about radical changes because they make us feel, deep inside of ourselves, that there is something profoundly wrong and we need to do something about it.

In different accounts and resonances there were expressions of guilt: for not giving back to the research participants (research findings but also not helping people when in need). Also, during our writing process, one of the co-authors expressed how she felt helplessness in the face of the whole exercise we were undertaking while so many people were suffering in physical, economic, and social terms, and we, academics, meanwhile, were spending our time on "another self-centered and egoistic" exercise as she called our endeavor for this article. As a Southern European citizen working as a post-doctoral researcher in a Nordic country, she criticized her own, insufficient abilities for transforming unequal socio-environmental relations from within academia, while at the same time she was paradoxically reinforcing the system by putting efforts in finding a permanent academic position. Or another of us, who expressed in one of our interactions that she felt ashamed that she has been blind for so long to the exclusions faced by her research assistant: "I should have known," she said.

Beyond an individual consideration of those emotions such as guilt, helplessness or "lack of knowledge," we want to stress how the pandemic gives us an opportunity to "know better," "to know differently." To be able to envision emancipatory processes to take place, we suggest research agendas geared toward answering uncomfortable questions such as: *how can emotions such as guilt catalyze change in academia? And therefore, on the contrary, How does the fact that we tend to push away those "negative" emotions - or to self-calm them- contribute to reproducing oppressive relations in academia? And more generally: how do we, researchers interested in challenging vulnerabilities, become their very perpetrators?*

While it is difficult to pinpoint how our knowledge-generation practices have been transformed after this affective exercise, even when we will be vaccinated against the disease, we may think twice about whether another fieldwork trip of ours is needed to a different country. As Nicky put it: "*I feel outraged that people in*

Africa still see no light of any vaccine and it would feel too wrong to turn up in field boasting my healthy, well-nourished body, now also vaccinated against a disease people are still struggling with. And yet, this is not much different to before when I walked around healthy and protected from the many diseases plaguing the people around me, including malaria, yellow fever, hepatitis . . ." While, we may have been aware of these injustices before the pandemic, we have now opened a new and hopefully safe space to talk about it. In addition, we discussed to share the reflections underpinning this paper with the rest of our colleagues, write recommendations for our university's policy-makers and a manifesto for researchers to embrace the emotional turn. We also want to push our university department's leadership to engage with investigating the unequal burden of care that is taken by different people at the department, which is so clearly divided along gendered and racialized lines.

The transformation of our knowledge generation practices has just begun with this process and will take several years and unpredictable paths. Yet, we can say that by focusing on affective relations, we have felt how we can gain access to different ways of knowing. Rather than for example trying to understand "only intellectually" how Sami people in Sweden are affected by mining projects as in Leo's research, our exercise has shown that equally important is to understand the reactions of our bodies in, and the human and non-human affects that flow from encounters with Sami people, institutions, technologies and procedures. *What are our emotions doing to us and our research practices (*Ahmed, 2014*)? How can blurring boundaries between researchers and research participants through affective relations help us to better engage in emancipatory socio-environmental struggles*?

Also, if we think about research problems in an affective way, solidarity and conditions of empathy and compassion become more central. For example, reflecting on the cultural tax that Charly is bearing in our university department provoked empathy among us: this may be the beginning of a crack in our university system to challenge its practices that naturalize but also fail to value those "soft" research skills that are necessary for making the university function.

CONCLUSION

To engage with the fact that current research, including our own, struggles to break free from established categories, we need to challenge the politics of knowledge production (Nightingale et al., 2020). Yet, both interconnectedness and uncertainty become less of a concern when plural ways of knowing such as affective, embodied and experiential are held in conversation (hooks, 1989; López et al., 2017; Nightingale et al., 2020; Sultana, 2020). Decolonial, feminist and indigenous scholarship helps question the dominant Western ontology and epistemology that contributes to reducing the multiplicity of knowledges thereby "unauthorizing" subaltern knowledges (Spivak, 1988) because they hardly fit in modern understandings of science, data, scales, and temporality (de Sousa Santos, 2009).

Our paper has only been a first exercise to open up a conversation on how allowing emotions and affect in our knowledge generating practices can make us become better researchers. In order to collectively use these emotions as catalyzers for individual and collective emancipation, as academics we would probably need more safe opportunities for sharing and reflecting on our ambivalent emotions, in ways in which we can discuss their importance in our knowledge production processes. The emotional and affective space is (also) a space of power and of potential conflict that can be harming but also conducive to different, non-hegemonic knowledge politics. The type of affective exercise we have undertaken will not radically change the academic system; however, by opening up a debate, we see the potential of these processes to become the spark that could transform us considerably – as individual researchers, but also as a collective body.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

1) Conception and design (Original conception and design of project and idea for this paper; Input into discussions at start of project): NG 2) Data collection and analysis (vignettes and resonances): Writing up vignettes: NG, SL, MG, LC, AS, FH, IA, KF, AK, and AA Vignettes selected for paper: SL, LC, and AS Discussing vignettes and resonances: NG, SL, MG, LC, AS, FH, IA, KF, AK, and AA Analyzing vignettes: NG, SL, and MG 3) Writing of paper First drafting of paper (introduction, conceptual and methodological approach, discussion): NG Comments and additions on first draft, strengthening of arguments and additional literature: SL, and MG Round of commenting and complementing the paper: NG, SL, MG, LC, FH, IA, KF, and AK Last revisions and complementing for last draft: SL, FH, KF, and MG Finalization and last revisions, solving some "disagreements": NG Formatting, addressing copy-editing suggestions, submission: NG.

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Pandemic State Failure, Hydrocarbon Control, and Indigenous Territorial Counteraction in the Peruvian Amazon

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During the COVID-19 pandemic, the Peruvian government failed to protect its sparsely populated Amazon region. While infections were still rising, resource extraction was quickly approved to continue operations as a declared essential service that permitted an influx of workers into vulnerable indigenous territories despite weak or almost absent local healthcare. This article analyzes territorial counteraction as an indigenous response to pandemic national state failure, highlighted in a case of particularly conflictive stakes of resource control: Peru's largest liquid natural gas extraction site Camisea in the Upper Amazon, home to several indigenous groups in the Lower Urubamba who engaged in collective action to create their own district. Frustration with the state's handling of the crisis prompted indigenous counteraction to take COVID-19 measures and territorial control into their own hands. By blocking boat traffic on their main river, they effectively cut off their remote and roadless Amazon district off from the outside world. Local indigenous control had already been on the rise after the region had successfully fought for its own formal subnational administrative jurisdiction in 2016, named Megantoni district. The pandemic then created a moment of full indigenous territorial control that openly declared itself as a response and replacement of a failed national state. Drawing on political ecology, we analyze this as an interesting catalyst moment that elevated long-standing critiques of inequalities, and state neglect into new negotiations of territory and power between the state and indigenous self-determination, with potentially far-reaching implications on state-indigenous power dynamics and territorial control, beyond the pandemic.

Keywords: corona, energy, natural gas, governmentality, development, rainforest

INTRODUCTION

Despite one of the strictest lockdowns in Latin America, Peru quickly became one of the most affected countries worldwide, taking first spot in the tragic global ranking of highest COVID-19 deaths per capita (Mortality Analyses–Johns Hopkins Coronavirus Resource Center, 2021). Amazon indigenous groups in the country struggled tremendously as the pandemic added, in many cases, another layer of difficulty on what had already been dire situations. They raised their voice against the delayed and half-hearted support the national government offered, and, above all, for not having been consulted and included as the national strategy allowed extractive operations to continue in their territories despite of the health crisis. They deployed their own measures that included the closure of their territories and local self-organization to promote traditional medicines, as well as

widespread protests across the Amazon against expanding extraction and breached agreements between the company and communities, which ended in three deaths of indigenous protesters in August 2020 during the takeover of Canadian PetroTal facilities in the northern Peruvian Amazon.

As an example of such flaring tensions of the coronavirus pandemic across the Amazon and the world, this article focuses on one of Peru's clashing hotspots for industrial hydrocarbon extraction, rainforest biodiversity, and indigenous rights in what has become known as the Amazon resource extraction frontier: located in the Lower Urubamba Valley in the southeastern Peruvian Amazon, close to the Brazilian border and far from a connecting road system, is the country's largest natural gas extraction site Camisea, Peru's flagship energy project that produces more than 60% of the country's hydrocarbon extraction (Perupetro, 2019). Camisea has been running for more than 3 decades, carefully navigating between national support, global scrutiny, mounting environmental impacts, intercultural conflicts, and political debates, which have all shaped the operational standards of energy extraction in the country (Bebbington and Humphreys Bebbington, 2009; Fontaine, 2010; Peirano, 2011).

The region gained its own district status in 2016 at the insistence of local communities and indigenous organizations, arguing that the rent allocations and decision-making based on the administrative–territorial arrangements were still rooted in colonial structures, and had not granted them rights or improved their living conditions instead threatened their livelihoods. Indigenous territorial control was the key issue, as Daniel Rios, Megantoni's current authority and former president of the pro-district campaign committee, remarks: "*Fellows, it has not been easy, but we walked disagreeing everywhere, this is how this district headed [. . .] At the council of ministers they disapproved the district because of the name of the district [that we] had complemented with 'State of Indigenous Nations', and that is what they told us. So, we changed the name solely to Megantoni and it was approved [. . .] Fellows, the thing was to get the district be approved [. . .]We needed the district to solve the overwhelming problems of our communities [. . .]We have taken a leap creating the district.*" (authors' own translation; source Municipalidad Distrital de Megantoni, 2020a).

Peru has made itself economically dependent on natural resource extraction that routinely enters indigenous territories. The country's legal framework and government institutions have, in design and practice, never guaranteed the protection of indigenous rights to their land, territories, and the exercise of traditional authorities and self-government.

Over the first months of the 2020 COVID-19 pandemic, those contradictions and indigenous frustration were further laid bare. Unable to implement or trust Peru's emergency lockdown measures that had been nationally declared, Amazon's indigenous communities mobilized protests and closure of their territories. Tensions over territory and access control flared up, fueled by debate over the (in)action and clashing interests of the local and national state. Simultaneously, it helps to revisit the multiple dimensions of the territory and indigenous and communities' access to resources (Ribot and Peluso, 2009) as the ability of indigenous local people to derive benefits from *material and symbolic dimensions* of the state's administrative territory, beyond its understanding of property ownership regimes.

Our interest in this analysis addresses the competing rationales of state-based and indigenous territorial control during the pandemic. Painted as a resource extraction zone with a sparse population, Amazonia had been routinely overlooked in Peru's early COVID-19 national health strategies. Soon after, energy extraction was even declared an essential service that mandated openness of the Amazon to an influx of workers, even while cases of infection were still rising in the region. In response, frustration with the state's handling of the crisis prompted local action of indigenous communities in Megantoni to take COVID-19 measures and territorial control of their district into their own hands. Although they did not declare opposed to hydrocarbon operations, they blocked their remote district off entirely from the outside world, through simple but effective means of physically preventing river traffic. This created a moment of *de facto* indigenous territorial control and an openly declared replacement of a neglectful and exploitative state, catalyzed by the emergency momentum of the pandemic.

Drawing on theoretical perspectives of governmentality and indigenous self-determination, this article examines Peru's Megantoni case for two advantages to explore political ecologies of COVID-19 in the Amazon. First, it sheds light on the understanding of the complex, nonlinear, and ambivalent dimension of indigenous power dynamics in which they internalize, digest, and reexpress dominant norms during COVID-19 as an attempt to resist extraction while confirming it. Second, it adds on understanding the crucial role of territorial local control in reconfiguring sociospatial power relationships of the so-called remote extractive areas. Peru must carefully reconsider both the situation of the indigenous peoples that call the Amazon home and the role of the absent or intermittent perceived nation-state in the larger region.

ANALYTICAL CONCEPTS: GOVERNMENTALITY AND INDIGENOUS TERRITORIAL SELF-DETERMINATION

Growing literature on community responses to extractive projects in Latin America is examining the strategies of social movements to resist or halt extractive projects in their territories, but there is still a thin understanding of other forms of indigenous agency in the consolidation of interests and territories while engaging with extraction projects (Bebbington and Humphreys Bebbington, 2012; Frederiksen and Himley, 2020; Van Teijligen and Dupuits, 2021). Drawing on a post-structural political ecology approach, this study analyzes power relationships and indigenous tactics of self-governance during COVID-19 in the case of Peru's most emblematic gas extraction project in which indigenous communities have, for decades, engaged with corporations while trying to reconfigure their control over their territory.

Two concepts and perspectives are at the core of this theoretical framework: governmentality and indigenous self-determination. These two concepts combined enable a platform that helps us analyze more nuances of indigenous agency, particularly those beyond a dichotomy of "powerless" and "powerful" that would focus on top-down workings of power while failing to acknowledge how power can be exercised from the bottom (Fletcher, 2007), and how indigenous people co-articulated manifestations of neoliberalism and extractivism on their lands (Anthias, 2018; Radcliffe, 2019). These concepts open more avenues to explore indigenous "true interests" and their strategies during the COVID-19 crisis.

Governmentality

For Foucault, the exercise of power is a broader context that signifies government as shaping and directing the possible conduct of individuals or groups and the possible outcomes, in short "*a set of actions upon other actions*" (Foucault, 1982, 789). Li (2007) defines governmentality as the "conduct of conduct" that surrounds governmental actions, embedded as "educating desires and configuring habits, aspirations, and beliefs" (Li, 2007, 275). From such a perspective, the state interacts with, and depends on, a dynamic and complex assemblage of collective and individual objects as well as social practices. Individuals are examined for how they are transformed into subjects, and how a subjectification is normalized that categorizes individuals as subordinate to others and to themselves (Foucault, 1982).

Governmentality analysis of extractive capitalism often points out how governmental practices have normalized extraction projects by prioritizing maximum economic gain over the lives and livelihoods of local populations that stand in the way of resource-based development such as in Peru (Andreucci and Kallis, 2017), or through the workings of corporate practices aimed to moderate the behavior of local communities against extractive corporations and achieve the "social license to operate" (Szablowski, 2019; Buu-Sao, 2020). Nevertheless, the power relationships in which the "conduct of the conduct" is exercised typically offer multiple points of contact through which processes can be negotiated, consented, or rejected (Allen, 2003; Allen, 2004), with unpredictable and ambiguous outcomes that simultaneously resist and confirm exclusionary and subordinating norms (Ahlborg and Nightingale, 2018).

A surge of global, local, and digital social action alongside the 2020 Coronavirus pandemic provides us with a unique opportunity to study counter-behaviors, and their various points of resistance against normalized treatments and portrayals of some vulnerable groups. Among indigenous peoples, this may include any treatments or portrayals as non-agent victims of dominant government rationalities.

Indigenous Self-Determination

As an international norm and concept, self-determination is rooted in freedom and equality for individuals and groups, in a way that entitles them to participate, change, or transform governing institutional orders, including those that are seen as a remedy of historical marginalized processes (Anaya, 1996). Broader purposes and goals of indigenous self-determination

movements can entail 1) greater autonomy from a nation-state as a form of self-government; 2) greater participation in decision-making institutions at higher political levels such as legislatures or electoral coalitions; or 3) institutional changes that expand indigenous self-determination or seek to obtain state power to achieve social change (Hawkes, 2002; Jackson and Warren, 2005; Cornell, 2015; Petray and Pendergrast, 2018; Merino, 2020; Sidorova and Rice, 2020). The literature of self-determination emphasizes plurality and diversity of indigenous activism to continuously contest hierarchical relationships between governors and their subjectivities, while understanding how these produce and expand their self-determination through state, market, civil society, coalitions, and everyday practices (Gonzales and Gonzalez, 2015; Merino, 2020).

The long and active history of indigenous movements has addressed questions of territory and multiple ontologies at its heart, including as a political arena in which various actors try to exercise power. To this day, the struggle of indigenous communities toward legal recognition of land titles has not been enough to decolonize dominating rationalities that consistently privilege the rights of certain ethnic groups or political settlements (Inter-American Commision on Human Rights, 2009; Bryan, 2012; Stetson, 2012; Merino, 2015; Halvorsen et al., 2019) and further ongoing dispossession of lands (Anthias, 2019). This tension was evident in Latin America during the last extractive boom in the early 2000 s when states facilitated a rapid expansion of resource exploitation into indigenous territories, countered by growing social protest for the defense of territorial and indigenous rights (e.g., Stocks, 2005; Bebbington and Humphreys Bebbington, 2011; Bryan, 2012; Coombes, Johnson, and Howitt, 2012; Pacheco, Barry, Cronkleton, and Larson, 2012; Kröger and Lalander, 2016).

RESEARCH METHODS

This article presents a qualitative case study of an ongoing environmental, indigenous, and COVID-19 crisis to highlight valuable insights to social vulnerabilities in a fast-moving pandemic, including unexpected outcomes of events and actions (Teti et al., 2020). The qualitative approach examines the different perspectives, meanings, interpretations, and diverse dimensions of the social world in depth, context, complexity, and multidimensionality (Flyvbjerg, 2006; Hay, 2010; Creswell, 2013; Hammersley, 2013).

Significance of Peru's Megantoni Case

Megantoni as a region and hydrocarbon extraction project stands out as a particularly insightful instrumental case (Stake, 2003) for several reasons. First, Camisea's Megantoni District and its local organizations represent an opportunity to explore indigenous strategies that, rather than pursuing totalizing changes, promote alternatives of resistance alongside, and within, the existing apparatus of the state and hydrocarbon corporations. In contrast, many other indigenous self-determination and autonomy struggles in Latin America have

FIGURE 1 | Documents reviewed by year of publication.
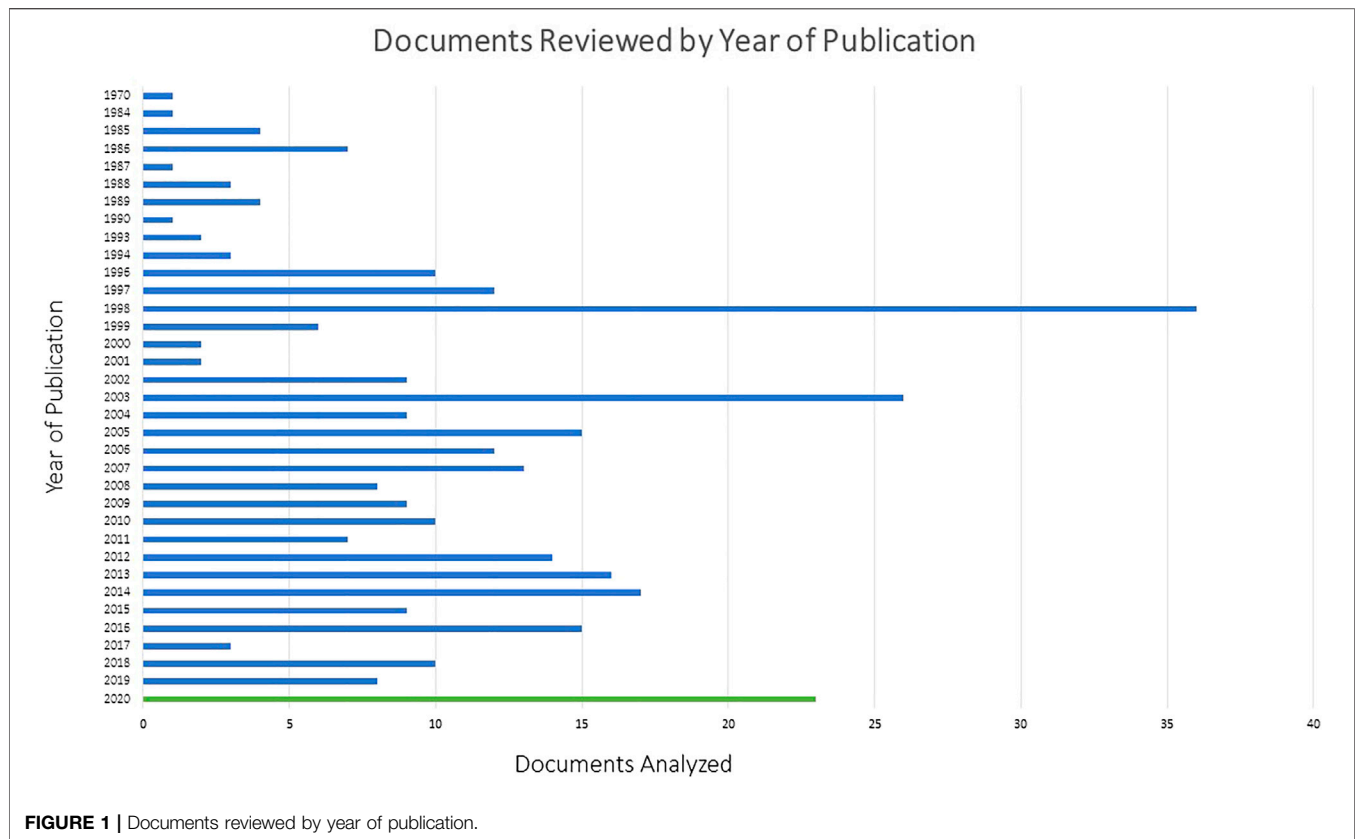
focused, or continue to focus, on anti-systemic activism, and challenge the state apparatus and implement legal autonomy as, for example, in progressive constitutions of Ecuador and Bolivia (Van Cott and Lee, 2010; Merino, 2020). Second, analyzing the roles of the territorial and access control in Megantoni during the pandemic help understand indigenous nonviolent conflict through different dimensions of power (material, cultural, and political–economic) that can be subtle but crucial components in indigenous territorial defense and exercising self-determination, and finally, the Megantoni case lets us examine forms of emerging indigenous leadership that combine *de facto* and *de jure* strategies in the so-called co-living socioenvironmental conflicts that dominate extraction landscapes in Peru, to secure their rights beyond ownership of the extraction revenues (Presidencia del Consejo de Ministros–Viceministerio de Gobernanza Territorial, 2019; Defensoria del Pueblo Peru, 2020).

Data Collection and Analysis

The dataset of this study includes historical secondary data with a broad variety of public texts, formal government documents, reports, newspaper articles, and maps from different stakeholders published between 1970 and 2020 such as archives, reports, and public documents from indigenous organizations, governmental, and nongovernmental institutions (see **Figure 1**). For events during the 2020 COVID-19 lockdown that made local visits impossible, the analysis is based on a remote data collection of

TABLE 1 | Interview participants.

Type of stakeholder group	Participants
Indigenous community	31
Indigenous organization	3
National Peruvian government	5
Subnational Peruvian government	11
Energy industry	5
Environmental and social consultant	2
International financial institutions	2
Nongovernmental organizations (NGO)	6
Religious organization	6
Academy research institutions	4
Total	75

online and print sources through a systematic document search of Megantoni and its gas extraction in the first half of 2020. It includes online public official information from the national and subnational governments, data from Peruvian media and investigative journalists, public statements from activists and energy companies, and publicly available social media (Facebook and Twitter) accounts from Megantoni authorities and indigenous leaders. The remote data collection of the lockdown is complemented by a larger pre-pandemic fieldwork dataset collected in Megantoni, Cusco, and Lima over 12 months from 2018 to 2019 including active interviews and contacts maintained into 2020.

TABLE 2 | Selection of indigenous community.

Indigenous community name	Predominant indigenous group	Subnational indigenous organization affiliation	Comments
Camisea	Machiguenga	Center for Machiguenga native communities (CECONAMA)	Indigenous community and capital of Megantoni district
Kirigueti	Machiguenga	Machiguenga council of the Urubamba river (COMARU)	Indigenous community with the largest population in Megantoni district
Miaria	Yine	Federation for yine yami native Communities (FECONAYY)	Northernmost community that limits the district of Megantoni with the Amazon region of Ucayali

Diversity of voices and perspectives are a key element of this analysis. Typically, a remote data collection as conducted during the lockdown bears the danger of overrepresenting dominant and privileged voices that have better access to public and formal online publication, while excluding opinions and silences from marginalized groups (Boyle, 2009). In order to include different voices and perspectives, the dataset was contrasted and triangulated with 75 face-to-face semi-structured interviews collected during the pre-pandemic fieldwork between 2018 and early 2020 (see **Table 1**). Additional face-to-face zoom conversations were conducted with local participants from the previous fieldwork data collection in 2020. Zoom conversations complemented previous interviews with ongoing developments of the pandemic.

The literature review identified general groups of participants that are central to understand the history and the negotiation dynamics and power relationships. Selection criteria for individuals then followed a purposeful sampling with maximum variation of perspectives, depth, and experience of the phenomenon. For indigenous perspectives, participants were selected based on purposeful sampling that considers their historical and contemporary relevance, cultural diversity, logistic accessibility, and voluntary desire to be part of the study as well as location related to the hydrocarbon project and Megantoni capital (see **Table 2**).

The content was analyzed in an iterative process in which emerging themes were coded based on identified issues and narratives around the forest, ethnicity, governmental institutions, and hydrocarbons. In order to develop common themes, verify details, contradictions, and contested perspectives, the process included triangulations between participants of each stakeholder group, across the different groups, and across information sources.

PERUVIAN POLITICS AND CAMISEA GAS EXTRACTION

Peru's National Context

Peru holds a significant share of the Amazonian rainforest—second only to much larger Brazil— and industrial resource extraction is widely identified as the main pillar of the Peruvian economy (OECD, 2015). Despite the increasing performance of macroeconomic indicators during the last extractive boom, long-standing inequalities and uneven subnational development persist (Orihuela et al., 2019;

Irarrazaval, 2020). In a hotly contested neoliberal reform, the Peruvian government vastly expanded Amazon oil concessions from 13% in 2007 to 73% by 2010, far above the South American average, and routinely approved new hydrocarbon blocks in indigenous communities and protected areas (Finer and Orta-Martínez, 2010; Red Amazónica de información Socioambiental Georreferenciada, 2012). Indigenous territories in the Peruvian Amazon, typically located in highly biodiverse rainforest ecosystems, now often see resource extraction operations in their territories that are driven by destructive profit regimes and protected by the national government.

Despite a democratic political system and an estimated 18% of the population self-identifying as indigenous (Instituto Nacional de Estadística e Informatica (INEI), 2018), highly pro-extractive development and investment narratives over indigenous territories have remained driven in Peru by its economic elite, particularly by actors who engage in corrupt forms of governance (Crabtree and Durand, 2017). In an analysis of sovereign power and governmentality during the dramatic case of Amazon indigenous unrest in 2006 in Northern Peru's Bagua, Drinot (2011) highlights how the neoliberal agenda of Peruvian President Alan Garcia was racialized and inserted in traditional elite projects against indigenous people. Extraction projects have been at the center of these difficult power dynamics. Given their limited representation at the national level, Peruvian Amazon communities have long identified a disconnect between state interests and their rights, and thus maintained distrust of state institutions. Over recent decades, indigenous resistance was rampant and intermittent, primarily dispersed at a local level (Rice, 2012; Arce, 2014), and narrated through heterogeneous stereotypes that distinguished between Andean and Amazonian indigenous peoples (McDonell, 2015).

Local communities have actively pursued formal, informal, and hybrid mechanisms including lawsuits to contest extraction projects within their territories (Szablowski, 2011; Walter and Urkidi, 2017). Based on the heart of local communities' argument, Arce (2014) summarizes two types of conflicts in Peru: 1) "demands for rights" in which usually environmental discourse seeks to prevent or halt the expansion of extractive projects in their territories, and 2) "demands for services" connected with the distribution of revenues. However, indigenous strategies can have various entangled patterns of causation and motivations, and how indigenous groups combine both strategies to produce and or expand their self-determination in Peruvian context remains under-explored.
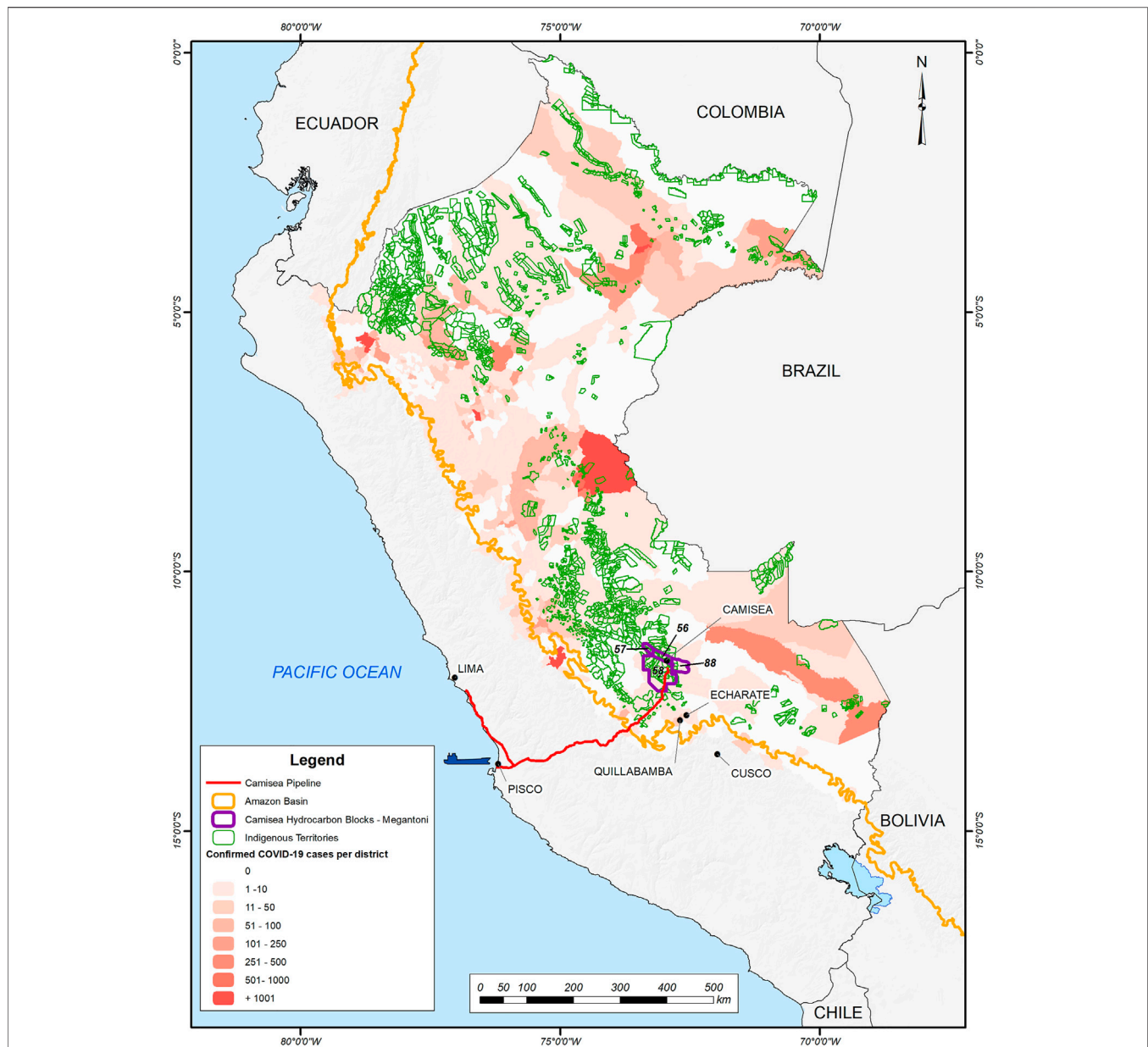
FIGURE 2 | Map of Camisea Gas Project Extraction. Source: Own elaboration 2020, using data from Confirmed COVID-19 cases May 25, 2020 (Ministerio de Salud Peru, 2020); licensed hydrocarbon blocks January 2019 (Instituto Geológico Minero y Metalúrgico); indigenous territories (Instituto del Bien Comun (IBC), 2020).

Important shifts of power took place between the national and subnational levels during the new extractive boom, and its deficiencies were obvious during the COVID-19 crisis. Decentralization reforms since 2002 created a contradictory subnational landscape of overlapping practices and responsibilities with other levels of government, offering new possibilities to challenge, contest, or legitimize extractive projects in their territories (Eaton, 2017; Bebbington et al., 2018; Gustafsson and Scurrah, 2019). Despite their great potential to understand indigenous acceptance or rejection to extractive projects vis-à-vis the emergence of new local leaderships, the connections of decentralization, and indigenous strategies in

dealing with extractivism are little understood (Arce, 2014; Bland and Chirinos, 2014).

COVID-19 shifted the confusions of subnational politics and authority to the center stage. Using arguments of citizen protection, the Peruvian central government imposed one of the strongest militarized lockdowns in Latin America as an attempt to take control of infection spread among the population. More interestingly, the national state ambiguously appealed to self-care and isolation of its citizens, while simultaneously encouraging industrial extraction and flows of workers to continue, even if this meant substantial added infection exposure of remote indigenous territories that

already had the poorest health services in the country. In short, the state decided which citizens should live, and which should be risked or sacrificed for the greater good. The pandemic health emergency once again exposed the Peruvian state government's rationalities amid its vast uneven territorial and cultural heterogeneity, as well as its disarticulation at different levels of the state. Indigenous protests and mobilizations in the country broke out in various ways as the novel coronavirus made its way through the indigenous communities. By using a political ecology analytical lens, this analysis aims to contribute to this contemporary and highly relevant debate with a nuanced understanding of the interplay of indigenous resistances, subnational tensions, and territorial control and access beyond economic performance explanatory factors, applied to a poignant, and highly symbolic, case.

Camisea Natural Gas Project

Camisea is an emblematic natural gas project in the Peruvian Amazon that has had a tremendous impact in Peru and attracted international debate. Camisea's natural gas flows from the Amazon westward to Peru's liquid natural gas export facility on the Pacific coast (see **Figure 2**). Peru was the first country in South America to drill an oil well, but still had problems to satisfy its internal energy demand. Camisea changed this by introducing natural gas as an alternative source of energy. There are over 12,000 BCF verified reserves of natural gas in Camisea (Ministerio de Energía y Minas Perú, 2016), which have transformed the country's energy matrix, and an estimated 36% of Peru's electricity production now comes from Camisea (Comité de Operación Econó)

Natural gas extraction in Camisea occurs in a highly diverse fabric of cultural, political, legal, and environmental conditions that have evolved over time. Even when Peru was shaken by civil war and terror, authoritarian and democratic regime shifts, and socio-environmental conflicts, Camisea continued, remarkably unchanged, through more than thirty years of history. Throughout these, Peruvian legislation and institutional arrangements have repeatedly adapted to local, national, and international tensions around Camisea.

Internationally and nationally, the project has been lauded as a cleaner and sustainable energy to support the development of the country. However, it was the coalition of indigenous communities and organizations—which was required to approve and support the project strategy for the development of the country—that demanded better environmental and social standards (Sarasara, 2003; Ross, 2009). Among these, Camisea's benefit distributions have been contested by indigenous groups for decades. Since the discovery of the gas fields in 1980 s by the Royal Dutch Shell Company, Camisea's gas extraction was driven by centralist and nationalist pressures that opposed local benefits. Moreover, Camisea gas has always been operated by foreign private hydrocarbon companies that not only send the gas to the main cities along the Peruvian coast, but also as liquid natural gas exports to Mexico, Japan, Spain, and other countries, making Peru one of the main LNG exporters in Latin America (Bridge and Bradshaw, 2017; Bryan, 2019).

For decades, Camisea's indigenous groups have navigated between being viewed as environmentally conscious "noble savages" requiring external support and as their own respectable political agents during project negotiations, as they have to demonstrate negatives effect of Camisea's social and environmental practices. The Lower Urubamba Valley has been called one of the last pristine tropical rainforests in South America (Alonso et al., 2001; Caffrey, 2002). The forest is home to 25 indigenous communities and territorial reserves for indigenous groups in voluntary isolation (Nahua, Nanti, and Kugapakori Territorial Reserve). At the local level in Camisea's Lower Urubamba Valley, an underrepresentation of indigenous benefits and interests has continually been contested. "*It was only when the gas comes that Cusco looks down and remembers that it has Amazonian jungle.*" (interview with a local indigenous representative, 2018).

COVID-19 STRATEGIES AND NARRATIVES ON THE PERUVIAN AMAZON

When COVID-19 started spreading in Latin America, the Amazon region quickly became an area of particular concern due to notoriously deficient health-care infrastructure, suspected indigenous vulnerability to falling severely ill from the novel coronavirus, and widespread concern about possible implications for the cultural survival of Amazon indigenous groups. The pandemic was rightly feared to exacerbate the region's dire underlying situation that had developed over centuries: colonial marginalization, exploitation, and neglect; and, in the Upper Amazon, massive hydrocarbon extraction growth that consistently prioritized national revenues over the well-being and livelihoods of local people.

As before, it soon became apparent that the Peruvian government's COVID-19 response offered no more care or attention to the Amazon than staying focused on the region's resource extraction (see **Figure 3**). Announcing its national lockdown on March 15, 2020, the government had laid out its national COVID-19 pandemic protection strategy, addressing in detail the planned rules and protective measures for urban populations, their workers, and companies. More than a month later, still no feasible Amazon strategy had followed. On April 20, 2020, Peru's Amazon's indigenous organization AIDESEP (Inter-Ethnic Association for the Development of the Peruvian Forest) issued an open letter to the United Nations and international community to warn of insufficient Amazonian pandemic care planning as a result of political indifference of their national governments toward the health and survival of Indigenous Amazonians (Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020a; Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020b; Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020c). They reminded that the government should not regard urban centers as their only policy directive, but that the state must rather protect all its citizens and not forget the country's diverse situations related to cultures and livelihoods.
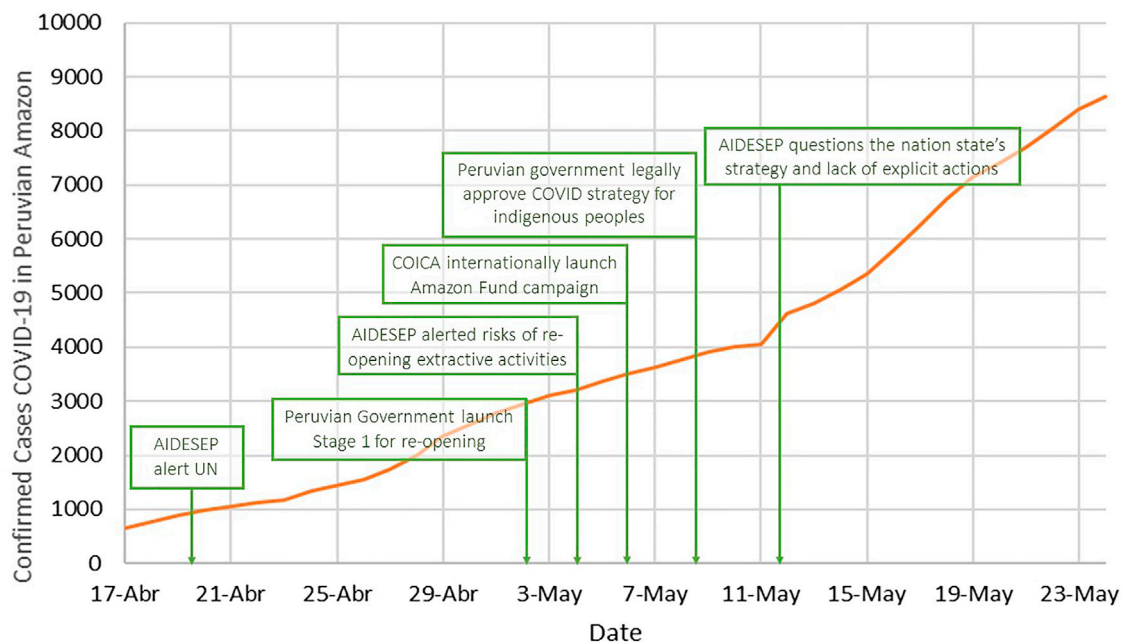
FIGURE 3 | Timeline of COVID-19 events and resource extraction–related events in the Peruvian Amazon. Sources: Own elaboration using data from Confirmed COVID-19 cases in Peruvian Amazon (Centro Amazónico de Antropología y Aplicación Práctica (CAAAP), 2020a).

Regional reports soon indicated a significant lack of local information about the risks and prevention of COVID-19 infections across the Amazon, exacerbating the health situation. Testing proved not only difficult to access and implement among Amazon communities but also simply impossible for indigenous peoples living remotely or voluntarily isolated. Indigenous organizations in Peru started to investigate and report indigenous cases in the absence of official information (Gestion, 2020). Using data from the closest jurisdictions in the Peruvian Amazon Basin, by May 25, the Centro Amazónico de Antropología y Aplicación Práctica (CAAP) had reported 11,026 confirmed coronavirus cases and 477 deaths (Centro Amazónico de Antropología y Aplicación Práctica (CAAAP), 2020a). Actual numbers of infections and fatalities may have been much higher as testing remained limited.

The Amazon region soon saw rising numbers of infections and deaths, paired with growing protest with blockades and international pleas. Nonetheless, the Peruvian government pushed its national resource extraction frontier approach and, on May 2, 2020, announced the reopening of 27 economic activities as part of Stage 1 of its national economic recovery plan (Diario Oficial El Peruano, 2020a). This included eight natural resource industries declared as essential for the economy (e.g., hydrocarbon, forestry, oil palm, and cocoa plantations), which typically operate far away from high-density populated areas and the public eye. These industries were even reapproved to enter and operate with external workers in their licensed blocks within Amazon indigenous territories and without further control measures, despite rising infection risks for local people. Allowing these workers to travel

long distances and enter sensitive zones with local populations was in stark contrast to the strict pandemic lockdown that the national government had announced on March 15, 2020, mandating a national "stay at home" order based on a strict isolation logic.

Amazonian indigenous organizations and communities raised their voices for more visibility, and inclusion in Peru's emergency strategies and post-pandemic recovery plan in their territories. AIDESEP (Inter-Ethnic Association for the Development of the Peruvian Forest) warned of a "new ethnocide" (Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020b) as a result of the lack of Amazon indigenous inclusion in the national government's economic recovery strategy, in a letter dated May 4, 2020 (Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020a), by May 6, COVID-19 concern in the Amazon had grown and the Coordinator of Indigenous Organizations of the Amazon Basin (COICA) scaled up regional campaigns to avoid environmental and cultural devastation (Amazon Emergency Fund, 2020; Amazon Watch, 2020; Reuters, 2020).

In response to rising Amazon concern and protest amid the pandemic, on May 9, 2020, the Peruvian government introduced a legislative decree that announces as its first listed point (health response) coordinated preventative measures against the spread of infection in Amazon indigenous communities, broadly criticized as much too little much too late (Servindi 2020a; Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP), 2020c).

Interestingly, the same decree further established that the national police and military force were given full territorial control authority with respect to "control and supervision over

river and terrestrial transit in areas where indigenous and native people live, so as to prevent the influx of people and goods that pose risks to these people" (own translation; Diario Oficial El Peruano, 2020b).

TERRITORIAL COUNTERACTION: SYMBOLIC AND MATERIAL DIMENSIONS OF RESISTANCE IN MEGANTONI

De Jure Territorial Control Before COVID-19: The Creation of Megantoni District

The Peruvian Amazon's culturally diverse indigenous groups have survived throughout a long history of exploitation and marginalization. Referring to the locals as "little savages" (P. José Alvarez Fernández, O.P., 1936 cited by Soria et al., 1998), indigenous peoples were early portrayed as free labor for the extraction of diverse forestry resources such as rubber. Through slave-capturing raids called correrías, indigenous groups were not only robbed of their lands and livelihoods but also of their freedom and families, forced to work in rubber extraction, and later in coffee and cocoa haciendas or logging extraction (Pío Aza, 1919; Zarzar and Mora., 1997; Ludescher, 2001; Smith, 2005; Álvarez Lobo, 2009; Aparicio and Bodmer, 2009).

Despite the agrarian reform and land titling process in the 1980 s, indigenous communities in Megantoni were continuously confronted with new land zoning that diminished the recognition of their territorial rights, including the creation of protected areas (Shepard et al., 2010) and hydrocarbon blocks. Moreover, they had to defend their Amazonian ethnic distinction in contrast to Andean notions of indigenous peasants to prevent expansion of the agrarian frontier into their forests, driven by the Andean district they used to belong (interview with NGO representative and indigenous peoples, 2018).

After decades of indigenous collective efforts, in 2016, Megantoni received national government approval for the creation of their own formal district. It had taken the communities' years of litigation, communal organization efforts, and investment of their resources to achieve district status and more authority over the region's extractive management. Indigenous resistance in Camisea involves social and ideological contestations of the space and privileges related to knowledge, governance, and territorial control.

Although Camisea's operations have internationally and nationally been praised as Peru's most important and award-winning energy project with environmental best practices, they have not been able to improve local living conditions. Despite more than 15 years of extraction and tremendous revenues, indigenous people in Megantoni still live with limited electricity supply, insufficient public sanitation, and drinking water systems as well as higher occurrences rates of chronic child malnutrition (Red de Servicios de Salud la Convención, 2019). Even though they created their own district, they are still restricted by centralist revenue distribution laws that prohibit more local benefits from the hydrocarbon extraction, not least

with respect to basic citizen rights related to health and well-being (Ojo Público Periodismo de Investigación, 2019; TV Peru Noticias National Television, 2019; Watson and Davidsen 2020a).

In short, Megantoni is known by some as a very dynamic and monetarily richest district in the country due to its revenues from hydrocarbon extraction, but with weak access to social services and access control. Camisea's corporate social responsibility strategy introduced financial compensation agreements and local employment for local communities that have shown contradictory results over the years. The young territorial government of Megantoni is struggling to counteract state failures and changing national policies that affect citizen participation and local livelihoods in its territory.

De Facto Territorial Control Before COVID-19: Company-Controlled Regional Access

To protect the ecological integrity of the Amazon rainforest and avoid industrial footprints in the region, Camisea's hydrocarbon operations use offshore inland extraction techniques that intentionally leave the area void of roads and infrastructure. This model has also been called enclave extraction, strategically employed to protect extraction operations in Africa from interruptions during internal conflict and civil war (Ferguson, 2006), or from the opposition of local communities (Appel, 2012). In contrast, in Camisea, the offshore inland model was announced as an environmentally led approach in roadless rainforest terrain and oil wells in close proximity to local indigenous villages, after local communities had communicated to the planning company Shell that they wanted to protect their territories from foreigners. Even after growing production in the 2000 s, the model remained in place as the result of environmental and indigenous activism that required this as a condition for their local support. Their objective was to avoid environmental and social impacts such as growing immigration settlements that typically accompanied other Amazon projects. As numerous indigenous interviewees summarized, it was "*to protect us from the invasion*" (Interview with indigenous communities, 2018).

In Camisea, all transport is exclusively done *via* rivers or air. No roads are linking these communities with nearby cities or to the outside world. The Urubamba River, a fast-flowing river with rapids and coarse wooden debris, provides the main connection between communities, settlements, and provincial hubs in the region, but travel on the river is difficult and dangerous due to dramatic surges during the rainy season. The only aerial transport from the Lower Urubamba to Lima is through the hydrocarbon companies. They have private aircraft and airfields for their exclusive corporate use. Under the cloak of conservation goals, territorial access has therefore become an issue of inequality in the Lower Urubamba, and relevant for critical health care.

The lack of medical facilities and health-related standards has long been a much-lamented issue in Megantoni. When the local population needs medical services beyond the basic care that the
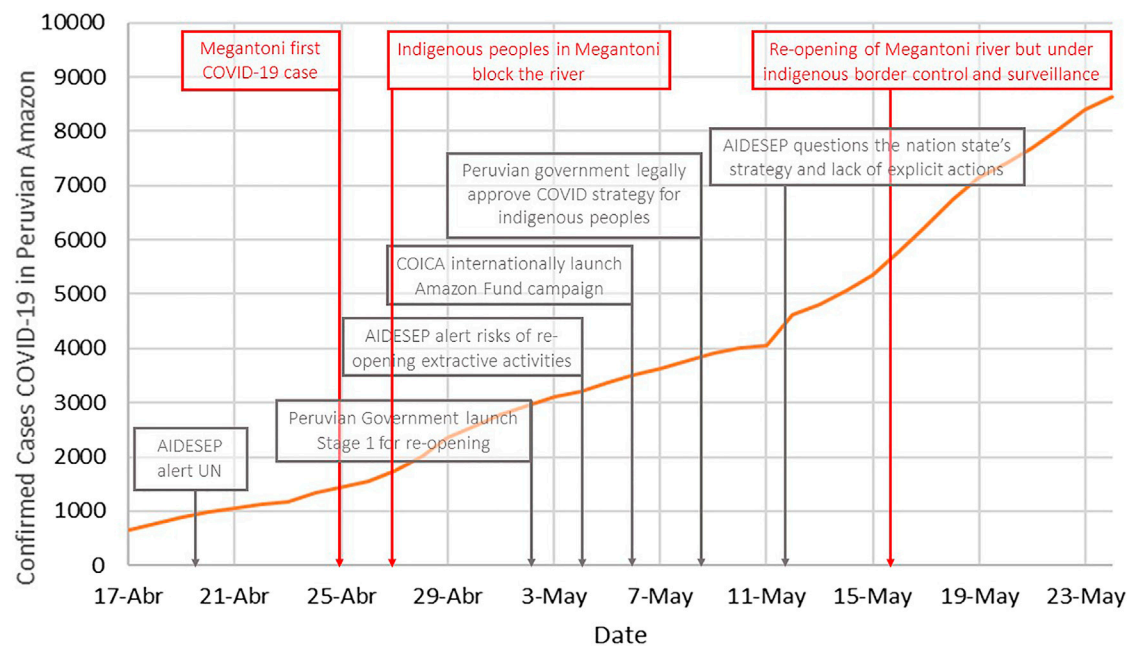
FIGURE 4 | Timeline of COVID-19 events in Megantoni. Sources: Own elaboration using data from Confirmed COVID-19 cases in Peruvian Amazon (CAAAP 2020a).

hydrocarbon company camps and *postas médicas* in select indigenous communities provide (Municipalidad Distrital de Megantoni, 2018), they have to make their way to the next hospital in Cusco city, at least one day of travel away, and during the rainy season (December to April) at times impossible. Local people in Megantoni have difficulties to access medical services outside their district, but energy company workers routinely enter their territories and, as COVID-19 emerged in 2020, created significant concern over an uncontrolled increase of infection risk.

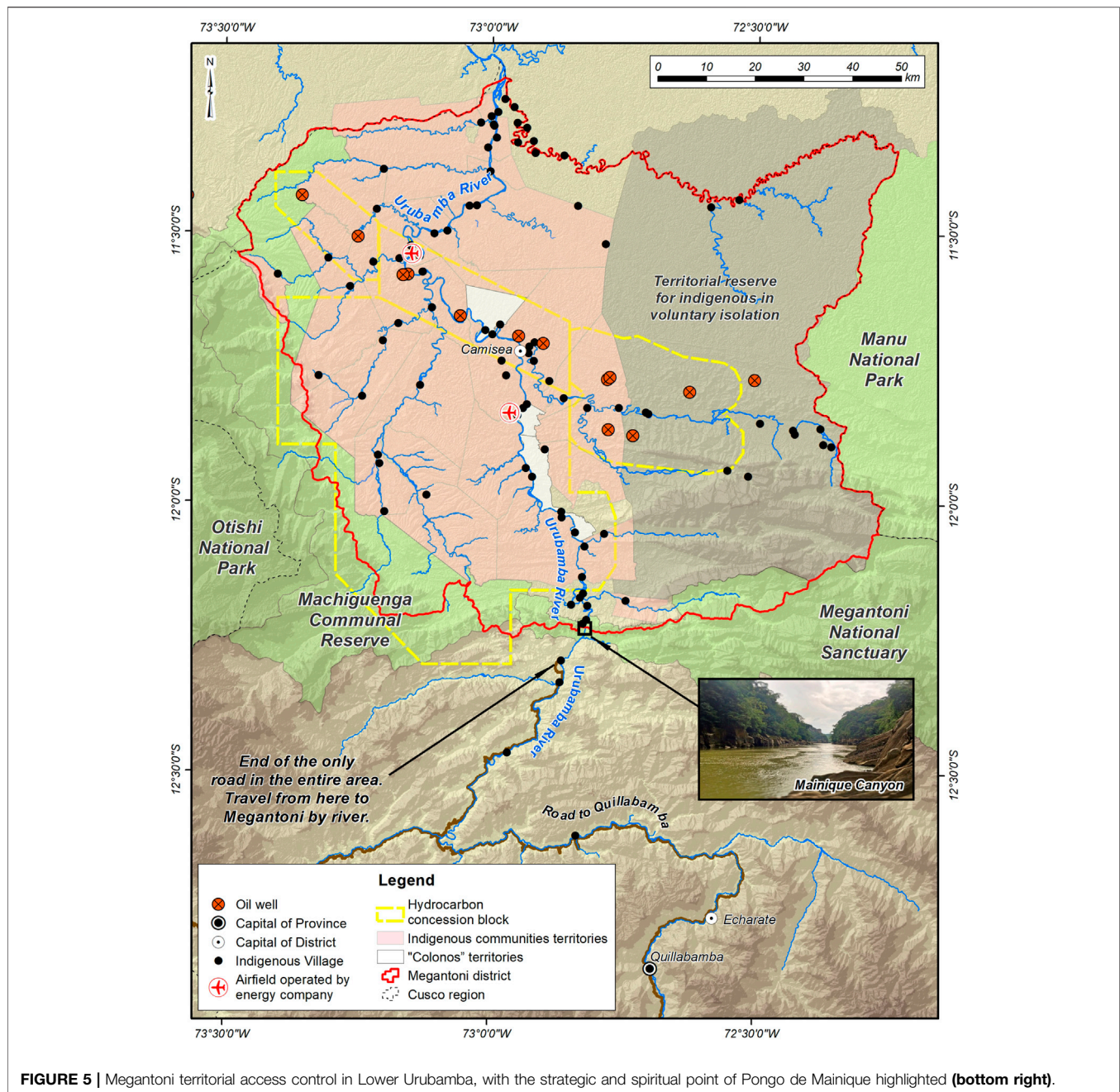## De Facto Territorial Control During COVID-19: The Pongo Geography and the Call for Territorial Self-Governance

Peru's national COVID-19 crisis response created new frustrations and momentum to challenge the status quo of territorial control in Megantoni (see **Figure 4**). Several weeks into the pandemic, on April 5, 2020, Megantoni's mayor Daniel Ríos issued an urgent plea to state leaders in an interview with the large Peruvian news service Canal N. He called on the state to protect them, and to finally allow Megantoni to use their own district funding to build a hospital, as they had already requested for years (Municipalidad Distrital de Megatoni, 2020b). Although Megantoni's former community leader and now mayor insisted on concrete measures to help the urgent health crisis in the communities, the interviewer in Lima brushed it off: "*This is not the time to talk about whether a mayor can manage money like that*" (own translation; Municipalidad Distrital de Megantoni, 2020c, min 7:22). The district would have had long sufficient municipal funds from its local gas extraction royalties, but the

district mayor's office lacks formal budget authority to approve and build a new hospital (Watson and Davidsen, 2020b).

After no response, on April 24, Megantoni's mayor announced in the main Peruvian newspaper El Comercio that they would close the district border because the national government had abandoned them. He argued that government plans did not consider the everyday realities of Amazon's indigenous communities that show vast differences to those of Peru's main urban centers along the coast and the Andes. He criticized the lack of decentralized emergency authority during such unprecedented times that require quick and local decisions (El Comercio, 2020a).

A day later, on April 25, the first case of COVID-19 was confirmed in Megantoni. It was a worker of the Spanish hydrocarbon company REPSOL who was evacuated by air to Lima by the company (Repsol 2020; Centro Amazónico de Antropología y Aplicación Práctica (CAAAP), 2020b). Local infection numbers were developing and uncertain, but reports from other parts of the Amazon accumulated to a wave of concern with respect to the regional health care infrastructure, lack of planning, and cultural respect by the national government, and, in short, lack of political interest in the region for its people and not just the extractive frontier.

Being concerned about the dire health situation in the area with understaffed medical services, and after the first formally confirmed COVID-19 case in their territories, on April 27, 2020, several indigenous communities in Megantoni self-organized to block the key access point to the entire Lower Urubamba Valley. All it took was to span a rope across the river at Pongo de Mainique (Mainique canyon), but it required collective agreement of the neighboring communities in the district, and

FIGURE 5 | Megantoni territorial access control in Lower Urubamba, with the strategic and spiritual point of Pongo de Mainique highlighted **(bottom right)**.

highly effectively prevented any boat traffic across (El Comercio, 2020b).

The geographic characteristics of the Pongo highlight both practical as well as cultural territorial boundaries and power over the region in a fascinating way. The Pongo de Mainique is a 3-km stretch of river rapids through a narrow canyon, only manageable by the most skilled boat guides, and has become known as one of South America's most dangerous and challenging navigable river passages. Surrounded by dozens of waterfalls and giant walls of vertical rock, this area is one of the most biodiverse spots of the planet, and it has remained relatively

isolated due to the challenges it poses. The Pongo sits as a bottleneck between the Andes on its upper section, and the Amazon Lower Urubamba Valley on its lower section (see **Figure 5**). Without any roads in this geographical border area between highland and rainforest, and surrounded by several protected rainforest areas, there are no other land- or water-based ways in or out. The Lower Urubamba Amazon's rainforest basin remains sparsely populated with small indigenous Amazonian communities, distinctly separated from the neighboring Andean highlands with their well-connected and more densely populated peasant communities.

The Pongo's unique characteristics are also reflected in symbolic and spiritual meanings. The word Pongo stems from the Quechua word Puncu that means door. Literature and field research further highlight spiritual symbolism of the Pongo de Mainique associated with the beginning of the times, their lives, and protection from foreigners (Servicio Nacional de Areas Naturales Protegidas Servicio Nacional de Areas Naturales Protegidas (SERNANP), 2007; Snell et al., 2011). During field research, various participants also used the term pongo for a more generic meaning of a natural barrier, for example, to distinguish between other river sections. They also use the term to refer to cultural differences and tensions between Amazonian rainforest's people on one hand, and Andean indigenous descents from the Incas on the other hand.

The simple act of blocking off the Pongo with a rope, organized by the leaders of six indigenous communities and rural settlements in the region (Kitaparay, Saringabeni, Sababantiari, Timpia, Kuway, and Chocoriari), essentially took over de facto territorial control of the entire Lower Urubamba, and implemented a territorial isolation from the outside. Countering the national government's orders with this territorial control counteraction at the Pongo de Mainique epitomizes their strained relationship—and limited patience—of Amazonians with the Peruvian state, prompted by the extraordinary circumstances of COVID-19 that amplified already existing frustration over inequalities, exploitation, and neglect.

Peruvian laws usually penalize blockades, especially in defined critical areas such as those related to resource extraction. The community leaders, however, declared the blockade of the Urubamba River as an act of emergency self-defense in response to an absent state (El Comercio, 2020b; Municipalidad Distrital de Megantoni, 2020b; Servindi, 2020b), implying that the state norms would no longer apply when the state was not present. The emergency self-defense was described as their only alternative to protect themselves from the spread of infection over their territories, as their declaration preamble explains as follows:

> "We appeal to the entire public opinion and to the central government authorities to deal with this situation because we find ourselves abandoned and we have not been listed no, nor do the institutions of the district, region, and the companies want to hear us. Confident to be cared for and understood, we the undersigned take on the commitment to take care of our communities especially with respect to prevention."
> (Comite de Gestion para el Desarrollo Sostenible de la Cuenca del Bajo 2020:3)

As the indigenous community leader of Tangoshiari commented frankly, in a way, their need for self-defense arguably long precedes the arrival of COVID-19: "We feel like indigenous beggars sitting on a gold bench. Sad reality for us. We have been in a state of emergency for several years" (Comunidad Nativa de Tangoshiari, 2020). Public statements of the blockade pointed out the lack of capacity and the state failure to control and protect indigenous communities, but not against hydrocarbon operations. The de facto strategy of taking the Pongo reiterates their claim to expand their local authority as well as demonstrate the articulation of their traditional social organization at the interplay of their district authority.

In Megantoni, the district communities and central mayor launched their own surveillance system and COVID-19 command control before reopening the Pongo. The district representatives of Megantoni embarked on several days of discussions with the indigenous community leaders to decide how to proceed and where to install future checkpoints. In contrast with the former municipality regime, the embedded coordination and participation of indigenous leaders in Megantoni plays an important role. During our field data collection, local communities remarked how important it is that the municipality must respect all community leaders and continuously coordinate activities with them to thrive. Finally, during the third week of May, Megantoni's major, indigenous leaders, and communities agreed to reopen the Pongo, but upheld strict control of river access through newly installed checkpoints.

The peaceful blockade of the Pongo was widely covered across Peruvian national media, prompting calls for more authority over resource access and locally concerted actions as broad and standardized measures, particularly where nationally mandated actions are unable to meet the needs of this diverse country. After the local communities had started the Pongo blockade, the national government announced further controversial relaxations of mobility restrictions for those industries considered of so-called national interest, including mining and hydrocarbon. This led to further concern across Amazonian indigenous territories and demands for indigenous participation in the decision-making of the COVID-19 strategies for their territories and provided even more background support for Megantoni's blockage of the Pongo.

In response to continuous complaints by local authorities that they were unable to respond to the COVID-19 crisis in their jurisdictions, the national government passed an urgent decree (DU 081–2020) on July 5th, 2020, that grants local municipalities new rights to use their local resource extraction revenues to build and provide emergency services (Diario Oficial El Peruano, 2020c). However, this new measure does not respond to, or even acknowledge, the larger indigenous argument that the Pongo blockage had illustrated as a call for more political inclusion and territorial control, especially as prompted here by state failures. Instead, the government decree appeases by simplifying self-governance and greater authority over local budget roles, but ironically in a way that reinforces local governance dependence on resource extraction with its revenues and industries.

CONCLUSION AND AVENUES FROM HERE

The presented Megantoni case highlights territorial conflicts in Amazonia as a "political space" (Massey, 2005; McCarthy, 2005; MacKinnon, 2011; Dietz, 2018; Vela-Almeida et al., 2018) as power relationships between the national state and indigenous communities are redefined, while extractive operations become

competitively legitimized and delegitimized. Drawing on the concepts of governmentality and self-determination, we shed light on how power can be exercised from indigenous communities in a conservative neoliberal Peruvian context. In Camisea, indigenous communities have employed tactics of engaging with extraction in trying to advance the consolidation of their lands and achieve a greater autonomy from the national and local state that has continuously marginalized them; however, the sanitary emergency exposed that *de jure* collective action was not enough to secure their rights and interests. While trying to prevent the infection, they also called for their rights to control their lands, and challenge institutional and government frameworks to gain more participation in extraction decision-making.

In this case study analysis, territorial and access control (material and symbolic) are explored as a dynamic contestation of subjectivities imposed from above, while simultaneously creating new subjectivities from below. Interestingly, in the latter, the state has also been a result, through the creation of a separate district. Camisea was established as a small-footprint roadless sustainable project in the Lower Urubamba. Corporate access and control in the region were based on narratives of reconciled conservation and "offshore inland" technology, which fed into a more progressive approach and support for extractivism.

Camisea's decades of growth have been placing local indigenous peoples into a two-sided experience. On the one hand, this local extraction invasion constantly reminds locals of the regions' historical marginalization and fragmentation. At the same time, Camisea has opened new opportunities for them to renegotiate their political voice more effectively within the system, and helped change their narrative from that of marginalized victims to powerful political actors. Megantoni's local communities have become highly engaged in compensation agreements and negotiations with extractive companies, and they have developed a fluid and intertwined set of *de jure* and *de facto* tactics to counteract national state rationalities.

During the COVID-19 pandemic, Camisea's influential standing and remote technology helped buttress the state's extractive project and profit in the region. Paired with increasing national state neglect of health case for indigenous Amazonians, it resulted in prioritized resource extraction over "a few others" that can be left to die. A few weeks after the onset of the pandemic had caused increasing concern in the region, on April 27, 2020, the local indigenous population organized a physical and symbolic act of territorial resistance to protect their life and territory: they closed the Pongo de Mainique, the river canyon that constitutes the only land/water access into the Lower Urubamba Valley, as well as a spiritual and ecological landmark of the region.

In the context of this analysis' explored political strategy and agency, it is particularly interesting that the Pongo blockade that they chose cut off public access for outsiders and merchants from the Upper Andes, but not from the transnational companies that were already operating in the area. The offshore design of the hydrocarbon extraction still gave the companies full control over their operations and concession block *via* airstrips and pipelines. In contrast to other indigenous communities in the northern Peruvian Amazon that entered and occupied oil camps to make their claims heard by the government, Megantoni chose to close the Pongo instead of taking over the local facilities of the most important energy project of the country.

This highlights their interesting positioning and hybrid resistance strategy that aims to challenge the state from within the same system that feeds their economic and political power, creating a dilemma for the local population. In trying to expand Megantoni's land and resource rights through district status and toward greater access to gas rents, the district seems to accept and strengthen the state, the extractive project, and the national economic agenda, and in turn becoming more dependent on all three. As such, Camisea's extractive project jeopardizes local indigenous interests through getting caught in the power hierarchies of the different imaginaries, while the latter may mute their original call for rights and reframe them within the dominant discourses and top-down institutional reforms.

By shifting indigenous narratives from one of victims to active political agents, Megantoni adds new insights into new local indigenous movements and indigenous political agency that are creating alternatives within, outside, or alongside the system to challenge the legitimacy of nation states, elites, and self-determination rights, formerly grounded on the coloniality of extractive power.

DATA AVAILABILITY STATEMENT

Apart from the collected field interviews, publicly available datasets were analyzed in this study. These data can be found at Plataforma Nacional de Datos Abiertos. Accessed May 29, 2020. https://www.datosabiertos.gob.pe/dataset/casos-positivos-por-covid-19-ministerio-de-salud-minsa.

AUTHOR CONTRIBUTIONS

AW conducted the primary field data collection. AW and CD contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the article.

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Militarisation Under COVID-19: Understanding the Differential Impact of Lockdown on the Forests of Colombia

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Drawing on qualitative analysis and anthropological histories, we argue that deforestation rates in the Inter-Andean Valleys and in the Amazon Belt of Colombia reflect the specific role of the military in different articulations of the political forest along with new connections between conservation and the war on drugs. This paper examines the increase in deforestation in Colombia in 2020 that partially coincided with the "lockdown" imposed to curb the spread of COVID-19. Early media analysis linked this with the redeployment of military forces away from forest protection to impose lockdown restrictions. However, closer investigation reveals significant regional variation in both the reorganisation of military groups, and in the rate at which deforestation has materialised; military presence has increased in some regions, while in others deforestation has increased. To explain this, we unpack the "biopolitical" dimensions of international conservation to show how the specific deployment of military groups in Colombia reflects an interplay between notions of the protection of (species) life, longer colonial histories, and more recent classification of geographies in terms of riskiness and value.

Keywords: forest, militarization, COVID19, deforestation, Colombia, necropolitics

1 INTRODUCTION

This paper is motivated by a sharp uptick in deforestation in Colombia during early 2020, partially coinciding with the "lockdown" imposed by national governments to suppress the reproduction rate of a novel coronavirus first identified in China in late 2019, whose rapid spread was declared a Public Health Emergency by the World Health Organisation on the 30th January 2020 (WHO, 2020). Measures ranged from mandatory geographic quarantines to non-mandatory recommendations to stay at home, the closure of certain types of businesses and bans on events and gatherings. By mid-April of 2020, it was estimated that a third of the world's countries were in some kind of lockdown (Buchholz, 2020), with impacts already evident on the global economy, transportation systems and business (Bates et al., 2020; Spenceley, 2020, forthcoming). In Colombia, lockdown measures were introduced on March 17, 2020 and began to be relaxed in August 2020. Some are still in place at the time of writing. The measures adopted in Colombia included restrictions on mobility; closures of public places, and mobility restrictions on inter-municipal roads overnight.

This sudden reduction of human movement had an immediate impact on environmental processes: early media reports suggested that bird populations and other species were flourishing in cities (The Washington Post, 2020; Revista, 2020b); Revista, 2020a hole in the ozone layer was self-repairing (UN, 2020; Arora et al., 2020), and that air quality improved in many cities (BBC, 2020; He

et al., 2020). While it was clear that such effects might be temporary, lockdown was linked with positive impacts on rates of human-induced climate change (UNEP, 2020). However, the world's forests have, in some cases, been impacted in exactly the opposite direction. For example, illegal timber extraction and illegal wildlife trafficking have been observed on the rise in Ecuador, along with the expansion of oil extraction and mining.[1] Meanwhile, allowing for seasonal trends, forest fires and deforestation rates in the Andean and Amazon regions of Latin America rose or remained high throughout 2020 (CNN, 2020), a trend noted mid-year by global media (FCDS, 2020b; El, 2020; Mongabay, 2020).

Initial analysis linked these rates with a rise in the activities of illegal armed groups, speculatively associated with the redeployment of the state military away from rural forests and into urban centres to enforce lockdown regulations. However, these trends are not geographically uniform across Colombia: in some forested areas, such as the high Andes, deforestation rates appeared to be little affected despite the overall trend. Meanwhile, it is important to note that, even as state armies were moved away from at-risk areas in, for example, the Amazon, other para-state forces were able to increase, precisely due to the withdrawal of monitoring from these areas, and the subsequent expansion of influence on the part of illegal armed groups.

In this sense, and given Colombia's complex history of policing, it is a simplification to speak of the "absence" of the military. Additionally, in other regions, such as the low Andean Forest, military forces actually *increased* at points during lockdown in relation to the longer history of the war on drugs in this region. In this paper we attempt to explain this geographical variability by unpicking the longer histories of these socio-environmental dynamics, such as the longstanding militarisation of conservation activities in particular conflicted areas, and the effects of colonial imaginations on the ways different regions are imagined and governed today. Through our analysis, we argue that the differential patterns of militarisation observable through lockdown do not reduce to the formula "removing armies = increased deforestation": instead, they reveal important dimensions of power and spatial control in play through the governance of Colombia's forests, which we characterise through the vocabulary of biopolitics.

1.1 A Decolonial Approach to Biopolitics

Michel Foucault's concept of biopolitics refers to the exercise of power to manage, regulate and enable the "life" of specific human and biological populations through the optimisation of these lives (1995; 2008; 2009; Lemke, 2011). This establishes orders and taxonomies among human and nonhuman populations, and defines certain 'outside' groups as risks or threats to the state's productive interests. In the domain of conservation—which, in the twenty-first century is an elaborate international enterprise joining together political-economic rationalities, concepts of security, and biological ideas—the need to protect biodiversity

frequently becomes a pretext to surveil potential "enemies" of the state, especially in conflicted areas (Bocarejo and Ojeda, 2016; Magliocca et al., 2019). Political ecologists studying these dynamics in the institutions of international conservation note a growing emphasis on military presence and surveillance technologies in conservation in the Global South—leading to the identification of a wider trend of "green militarization" (Lunstrum, 2014) or the 'securitization' of conservation (Massé and Lunstrum, 2016).

Green militarisation, meanwhile, denotes the elaboration of geopolitical interests through the way that conservation areas are geographically articulated and policed. Such interests include state concerns with quelling potential insurgency or containing minority groups perceived as "risky." It also includes the priorities of international actors, which come to shape the specific contours of new scientific projects, economic tourism opportunities, and strategic (geo)political involvements in state conflict. Meanwhile, the language of environmentalism provides an acceptable front for such efforts, often covering over their racialised effects. In Colombia, green militarisation cannot, in this sense, be understood without understanding the ways that national militarisation, on the one hand, and international involvement, on the other, have been configured during the internal armed conflict (which began in 1964). The introduction of sanctions, mobility restrictions, and assassinations by armed groups in our case sites recalls—and builds upon—the exceptional powers afforded to the paramilitary and guerrillas in earlier decades of war, albeit interacting in new ways with more recent modes of biopolitical power associated with (international) conservation governance. Yet the patterns of armed containment, intensified control, and what we refer to as "active abandonment"—the exposure of particular groups to physical violence through the withdrawal of state governance—map onto histories that are much older than the recent rounds of conflict. Indeed, we suggest that they have roots in colonial histories and relationships.

Beyond accounting for the geographically differentiated patterns of militarisation that help explain how and where deforestation has increased during lockdown, in this paper we aim to make a theoretical intervention, recasting concepts of biopolitics into explicitly decolonial terms. This means following how conditions associated with colonial knowledge production (about species life and human bodies) have enabled the insertion of conditions of exceptional rule into the heart of biopolitical forms of governance. This is a pattern we suggest can be observed in many post-colonial states around the world, where National Parks and biodiversity hotspots already focalise enduring conflicts over the use of resources and access to land. In practice, what we are suggesting is that the state's geopolitical interest in controlling and containing particular bodies is made more convenient and efficient through the operation of international conservation and its associated forms of monitoring, security and surveillance.

Moreover, the exceptional circumstances of the global pandemic, which authorise new forms of exceptional rule over everyday life (Barros et al., 2020; Karaseva, 2020), have configured a moment where the powers of the military and associated illegal

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[1] Personal conversation with Patricia Gualinga, Indigenous leader of an Amazonian group in Ecuador

armed groups (paramilitary and guerrilla dissidents in association with drug-trafficking mafias) have increased in conservation areas. Illegal armies—officially distinct from state operations, but which in contexts like Colombia are allotted distinctive powers—may thus carry out deforestation and human rights abuses without being challenged. Through our case studies we will suggest that the moral coding of the countryside via colonial administrations prior to armed conflict, together with the unpacking of international conservation agendas in recent decades, have interacted to enable pockets of exceptional rule during the 2020 coronavirus pandemic. Beyond the forms of racialised exclusion associated with biopolitics, these pockets expose some populations to sustained and systematic violence beyond the rule of law.

To this end, the remainder of this article is organised into four parts. Firstly, we set the scene for our analysis by examining the ways that green militarisation has been explored through recent political ecology and political geography scholarship. Secondly, we unpack the Colombian context to show how contemporary forms of militarisation build on special powers associated with the armed conflict as well as the elaboration of international conservation policies and practices. Thirdly, we present the case studies we will examine in more detail and give an overview of our methodology. In the fourth part, we analyse the situation in the two forested sites under discussion—the Serranía de las Quinchas in the Inter-Andean valleys and Colombia's Amazon belt—in relation to green militarisation under lockdown conditions. The narratives we present here draw on the qualitative data and extensive networks developed by a team of social scientists as part of an interdisciplinary research project on forest resilience (2019–2021),1 alongside additional interviews and historical analysis. In concluding the paper, we suggest important academic and policy implications of the insights we present, especially for how international publics are mobilised to act to address deforestation.

2 MATERIALS

2.1 Conservation Areas as Spaces of Green Militarisation in Colombia

2.1.1 Thinking Green Militarisation Through Biopolitics

Recent work in the interdisciplinary field of political ecology has led to nuanced understandings of how the making of conservation spaces and rules function to contain populations identified as "threats" to state governments (Ojeda, 2012; Büscher and Ramutsindela, 2015; Devine et al., 2020), or to exclude minority groups or those perceived as "risky" (Ybarra, 2012; Verweijen and Marijnen, 2018). While newer models for conservation—such as participatory models for community forest management—may have been lauded internationally for their capacity to protect threatened species, they have still tended to be implemented via top-down processes that exclude local people (Sundberg, 2003) and afford states the powers to bring conflicted areas under their control through extraordinary legal measures (Adams and Hutton, 2007). Thus, the introduction of new boundaries for protected areas has been used to justify the

displacement of indigenous groups, as well as the roll-back of social amenities and protection (Springer and &LeBillon, 2016), and the introduction of intelligence networks, media, and drones to police minorities (Brock&Dunlap, 2018). In Latin America, as elsewhere, such moves have resulted in the entanglement of military forces with everyday conservation operations (Escobar, 2006; Kelly and Ybarra, 2016; Camargo and Ojeda, 2017), what this paper calls green militarisation. Over time, green militarisation normalises the presence of armed forces in conservation areas and contributes to the constitution "potential nature-destroyers", subjects understood as enemies of conservation who must be removed if the environment is to be protected. This perhaps helps explain why over 80% of the major armed conflicts occurring globally between 1950 and 2000 were in conservation zones characterised by high biodiversity (Hanson et al., 2009: 578).

An understanding of biopolitics adds nuance to this analysis, illuminating how the development of international conservation—as an assemblage of funding mechanisms, biological registers, security, and monitoring practices, and notions of protection—has established a kind of logic for social governance via the management of species life. Here we draw specifically on Foucault, 2008; Foucault, 2009) ideas of biopolitics and biopower, which refer to forms of power that work on and with concepts of "life", as rendered through the knowledge regimes associated with the biological sciences; notions of security (with the specific idea of an "insider" population to be protected from an "outside," posing risk), and ideas of political economy associated with (neo)liberalism. In biopolitical rationalities for governing states, explains Foucault, definitions of the population to be governed are articulated through political-economic rationalities and security practices, to the point that the boundaries of belonging defining citizens from non-citizens feel natural (Rabinow and Rose, 2006; Biermann and Anderson, 2017). Throughout the histories of conservation, which have long been linked with the spatial projects of colonialism and imperial control, such rationalities render particular bodies a risk to the proliferation of life, even as they establish conservation practices to protect life's value (Biermann and Mansfield, 2014).

Because vulnerable inhabitants are repeatedly framed as environmental threats or internal enemies in contemporary conservation discourses, old divisions and traumas associated with previous rounds of conflict are quickly resurfaced. This is particularly true in Colombia, where agendas for biodiversity protection and peace have tended to be imagined together, attracting major international funding and investment as if the one might secure the other (see, for example, UNDP, 2020; and the "Environments for Peace" project). In such interventions, specific environments continue to be coded by states in terms of pre-existing conflict, for example, as locations of "potential insurgency", and are consequently transformed into regions of military containment, or rural dispossession, in the name of biodiversity protection. Forested areas and jungles, long represented as zones "out of control" and in need of securitisation, become reconstructed as "state forests" under careful regulation (Peluso and Vandergeest, 2011) in this

imagination. However, framing disenfranchised peasants as potential nature-destroyers—rather than as potential green subjects as in Colombia's high Andes—does little to quell potential conflict. When we refer to the "political forest" in this article, we mean to signal the multiple ways that forests, specifically those designated as conservation areas, become invested with multiple (geo)political agendas through their articulation in biopolitical terms.

As green militarisation—one effect of the elaboration of biopolitical modes of conservation in specific spatial contexts—has expanded, we consequently witness the emergence of a new war "by conservation" (Duffy, 2016), where conservation is re-framed as a tool to other ends. Beyond the idea of eliminating the risks to species conservation, force shifts here to seeing conservation as an integral part of a state's strategy to achieve peace. Here, concepts of, and funds for, biodiversity protection become blurred with concepts and practices of national security, while enabling new mechanisms for the containment of actors perceived as "insurgent", or occupying land intended for accumulation strategies. It is, then, perhaps unsurprising that scholars identify the making and governance of conservation areas with the production of "special" powers, which include the introduction of the military to address illegal poaching and logging, the right to surveillance, and the creation of new borders and boundaries (Hawkins and Paxton, 2019). In contexts such as Colombia, however, where whole regions are still coded in the popular imagination as either "paramilitary" or "resistance" areas, we can go further, and speak of the configuration of military formations that expose local populations systematically to harm, risk, and death. However, to understand how such formations have been produced, we must understand how the biopolitics of conservation overlaps in important ways with the performance of international policing of the narcotics trade. In Colombia, what is referred to as environmental protection increasingly refers to both conservation objectives (replete with associated ideas of risk management) *and* the control of rural areas seen as zones of cocaine production.

2.2 Necropolitics and the War on Drugs

In much of Latin America, green militarisation is not only associated with the history of conservation but with the "war on drugs," a notion officially inaugurated by President Nixon in the United States in 1971 as a "public enemy," and the number one cause of social and public ill-health among young Americans. This overlapping "war" has been a key driver of the introduction of new strategies of spatial containment and for translating U.S. geopolitical interests into biopolitical control (Tate, 2015). In Colombia, these interests map closely onto the geographies of hidden enemies established through the most recent decades of the counterinsurgency war (Lyons, 2016), as well as the exceptional powers claimed during this period to use disproportionate force against peasants in remote rural areas (Ballvé, 2013). As an extensive literature has demonstrated, military practices deployed in the war on drugs—such as the movement of troops, forced eradication, the burning of cocaine

laboratories and aerial fumigation with glyphosate—have adverse effects on the environment and human health (Smith et al., 2014; Camacho and Mejía, 2015; Bernal Cáceres, 2019). It is thus important to expose the contradictions in the ways that new discourse on conservation and anti-drug rhetoric have been layered together to imply that the objectives of one can be met through the other. This co-articulation legitimises further rounds of policing and spatial containment and, moreover, makes it possible to assert extraordinary measures outside state law.

However, it is perhaps even more significant that, in important environmental discourses, the cocaine production and the associated cultivation of illicit crops are increasingly framed as *the* main drivers behind deforestation and environmental degradation in contexts such as Colombia (Clerici et al., 2020) and in Central America (Devine, et al., 2020). Through this process, fighting the war on drugs and the war against illegal deforestation are rendered equivalent, allowing the resources of one to be directed into the other, and enabling the creation of specialist forces that claim to tackle both. By collapsing together multiple other drivers of deforestation, such as the expansion of the agricultural Frontier for land accumulation and cattle-ranching, this association adds force to the agenda of articulating strategies for forest protection that rely on militarisation (Asher and Ojeda, 2009), and that fight specifically against deforestation *via* the war on drugs in Colombia, through the creation of new military operations. For example, in April 2019, President Duque launched "Operation Artemisa," an initiative led by the armed forces with the support of the Prosecutor's Office, the Ministry of the Environment and IDEAM (The Institute of Hydrological, Meteorological and Environmental Analysis). This ongoing operation monitors deforestation trends using drones, Geographical Information Systems (GIS), and satellite technologies, leading to military operations. The first actions undertaken by Artemisa in 2019 generated protests by human rights and peasant organisations, especially in the Tinigua and Picachos Natural Parks, due to the purported use of excessive force in specific acts of containment (Mongabay, 2019).

This blending together of two wars consequently gives the military exceptional powers in the field of conservation, which we suggest can be illuminated by expanding the biopolitical logics at play in the associated term "necropolitics." Following Achille Mbembe (2003, 2006; 2008), the term necropolitics refers to modes of the government of population life in former colonial territories, where technologies of exploitation remain prevalent and are embedded into specific structures of rule. Necropolitics interacts dynamically with Foucault's idea of biopolitics, illuminating how zones of exception are established by coding part of the human population as "non-life," or quasi-human. This neo-colonial practice subjects certain populations, e.g., indigenous groups or ethnic minorities, to death or sustained conditions of inhumanity, under the guise of fighting terror or establishing legitimate rule. Necropolitics cannot be reduced to the right to kill, but denotes practices that keep bodies in a condition between life and death, for example in conditions of slavery or continual subjection to violence. This is the form of power in play when massacres, femicide, execution, trafficking,

and forced disappearances are systematically in play, and involve the legal-administrative mechanisms of the state, so that it is either unrecognised by legal authorities, or is not deemed illegal. In this paper, we identify a threshold at which the biopolitical rationalities associated with conservation—which already legitimise specific forms of racialised exclusion—cross over to authorise extra-legal forms of containment and control. In Colombia, this threshold has been configured through the extended armed conflict on the one hand, and the war on drugs on the other.

Where biopolitical modes of governing natural environments work through producing a regime of governability, which renders visible particular sources of threat, necropolitical modes *rationalise* the need for emergency securitisation or invasive surveillance through their articulation of such threats, for example by providing a grammar that justifies an increasing military presence to contain "unruly" elements. Necropolitics governs not only through enacting the right to kill, which is not usually permitted in biopolitical regimes, but by exposing othered populations to their own vulnerability or to the experience of dying slowly—to be "death-in-life" (Mbembe 2003:21). As a Cameroonian philosopher and political theorist of power and subjectivity in postcolonial Africa, Mbembe devised the concept of necropolitics for a context in which biopolitics was not sufficient to capture the experience he witnessed. From a decolonial sensibility or standpoint, biopolitics failed to explain the life and death regimes that took place and continue to take place in colonized countries. People living under necropower are actively abandoned: they are actively denied the possibility of being protected, helped, or saved from injury or death. Today we suggest that there is an overlap between the two modes of power as enacted in contemporary conservation, especially where the military is afforded powers to remove or contain groups framed as threats or potential eco-destroyers. Yet, while biopolitics operates by rendering (biological) life productive, necropolitics works by rendering death (or the confrontation of certain subjects with death) productive.

In the following section we explain how these necropolitical dimensions of conservation have developed in Colombia, with specific reference to the extraordinary measures introduced under conditions of internal war.
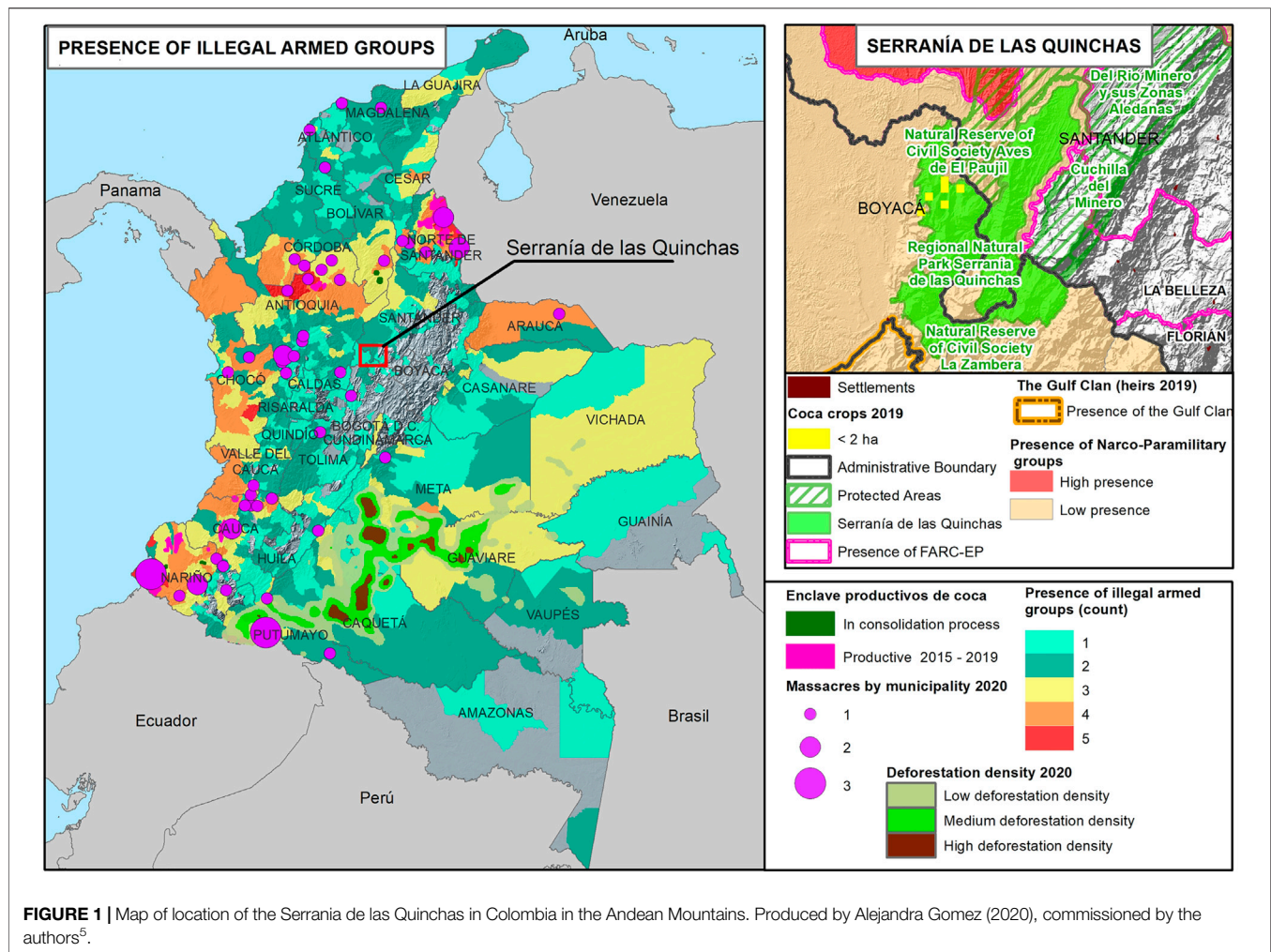
2.3 Green Militarisation in Colombia

To understand how international conservation enables necropolitical practices in some regions and not others in a country like Colombia, it is important to grasp how colonial histories and geographies persist, through the way that forests and rural areas are coded according to concepts of riskiness and threat. Distinct from, yet persisting through, conservation strategies, the "moral topographies" configured by colonial rule in Colombia rendered the highlands and lowlands visible in distinct ways, conferring specific—apparently permanent—traits onto the people living there. Most famously, the anthropologist Michael Taussig (1987) used this term to explain how the lowlands have been consistently viewed as places of heat, humidity and suspicion, in association with

their tropical climate and inaccessibility, whereas the highlands—where the capital Bogotá is situated—have been associated with an organised peasantry and Christian morality. This visuo-spatial imaginary persists today, perpetuating what has been characterised as a "geography of differences" (Roldan, 1998), "geographies of terror" (Oslender, 2008) and "fragmented territories" (Asher, 2020)—terms that describe an entrenchment of such stereotypes through the elaboration of subjects of conservation.

These geographies of difference were reinforced in subsequent centuries partly through the categorisation of distinct groups of rural peasants in Colombia, seen to require different levels of spatial control. In the Andean highlands *campesinos* [peasant farmers] have been consistently considered as rural communities requiring limited policing, and, more recently, as potential green subjects. Meanwhile, the lowlands have been strongly articulated through the alternative term *colono* [landless peasants], a category of subject historically constituted as distant from state institutions, which needs controlling. In Colombia's social studies, the *colono* emerged during *La Violencia* 'the Violence (1948–1958), when they were stripped of their lands by internal conflict. During the 1960s and 1970s, *colonos* were depicted as hardworking people, willing to adapt and display creativity despite difficulties. They were the protagonists of "progress" via the domestication of the jungles and the expansion of the agricultural Frontier. However, *colonos* were also figured as those who endlessly moved on to escape land accumulators and dispossession (Legrand, 1988; Molano, 2009). This association with displacement, landlessness and "cutting down the jungle" stigmatised the *colonos* over time. In subsequent decades they would be re-constituted as "internal enemies" associated with insurgency, in opposition to state rule (Sanchez and Meertens, 1984; Fajardo, 2005). More recently, *colonos* in other parts of Latin America have been seen as potential nature-destroyers whose practices do not fit the images of "green peasants" (Ojeda, 2012) or ecological indigenous peoples (Ulloa, 2017) promoted by environmental conservation. This new stigma interleaves with associations of resistance to the state and with guerrillas or drug-trafficking. During the COVID-19 lockdown, they have once again become central targets of surveillance and control.

In Colombia, necropolitical practices were prevalent during the crudest years of the armed internal conflict, especially between 2002 and 2008, when powers of exception were claimed by the state at both regional and national scales. Yet their history is much longer, for conditions of exception were re-created throughout the 20th century in the various internal wars and forms of territorial control enacted by legal and illegal armed groups (Leal, 2003; Richani, 2013; Angarita et al., 2015; Puentes-Cala, 2018). These practices were broadened and extended, however, in a series of government decrees issued between 1965 and 1968 that legalised the existence of private armed groups ("paramilitaries"). Of course, the guerrilla forces also practiced their own forms of control and mafia governance in the zones where they asserted sovereignty—which formed part of the justification of the need for paramilitary governance (Cubides, 1997). Supported by funding from landlords, businessmen and drug-traffickers, paramilitaries have, since this time, been largely associated with state counterinsurgency campaigns, although

FIGURE 1 | Map of location of the Serranía de las Quinchas in Colombia in the Andean Mountains. Produced by Alejandra Gomez (2020), commissioned by the authors[5].

their independence from state mechanisms allows the state to denounce excessive violence and associated drug crimes without compromising its own legitimacy.

By the way they were defined, the zones inhabited by *colonos* took on lasting associations that would influence the ways that related protected areas were policed and governed. Areas under guerrilla control, such as large parts of departments in the Amazon (Caquetá, Putumayo, and Meta), were branded "red zones," while the areas controlled by the paramilitary were regarded by the armed forces as zones of "special control." People living in such areas came under the spatial rule and associated stigma of the dominating armed groups, and were automatically seen as their supporters, regardless of their position (Cancimante, 2014; Amador-Jiménez et al., 2020). Many of the forested areas that we know today as protected areas, were, at this time, framed by the state and media as impenetrable war jungles: places where the Colombian state had not yet arrived (Gutiérrez Sanín and Barón, 2005). The geographies of war have thus continued to inform geographies of conservation through such processes of spatial codification and the consolidation of extra-legal groups and powers.

These geographies of the operation of illegal groups (paramilitary and guerrilla forces) map strongly onto conservation areas, not least because, since 2016, reintegration

zones for ex-combatants have been systematically designated close to biodiversity hotspots, targeted as areas for the promotion of sustainable development and ecotourism (Van BroeckGuasca and Vanneste, 2019). One interpretation of this is that conservation is being exploited as part of a civilising mission to convert former guerrillas into forest guardians, tourist guides and organic farmers. Another is that peace agendas and conservation agendas tend to be thought together, first, because "post-conflict" environmental programmes gain considerable traction with funders (Baptiste et al., 2017), and second, because conservation allows state concerns with quelling insurgency to become codified in internationally acceptable ways.

The overlapping agendas of militarisation and conservation seem set only to intensify in the "post-conflict" moment. The paramilitary demobilisation in 2006 and peace process with the FARC-EP in 2016 only partially and temporarily reduced conflict, and "neo"-paramilitary forces have since reconstituted themselves and rearmed. Meanwhile, FARC-dissident groups have expanded in the face of the failure of state entities to control drug-trafficking mafias. Much of the forest of the Amazon and Inter-Andean valley is now controlled by neo-paramilitary groups, FARC-EP dissidents and the ELN (*Ejército de Liberación Nacional* [National Liberation Army])

guerrilla movement, each working with different drug mafia cartels (PARES, 2018; FIP [Fundación Ideas para la Paz], 2019). They fight among themselves, but also make temporary alliances with each other, as with the state armed forces (Avila, 2020 in; El Espectador, 2020).

In the following sections we will build on these understandings of green militarisation, biopolitics and necropolitics to explore the geographically differentiated ways that armed forces have moved in Colombia under lockdown. These specific forms of green militarisation help explain how and why deforestation has increased in some areas during 2020–21.

3 METHODS

The data in this paper was gathered primarily through fieldwork carried out between 2018 and 2021 by the socio-cultural component of an interdisciplinary research project, financed by a cross-council UK AHRC-NERC grant associated with the science hub Colciencias in Colombia. As part of this, we carried out extensive ethnographic fieldwork and participant observation in forested regions of the high and low Andes as well eighty-five interviews and ten workshops related to topics such as environmental governance, gender and environment, oral histories of the forest and ecotourism as alternative livelihood.[2] We carried out these interventions alongside ecological and palaeoecological teams analysing the long-term resilience of the forest. Our immersion in rural forest communities, networking with non-governmental organisations (NGOs), environmental activists and governance actors, put us in a prime position to observe the unfolding dynamics of increasing deforestation under lockdown. We received reports of illegal operations directly via our networks, which led us to publish, with other authors, a rapid response article containing early analysis of the spatial distribution of these new trends (see Amador-Jiménez et al., 2020). Throughout lockdown we remained in close contact with our research communities via mobile phone and web-calls and have become increasingly involved in regional-level environmental governance discussions relating to deforestation and beyond.

Our analysis focuses primarily on the Serranía de las Quinchas Regional Natural Park ("Quinchas"), located in the department of Boyacá in the central-eastern Andean lowlands. As a forested area of high biodiversity historically dominated by paramilitary forces, Quinchas provides an important example of a site that was *further* militarised, by state armed forces specifically, during lockdown. Contra popular accounts, the army was present in numbers while deforestation rates increased. Indeed, we see new necropolitical practices emerging at this time, including curfews, assassinations, and evictions, by both state armed forces and paramilitaries. The "exceptional" forces in play here are configured through reference to

the war on drugs. This case contrasts with the transforming geographies of the Colombian Amazon, where deforestation rates have been very high in recent decades (OpenDemocracy, 2020; Murad and Pearse, 2018).[3] In the Amazon, state armed forces *were* moved away from biodiversity hotspots during lockdown, although partially because of this, the authority of other illegal armed groups increased (Mongabay, 2020). It also enabled necropolitical practices, since the active abandonment of forest communities by state actors has exposed them to intensified forms of violence and dispossession. In neither case can increasing deforestation rates be explained by the demilitarisation of forest areas under lockdown: instead, they can be understood through the ways that biopolitical forms of forest governance cross over into necropolitics. Under necropolitics, the control of risk and threat passes to para-state entities that are not accountable to the rule of law nor the imperative of conserving species life operative under biopolitics. Unpacking the socio-environmental histories of these regions consequently allows us to demonstrate *differences* in the ways that pre-existing patterns of militarisation of the forests have been intensified under the "exceptional" conditions of lockdown.

The two cases we will discuss in the following sections can be summarised as follows:

- Quinchas is a protected area located in the Inter-Andean Valley, formally constituted in 2008, which is administered by the governing body CorpoBoyacá.[4,5] Although the area was zoned to protect vulnerable species, restrictions on access and lack of information on the new rules has led to increased poverty, disenfranchisement and conflict among rural communities there. The region has a long history of armed conflict and is associated with a high presence of competing paramilitary groups. **Figure 1** illustrates key geographical features of this region. For example, we can observe the overlap between the operating zone of illegal groups and coca enclaves in this area, together with deforestation trends reported by IDEAM in the first half of 2020. According to IDEAM, deforestation rates in the Colombian Andes increased from 14% in 2018 (28,089 ha deforested) to 16% in 2019 (25,213 ha deforested), while in the first half of 2020 alone (January–June, coinciding with the COVID-19 lockdown

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[2]"BioResilience: Biodiversity resilience and ecosystem services in post-conflict socio-ecological systems" (2019–2021) was an interdisciplinary project funded by a UK NERC-AHRC cross-council call under the Newton-Caldas Colombia-Bio programme (NE/R017980/1). The project (PI: Ted Felpausch) set out to examine the long-term resilience of Colombian forest ecosystems to environmental and climatic changes and to improve understanding of the future implications of forest degradation for Colombian society

[3]We interviewed different population groups divided by professions or economic activity, gender and geographic location within the natural park. The workshops included socialisation activities, prior consultation, training and focus groups in five villages of the Serranía de las Quinchas in the municipality of Puerto Boyacá. [4]Our analysis of the Amazon case must be understood as more speculative as it leans heavily on emergent satellite data and the analysis developed by environmental activists and organisations. We wanted to develop this contrast, however, because as media reports and the testimony of activists have made clear, the Amazon is a major arena of green militarisation that is being reactivated in significant ways in this moment. It is also difficult to talk about the Colombian forest without talking about the Amazon: the Andean forest (17%) and the Amazon forest (66%) form a significant part of Colombia's biodiversity, jointly forming 83% of Colombia's forests (IDEAM, 2021). [5]CorpoBoyacá is a decentralised autonomous institution, which controls the administration of regional natural resources for the Department of Boyacá in Colombia.

TABLE 1 | Deforestation trends in Colombian in the Post-Agreement. Source: Global Forest Watch, 2021.

Biome	2016	2017	2018	2019	2020
Amazonas	70,668	106,436	112,907	68,989	107,523
Andes	71,209	117,511	72,668	64,343	60,470
Total Colombia	290,956	424,870	352,434	268,410	324,170

measures) it shot up to 17.2% (January–March) and 28% (April–June) (IDEAM, 2021).

- The Colombian Amazon biome includes seven departments. In this article we concentrate on the Amazon belt (Caquetá, Guaviare, and Meta), a zone of historical armed confrontation, where there are many *colonos* seeking to obtain land on a rapidly expanding agricultural Frontier. In the context of increased international awareness of biodiversity loss and climate change in recent decades, the Amazon has become the centre of global intervention in militarised forest conservation. As **Table 1** shows, in 2020, deforestation increased in the Amazon and Andes Biomes, coinciding with the period of restrictions imposed by the pandemic.

This table shows the deforestation trend in Colombia since the signing of the peace agreement with the FARC guerrilla in 2016 and its eventual disarmament. During 2020, the first year of the pandemic, deforestation increased notably, reversing the achievements made in 2019.

From the beginning of our interventions, the socio-cultural component of the project sought to enact a specifically decolonial ethos to our research methods, in keeping with the work of scholars like Mbembe, but also inspired by the work of Escobar (2007), Walsh (2015), and de Sousa Santos (2016). These scholars set out a way of doing social science research, including ethnography, from a perspective in which reciprocity, social networks, horizontality and seeking to strengthen capacities to address violence are central to producing knowledge. This is to say, all knowledge production is understood to be situated in relationships that are grounded in power relationships and configured in and through institutions that establish difference in advance. However, decolonial projects that are committed to becoming aware of the ongoing effects of (neo)colonial relationships, including in the academy and in research projects, and to transforming them through everyday conversations, interventions, and the creation of legacies that outlive projects. The decolonial approach involves not just observing and taking notes but noticing differences, asymmetries and devising forms of resistance *in situ.* Although in many ways the interventions that inform this paper were improvised and short-term, the collaborations began long before the conversations and have outlived them in the form of meetings, exchanges, and policy interventions. In this sense, our involvements also resonate with the ethos of feminist political ecologists, who have called repeatedly for "situated" researchers who do not see themselves as neutral or objective

knowledge producers, but involved participants who affect and are affected by the situations they relate to (Elmhirst, 2015).

This positionality also affected the possibility of writing this paper, which unfolded through ongoing relationships and communications not originally designed into the research. Our research in Quinchas had two significant moments, the first prior to the COVID-19 outbreak in 2018–2019, when we generated a collaborative dynamic with local researchers from the region. We worked closely with four researchers in particular, who trained in qualitative research to become part of our team as well as to develop their own objectives, and together as a team we began to work on conceptualising a problematic of the territory based on initial interviews and historical readings of the territory. These researchers participated in a reading group with community researchers and students from our wider project and became an active part of our research team. Once the COVID-19 pandemic began, and we were prevented from returning to the field, these local researchers continued recording the situation first-hand in a second "research moment", and began transmitting data and concerns to us regarding local military operations and other uncertainties virtually. We received via the messaging interface WhatsApp (which, in such rural areas with limited internet access, remained the most functional way to communicate under lockdown) videos, photos, audios, and text messages tracking the acts of violence on the part of the army that we will cover in this paper. This led to significant periods of unprecedented food insecurity in the community of Quinchas. During an early stage of the national lockdown, we supported our collaborators in an international fundraising campaign to provide short-term relief in the form of non-perishable food, masks and sanitising gel that would allow them to maintain the lockdown without being exposed to the violence of the army outside their homes. Meanwhile, these ongoing collaborations allowed us to develop the data that provides the backbone for this paper.

While it may seem that fundraising and research are and should be separate concerns, we suggest that they both emerge from the decolonial commitments that we have outlined above. The affirmative action, as we called it, generated political visibility in the Colombian media, so that the situation of remote rural communities like Quinchas became a national concern during the pandemic, in particular the case of the Indigenous communities in the Amazon, who were abandoned by state institutions, and who had to move into hiding in the forest to contain COVID-19 (Gaia Amazonas, 2021; Cumbre de Mujeres de la Cuenca Amazonica, 2021) Although the global pandemic affected our capacity to undertake our planned fieldwork, being committed to decolonial relationships demanded from us a modified way of working rather than a step back. This was especially the case in a context where it was clear that, being positioned in universities in the Global North, or in networks at the national and international level, were affordances that allowed us, at this moment in time, to work together to create new levels of political visibility in a situation that was changing very rapidly.

Our involvement with local researchers and then the "Affirmative Action" also increased the interaction and trust between the rural community of Quinchas and the wider research team: our communication increased, and we have

continued to developing working relationships up until the time of writing. We have actively participated in local, regional and national forums to support policy change in conservation governance in consequence.

Our close focus on the developments in Quinchas also encouraged us to keep abreast of the changing situation elsewhere in Colombia. Through contacts in the national environmental offices of Colombia for sustainability and monitoring, including IDEAM (Institute of Hydrology, Meteorology, and Environmental Studies), we kept up to date with new deforestation hotspots and the deployment of the armed forces. Through existing activist and social movement contacts in the Andes and Amazon, we followed reports that disagreed with national reporting, especially human rights abuses and notices of the sudden arrival or departure of armed groups. Some of our existing networks enabling this work were created through our forest-based research, whereas others were created through our parallel investigations into environmental monitoring technologies, including drones.

Our contacts reported that in 2020, amid the pandemic, military operations increased. As also indicated by a key report on Artemisa's military operation against deforestation (May 6, 2020), and information extracted from the General Command of the Military Forces and the National Police (MinDefensa, 2020), military operations against deforestation were mainly deployed in southwestern Colombia, the inter-Andean valleys and the Guaviare, Putumayo and Meta, where civilians associated with residual guerrilla groups were detained. Two hundred mobile military eradication groups were also deployed to eradicate illicit crops in the first half of 2020 in cooperation with the Security Force Assistance Brigade troops (SFAB) and in coordination with forces known as Hercules, Vulcano, Omega, and the Brigade against Drug-Trafficking. Operations were concentrated in the Inter-Andean Valleys. Military operations increased during March and April 2020, covering 160 municipalities, compared with the same months in 2019 when there were 87 (Garzón, 2020). However, such operations were unusually conducted as if counterinsurgent military operations, as was evident in the type of clothing and weaponry used (Arenas and Vargas, 2020). Additionally, they were accompanied by the more heavily-armed ESMAD (Mobile Anti-riot Squad) when confronting peasant protests. Meanwhile, paradoxically, although there was a greater number of more intense and heavily armed coca eradication operations in 2020, 6,500 fewer hectares of coca were actually eradicated compared to 2019 (17,300 compared to 23,800 in 2019) (Garzón, 2020).

To gain an overview of these patterns it is also important to understand the distribution of illegal armed groups and coca production in the two regions. **Figure 1** shows, as purple dots, acts such as massacres of the civilian population in the Inter-Andean Valleys during the 2020 lockdown, as well as military operations for the eradication of coca production. **Figure 2** shows that in the Amazon a significant number of illegal armed groups were present and deforestation higher.

In the next section we use our case studies and contextual historical analysis to demonstrate that pre-existing geographies of social difference, established historically via colonisation and

decades of war, help explain the new patterns of militarisation in play. Although these patterns do not explain, on their own, rising deforestation rates, they help illuminate how and why zones of lawlessness/exceptional control have been configured in areas where deforestation was previously decreasing. Rather than perpetuating the narrative of armed forces being necessary to prevent deforestation, this change of focus helps us appreciate the ways that powers of exception are being used under lockdown to intensify militarisation in many conservation areas, while exempting the state from responsibility for environmental damage.

4 DISCUSSION

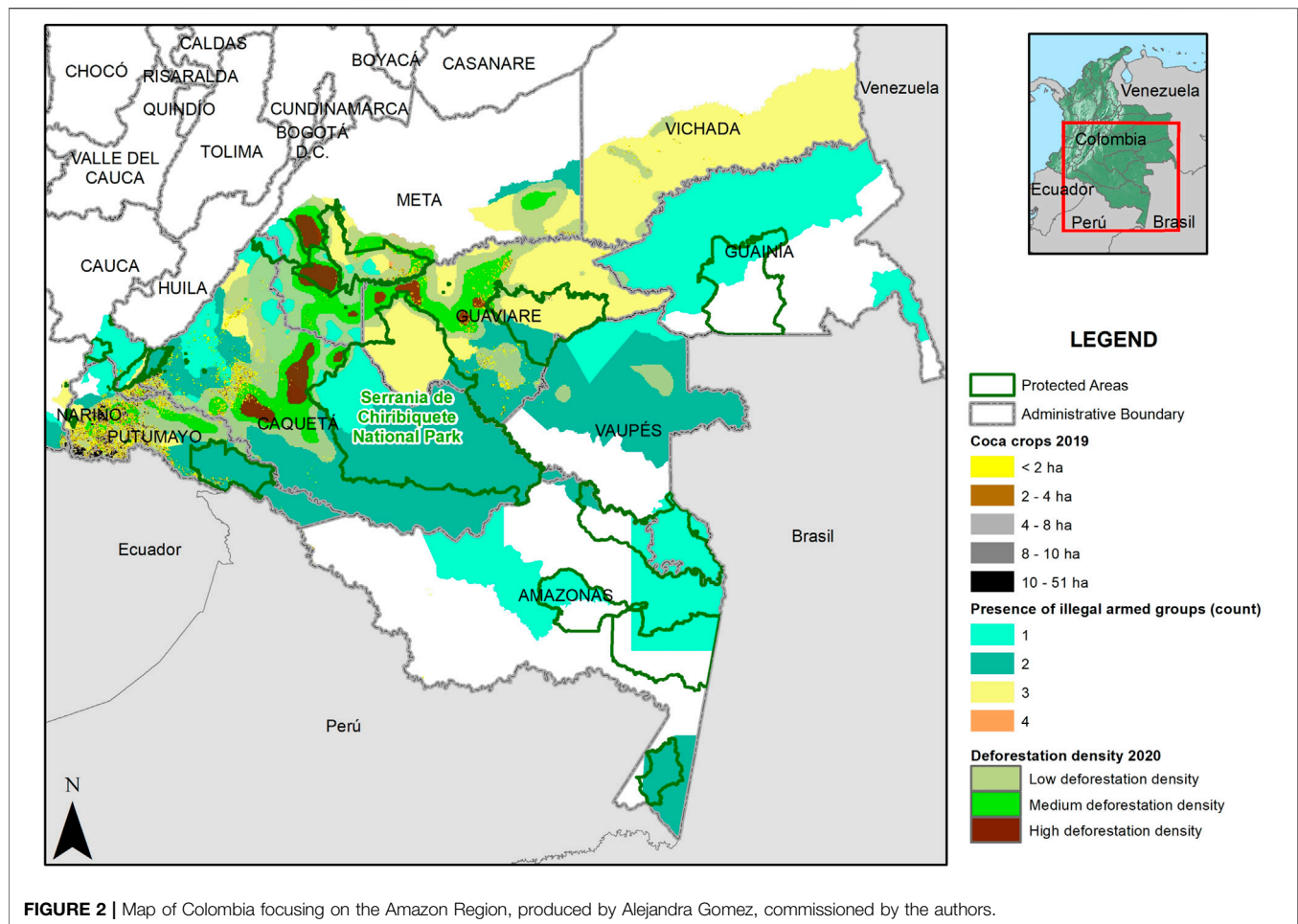## 4.1 Understanding the Differential Effects of Lockdown on Colombia's Forests
4.1.1 The Case of Quinchas

The forests of Quinchas are mainly inhabited by *colonos*: landless peasants who migrated to escape violence in other regions.[6,7] Here, as in other inter-Andean valleys, counterinsurgency operations overlap with the war on drugs and environmental conservation agendas, with the state armed forces operating flexibly between these remits. This was evident during the 2020 lockdown, when the number of troops in the area increased dramatically, ostensibly to crack down on coca production, but also to regulate and contain local communities in other ways. From the perspective of a local female environmental activist from Quinchas, these moves are "highly opportunistic" and take 'advantage of the fact that the peasants are locked down and thus do not have the usual channels of communication open to them, for example to claim the right to voluntary eradication programmes—a condition that was central to the peace agreements between the Colombian Government and the FARC-EP guerrillas. These armed interventions also have their own environmental impact—the forced eradication of coca crops involves the burning of agricultural land and forest where supplies and laboratories are identified. However, despite a military presence, deforestation due to illegal logging intensified during this period. We suggest that this is because the green militarisation already in play here shifted toward a necropolitical rationale. This is to say, the armed forces used the exceptional conditions of lockdown to carry out geopolitical objectives outside the purview of state law. Meanwhile,

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[6]The maps presented in this article were produced through a compilation of different sources including UNODC, SIMCI, PARES, and REDEPAZ. Thematic layers (information about coca, actors of armed conflict and deforestation) were subsequently generated and laid over the shape format of the official National Park data.

[7]The Middle Magdalena Medio, where Quinchas is located, was governed under a permanent state of exception from 1952 to 1994, a condition declared by the government of Laureano Gomez. Several repressive legal instruments were put in place during the conflict, such as the Organic Statute of National Defence (1965), The National Security Statute (1978) and the Special Public Order Jurisdiction (1978). The latter determined that Puerto Boyacá would become a Zone of Special Control.

FIGURE 2 | Map of Colombia focusing on the Amazon Region, produced by Alejandra Gomez, commissioned by the authors.

associated paramilitary groups, with longstanding territorial control, expanded their influence.

Green militarisation in such contexts describes how the logic of environmental protection has led to the proliferation of armed groups (legal, para-legal, and illegal armies) in conservation zones. We are not suggesting that all such groups are working together for similar ends. They may form temporary alliances to confront other groups, but they also often confront each other. Such groups are also configured differently in relation to the forest and its protection. The state's armed forces are ostensibly involved in preventing illegal deforestation, via operations like Artemisa, though such concerns appear to be sidelined when they are undertaking coca eradication programmes. Meanwhile, some armed groups are explicitly engaged in coercing local *colonos* to clear areas of the forest for agriculture—a pattern that manifests in large square blocks of land, unlike the piecemeal agriculture associated with the *colonos'* own subsistence practices. Other groups directly oppose or permit it in exchange for protection. Significantly, under lockdown, exceptional interventions into the coca trade have been emphasised, while forces have been removed from forest protection. Rule has taken on necropolitical qualities, with the armed forces of the state refusing to keep stating territorial rules, harassing local communities without

accountability, and even carrying out assassinations (Ortega, 2020; WOLA, 2020).

In prioritizing forced coca eradication during lockdown, the Colombian government and its army reveal that, rather than lacking resources to police deforestation, these extraordinary conditions are providing an opportunity to intensify spatial control. As well as generating clashes with rural communities and permitting illegal deforestation to take place unchecked, this has resulted in the infringement of peasant civil rights and an increase in the number of social leaders murdered in the forests of the inter-Andean valleys, including Quinchas (Indepaz, 2020). Much of this military violence is taking place under the conditions of exceptionality associated with the pandemic—avoiding controversy and contestation by social organisations and defenders of human rights.

The way that Quinchas became a target for militarisation can be better understood through our earlier account of the historical situation of the *colonos* in the region. In Quinchas, few rural communities within the boundaries of the natural regional park have formal titles. The arrival of international conservation programmes, after the declaration of the park in 2008, only compounded ongoing insecurities as the new rules and zoning regulations were never properly explained. As community

members recounted in our workshops, new legislation threatened to evict them from conservation areas, partly because infractions had taken place without full information about the new regime, and partly because some residential areas had been deemed "core zones" of the forest, where no one may live. Further, the establishment of new park borders created a vehicle for the introduction of military operations against deforestation in the Andean Forest that authorised the use of force. Conditions for exceptional rule were therefore in place before 2020, although these operated in keeping with a primarily biopolitical logic, focusing on managing species life in the forest and excluding or disciplining local communities by virtue of these operations. In this area long dominated by paramilitary and neo-paramilitary forces, however, people were also subject to periodical declarations of curfews, crackdowns on youth drug use by local gangs, and sanctions imposed by neo-paramilitaries. During lockdown, these two sets of exceptional measures were increasingly articulated together.

Governance also took a further necropolitical turn under lockdown conditions. An example of this took place in March 2020 in the small community of Otanche, when the army arrived to forcibly eradicate coca, burning ranches and peasant crops. Communities confronted the soldiers, who did not have the required biosafety equipment or provide legal guarantees (Aldianoticias, 2020). Already frightened by COVID-19, however, people submitted to the operation without having their concerns met. Meanwhile, with the continued support of the Colombian and U.S. governments, the Ministry of the Interior maintained that lockdown was an important moment for glyphosate spraying because there would be a reduced impact on humans (Forbes, 2020). Measures continued throughout 2020 in this way.

4.1.2 The Case of the Amazon

In the Amazon, peasants have also been largely interpellated as *colonos*: many communities arrive at the forest-agricultural Frontier as displaced people with the promise of a plot of land for cultivation and make their living through subsistence agriculture. Quinchas and the Amazon are in this sense connected by their historical constitution as zones for agricultural expansion shaped by social and armed conflicts. However, there are important differences. *Colonos* arrived in Quinchas during *La Violencia*, escaping from the violence and seeking state recognition and rights to land. Here the state promoted peasant colonisation and tried to regularise it through agrarian reform, but the process was only partially completed as an agrarian counter-reform was instigated by landowners and paramilitaries. Today, although *colonos* have been settled in Quinchas for several decades, they still do not have land tenure, which is why they continue to be defined as *colonos*. Meanwhile, although landless peasants in the Amazon also arrived due to forced displacement, the region has, over the last two decades, remained a central theatre of the internal armed conflict (PARES, 2018; 2020). This adds a distinctive dynamic to the operation of conservation governance, because in some sense, necropolitical rule has never ceased. The figure of the *colono* has been much more strongly associated with counterinsurgency

operations in the Amazon than in Quinchas, especially as part of Plan Colombia I and II (1999–2002), and the war on drugs, through which the Colombian state recoded the guerrillas as narco-terrorists.

Colonos living in the Amazon belt have thus suffered persistent stigmatisation merely for inhabiting this disputed area. Environmental conservation, especially since the second government of Juan Manuel Santos (2014–2017), which gave the army a new role in specific, multi-stakeholder environmental projects, has continued to target *colonos* as a source of environmental deforestation. These projects have been adapted under Ivan Duque's (2018-) more explicit focus on combining conservation with counterinsurgency, and environmental monitoring is increasingly blended with surveillance and control by the army. Operations like Artemisa are premised on the notion that *colonos* are intrinsically eco-destroyers and are indistinguishable from the illegal armed groups operating in the region (DeJusticia, 2020). This renders it practically impossible for peasants to appeal to the law to resist harassment by the army. Indeed, they are often codified, in state accounts, as part of the problem of illegal deforestation.

However, the environmental conservation efforts reshaping the region since 2008 according to biopolitical logics have also slowly changed the connotation of *colonos*. Environmental entities frequently stress the idea of *colonos* as "internal enemies" of the environment, who need to be quelled. This discourse, shaped by biopolitical concerns with protecting species life, has created a loop in which the necropolitical agenda of the Colombian state can be activated. This loop takes an unexpected turn, creating state arguments that connect deforestation, coca cultivation, counterinsurgency, and the state's struggle against deforestation that go back and forward targeting the *colonos* as the old-new enemy to control, monitor and repress. This means that ultimately the state can claim that in controlling the *colonos*, they are saving the environment and reducing cocaine production (UNODC, 2019). A knock-on effect may be that the authority of illegal armed groups is paradoxically increased, enabling further rounds of unlawful deforestation.

Significantly, in contrast with Quinchas, in the Amazon the military forces involved in forest protection operations were largely redeployed elsewhere. In line with media narratives, this may be partially attributed to the need to ensure lockdown compliance in the principal cities. However, what the new situation also revealed was how many of the institutions and experts involved in maintaining environmental conservation practices were already based far outside these areas. Due in part to the narrative that the Amazonian *colonos* are in league with dangerous illegal groups and need controlling from outside, peasant communities have been actively abandoned by the state, a situation exacerbated when the functionaries who usually monitor conservation stopped coming due to lockdown. With the army redeployed and these functionaries absent, the state's precarious hold of illegal logging fell apart. In parts of the Colombian Amazon, where the state's presence was already limited, armed groups and criminal networks, described by local environmental organisations as "land grabbers" and "*mafias come bosque*"

[forest-devouring mafias] have since lockdown strengthened their territorial control and expanded their deforestation activities (FCDS, 2020a). The underlying motivation of such groups seems be to profit from deforestation, eg. via cattle ranching, and local peasants are employed—often under duress—to clear vast tracts of forest to this end (Clerici et al., 2020; Prem et al., 2020). The landless peasants—stigmatised, abused, and unrecognised by state institutions—are consequently trapped by illegal timber economies and may be forced to work in them due to the lack of other subsistence possibilities. This has given way to the fresh empowerment of illegal armed groups to enforce a local rule of law, reviving conditions of necropolitical securitisation.

In both Quinchas and the Amazon, new rounds of green militarisation can therefore be identified under lockdown conditions. In the Inter-Andean Valley, where Quinchas is located, the presence of the state military is greater, but the emphasis on coca eradication has increased conflict and enabled exceptional intervention measures. Deforestation has increased, maybe partly due to the eradication measures, as well as to the weakening of conservation institutions vis-à-vis paramilitary forces and other illegal groups. In the Amazon, the state military has been suddenly withdrawn, and the territory is now dominated by dissidents and paramilitaries associated with cocaine, logging, and illegal mining. Although this may have directly contributed to the increased deforestation, it is important to note that processes of active state abandonment and the configuration of alternative, para-state authorities are also in play.

5 ANALYSIS

5.1 Necropolitical Loops in Biopolitical Conservation Practices

In both Quinchas and the Amazon, therefore, we can observe how the existing biopolitical logic of international conservation has been used to establish necropolitical loops in Colombia during the exceptional circumstances of COVID-19. In both cases, the use of biopolitical practices to monitor biodiverse forested areas is associated with longer histories of international environmental conservation, whose operations are structured to preserve the life of forests and biodiversity as a moral imperative. This logic legitimises interventions that are seen to reduce threats on species life, such as illegal timber cutting and poaching. Over time, it also frames actors already understood to be "risky" as potential eco-destroyers. In ordinary times, such interventions take place through the rule of law, although we have increasingly seen the militarisation of conservation through operations like Artemisa and the forced eradication of coca crops. Meanwhile, during the COVID-19 lockdown, discourses of the war on drugs were reactivated, enabling properly necropolitical practices, such as forced cocaine eradication operations and harassment of the civilian population.

In Quinchas, the biopolitical rationale nevertheless remains dominant through such processes, with the war on drugs being used as a premise to secure and protect *some* lives against the active threats posed by others. In the Amazon, meanwhile, a pivotal site of interventions in environmental conservation—and thereby biopolitics—the necropolitical rationale has become dominant. Here, illegal armed groups now dominate the forests abandoned by the Colombian state and its institutions, exposing *colonos*, indigenous people and forests to new levels of violence. The necropolitical regime consists of actively letting people die and watching the inhabitants suffer from a distance, at the hands of para-state actors. The help requested by *colonos* and indigenous people has been ignored by state entities, exposing their vulnerability, and even being recoded as a sign of the irresponsibility of peasant inhabitants. Only recently are national and international institutions returning to take stock of the losses due to this active abandonment during lockdown in the first wave of COVID-19 in Colombia.

It is also important to note that this trend toward the intensification of military presence in forests and necropolitical control has not been consistent across Colombia's forests, even during lockdown. While military operations were being enacted in the inter-Andean valleys and active state abandonment was being entrenched in the Amazon, something very different was happening in the forested areas of the high Andean mountains of the Chingaza biological corridor, another location where we conducted interdisciplinary fieldwork. In Chingaza, biosafety equipment was distributed, as well as information about protective measures for quarantine, coordinated by *campesinos* and local state authorities. The local authorities and communities of the highlands in the central Andes were also the fastest to act to counter the expansion of the pandemic in general (El Espectador, 2020). Regional borders were closed, lockdown was enforced, and action was taken to prevent the spread of the virus, along with the distribution of food supplies (personal communication with inhabitants from Monquentiva). In the highland mountains of Cundinamarca and Boyacá, meanwhile, the closure of all National Parks seems to have provoked an unexpected passive ecological restoration. Here, the state was involved with the inhabitants of these forests, focusing on the prevention of harm, and the operations were not militaristic.

What is clear, therefore, is firstly, that the state does not operate the same way in all the forests of Colombia, and secondly, that the spatial imaginaries to which the deployment of armies to support "conservation" conforms are loaded with stereotypes and stigmatizing gestures that manifest ongoing colonial power relations. In other words, they are not far from Taussig's topographies of highland and lowland morality that codify "good" *campesinos* in the high Andes and differentiate them from *colonos,* or potential nature destroyers, in the lowlands. These spatial imaginaries, layered in turn with associations conferred by the national armed conflict, come to legitimise exceptional powers and actions of the armed forces, in the name of conservation for the good of all. In this sense, the additional sites presented in this article provided a useful contrast to the two regions under discussion in this paper, helping us to see how the historical moral geography traced by Taussig and others is perpetuated today in the way that the state is present at certain sites as part of the elaboration of biopolitical conservation, while others are passively abandoned or securitised with excessive

force—sometimes through the insertion of necropolitical "loops" of exceptional rule.

We observed that these colonially-grounded differences also manifested in the varied expressions of survival of the forest in the face of the COVID-19 pandemic and the violence of legal and illegal armies. Among the *paramo* communities in the high Andes, lockdown conditions amplified existing capacities for self-organisation and endurance. Small communities were able to survive relative disconnection from cities and provide food, medicine, water, and mutual care for their inhabitants. This was also the response of many Amazonian Indigenous communities, in the face of the explicit abandonment of the Colombian state, albeit under conditions of relative isolation and poverty (Gaia Amazonas, 2021).

However, in Quinchas, facing similar issues like in the Amazon, this was not a possible option. The internal social networks and capacities were not in place, and the regulatory frameworks that might have enabled vibrant economic livelihoods under the new ecological frameworks of the Natural Park had never been fully explained to local people. What did happen, on the other hand, was an increase of external connections and relationships, for example with networks of researchers, like us, so that allowed local people to denounce acts of violence and to receive material aid. The peasants of Quinchas, from being sceptical toward social organization and cooperation, have moved, through the pandemic and interactions with our research group, toward creating conditions of mutual support, hope and encouragement, and have increased social organization for food autonomy and community-led conservation of the forest.

These expressions of self-care and survival suggest an "excess" to militarised conservation, or something that does not reduce to thethe violence of the armed groups and the abandonment of the state. Even as the necropolitical conditions we have traced are active and expanding, it is important to notice that they do not saturate the possibilities for social and collective life, even in areas currently codified as "risky" or in need of containment by the state. It is a crucial part of a decolonial and feminist political ecology commitment to identify and expand the possibilities for such forms of collective care and endurance that are emerging through and despite (neo)colonial power relations. Marisol de la Cadena, 2015 elaborates on this idea of "excess" (2015: 34) as a space of relationality that partially escapes the modern-developmentalist-capitalist framing–resonating with notions of the "otherwise" as discussed by decolonial thinkers like Arturo Escobar (2007) and Catherine Walsh (2015). Excess is performed at ontological limits—the limits of what it is possible to see and say about the world according to current discourses and forms of legitimacy. The COVID-19 pandemic opened a fresh space of limits, which enabled the Colombian state, on the one hand, to operate under, and declare, new conditions of exceptionality. On the other hand, it also renders possible new kinds of relationality and care that escape and exceed the state, modernity and coloniality, whether temporarily or with enduring possibility.

This analysis of the dynamics of conflict in Colombia therefore highlights the fractured relationship against *colonos*. Such geographies persist in the ways that environments are governed and policed today, in ways that are perpetually transforming, but which continue to reproduce regional stereotypes and the forms of governance related with them. The insertion of necropolitical loops into conservation practices today is partly the result of the ways that the figure of the *colono* has been historically configured in Quinchas and the Amazon, where rural communities are associated with violence, cocaine production and deforestation. This legitimises continuous intervention on the part of the state, rendering green militarisation part of everyday life in forest communities. Against the idea that moving armed forces out of forests on its own makes deforestation more likely, this history of interventions is part of the story of deforestation. It is also a major factor in exposing highly vulnerable rural communities to increased levels of risk and harm.

6 CONCLUSION

In this article we have observed how the general sharp uptick in rates of deforestation identified in Colombia in 2020 reveals important dynamics of green militarisation and its potential future directions. We have linked current patterns of militarisation with the histories of: 1) interpellating rural subjects as *colonos,* interwoven with colonial imaginaries of the rural poor; 2) geographies of international conservation, whose biopolitical logics have been exploited to illuminate particular subjects as potential eco-threats; 3) histories of necropolitical practice as grounded in the formation of paramilitary forces and the justification of extraordinary powers for the state armed forces, linked with decades of conflict in Colombia; and 4) discourses of the war on drugs, which strengthen militaristic rights to intervene in biopolitical risks via geopolitical imperatives. Together, these factors help explain why, in Quinchas, both deforestation rates state armed forces have increased during lockdown; why in the Amazon the army and international actors have been largely absent during the first months of lockdown, but the spatial authority of illegal armed groups has increased, and why in some highland areas of the Andes like Monquentiva, reduced rates of deforestation have continued.

This account contributes to the interdisciplinary field of political ecology by showing how the biopolitical dimensions of international conversation in the Global South, which are well understood, may be manipulated to insert "necropolitical loops" during extraordinary circumstances such as the COVID-19 pandemic. In Colombia, where necropolitical practices have a long history, green militarisation associated with forest conservation projects has fostered conditions where they can, at any moment, be reintroduced. This is particularly worrisome because extravagant reporting tends to make rural communities' part of the problem of sudden increases in deforestation in these regions, rather than clarifying the extent to which they are forced to submit under exceptional conditions by illegal armed groups. Further, the moral agenda of protecting life in both international conservation and the war on drugs, tends to obscure how new zones of exceptionality are being established, where rural

communities are systematically exposed to harm in the form of fumigation, and the violent actions of (legal and illegal) armed groups supposedly acting to contain potential eco-destroyers. In making this argument we have also advanced understanding of the dialogue between biopolitical and necropolitical regimes. These we have framed not as two opposing modes of governing, but as two processes whose interrelation takes shape in specific socio-historical and geographical contexts, forming liminal spaces (Chung, 2020) in which they articulate. As we have shown through the cases of Quinchas and the Amazon, they articulate with one another in discursive practices and in practices that organise these territories in moments of perceived crisis, in which international publics accept military interventions uncritically.

Through our case studies we have also suggested that the specific geographies of necropolitical practices in Colombia have been shaped by longer histories, including the moral topographies analysed by Taussig in association with colonial narratives and practices. The hot, tropical lowlands have been consistently viewed as places of potential violence, chaos, and disorder, needing to be brought under control, while the highlands have been coded as places of peasant organisation and tenacity. These geographies still inform the configuration of conservation governance according to biopolitical logics that determine which life-bodies are worth caring for, and which are disposable or marginal to these agendas.

What we are witnessing as the COVID-19 pandemic unfolds is not new, but provides insight into where and how biopolitical regimes are being pushed across the threshold into necropolitical ones. The biopolitical affordances of pandemics already prepare the ground for such transformations by rendering particular bodies as objects for protection, and by mobilising the exceptional powers of states to intervene legitimately on behalf of a threatened population. In such moments, states abandon and stigmatise bodies like the elderly, those with chronic diseases, people in jails, people without health infrastructure and the poor. In dialogue with state agendas to control and weaken perceived

insurgents, supported by US geopolitical interventions in Colombia, such hierarchies working on bodies can be seen to extend into necropolitical processes that systematically abandon and expose entire communities to harm, suspicion, surveillance, and violence.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Professor Rachel Flecker Chair of the Research Ethics Committee, School of Geographical Sciences. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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The Political Ecology of COVID-19 and Compounded Uncertainties in Marginal Environments

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In this paper, we use a political ecology lens to look at how COVID-19 adds to a set of existing uncertainties and challenges faced by vulnerable people in the marginal environments of coastal India. Over the last few decades, local people have been systematically dispossessed from resource commons in the name of industrial, urban and infrastructure development or conservation efforts, leading to livelihood loss. We build on our current research in the TAPESTRY (https://tapestry-project.org/) project in coastal Kutch and Mumbai to demonstrate how the pandemic has laid bare structural inequalities and unequal access to public goods and natural resources. The impacts of COVID-19 have intersected with ongoing food, water and climate crises in these marginal environments, threatening already fragile livelihoods, and compounding uncertainties and vulnerabilities. Extreme weather events such as cyclones, droughts, heatwaves and floods in the last couple of decades have also compounded the problems faced in these regions, affecting seasonal migration patterns. We demonstrate how responses from "above" have been inadequate, failing to address problems, or arriving too late. Authoritarian leaders have used the pandemic to "other" and victimise certain groups and polarise society along religious lines. Lockdowns and covid restrictions have been used to surreptitiously complete environmentally destructive infrastructure projects, while avoiding resistance and opposition from affected local communities, who have also been subject to increased surveillance and restrictions on movement. While state responses have often been unpredictable and inadequate, there has been an outburst of local forms of mutual aid, solidarity, and civic action. There are also many examples of resilience at the local level, especially amongst communities that have largely relied on subsistence production. Despite the acute suffering, COVID-19 has also prompted civic groups, activists, and local communities to reflect on the possibilities for reimagining transformative pathways towards just and sustainable futures.

Keywords: COVID-19, political ecology, compounded uncertainties, Kutch, Mumbai, India, care, solidarity

INTRODUCTION

The world has changed dramatically since early 2020. First, we witnessed a massive loss of lives and livelihoods due to the COVID-19 pandemic, combined with ongoing climate, water and food related uncertainties and crises. In India, this resulted in a massive crisis of migrant labour having to move back and forth between rural and urban areas (Aajeevika Bureau, 2020). Secondly, these losses have taken place against the backdrop of growing far right, authoritarian politics in both the global North and South. Political leaders have promoted vigilante nationalism, supporting violent acts against minorities, and clamping down on democratic rights of protest and dissent, while promoting neoliberal projects exacerbating the marginalisation and dispossession of local people. This is particularly true of India, a country that has experienced two devastating waves of COVID-19 (April to September 2020, and March to June 2021, respectively).

In this paper, we take a political ecological approach to examine how COVID-19 intersects with existing uncertainties in two coastal "marginal environments" in India—coastal Mumbai and coastal Kutch. These locations are disaster-prone, characterised by acute climate uncertainties where events such as drought, extreme rainfall events, floods and cyclones intersect with the uneven impacts of capitalist expansion. These compounding factors threaten people's wellbeing as well as their sense of place and identity, contributing to growing inequality and the vulnerability of marginalised people (Mehta et al., 2021).

Our findings are based in-depth telephone interviews, digital research, secondary literature and news media, and insights from webinars and online discussions, supplemented by in-person visits to our research sites in autumn 2021, as restrictions eased. Given the constraints of the pandemic, physical fieldwork was initially impossible, requiring a greater reliance on remote interaction, technology, and digital media (cf. Keleman Saxena and Johnson, 2020; Wood et al., 2020). In Kutch, telephone interviews were conducted in August 2020 and January 2021. Access to informants was often restricted by poor network connectivity, and a gendered skew of mobile phone ownership meant we were mostly able to interview male Jat herders, technology-specific issues similar to those encountered by other researchers during the pandemic (e.g., Lorea et al., 2021; Mahtab, 2021). We conducted a short field visit to Kutch in October 2021. In Mumbai, we were able to draw on insights from pandemic relief work conducted by staff and students at IIT-Bombay, Koli protests against infrastructure projects, and WhatsApp messages shared by Koli fishers, particularly during the first lockdown. In September 2021, Mehta and Parthasarathy conducted two rounds of physically distanced fieldwork in coastal Mumbai. We draw on materials from field research carried out prior to the pandemic and insights from long-term fieldwork conducted in the two research sites, with relationships and institutional connexions sustained over multiple decades. Like Gonda et al. (2021), throughout the pandemic we have personally also experienced new uncertainties and vulnerabilities due to the inability to conduct fieldwork and not being able to physically connect with local communities and research partners in our field sites.

The paper begins by exploring how political ecology and feminist lenses can make sense of increasing compounded uncertainties during COVID-19, and their links with intersectional processes of marginalisation and vulnerability. We then examine the trajectory of COVID 19 in the Indian context. Case studies from Kutch and Mumbai focus on the intersections of these compounded uncertainties and their impacts on different marginalised social groups, as well as bottom-up examples of care, solidarity, and civic action. The paper demonstrates the need for the political ecology of COVID-19 to addresses issues concerning the politics of uncertainty and the need to integrate issues of care and justice in future studies of the ongoing pandemic and its recovery, over and above the study of intersectional processes of marginalisation and a critical study of the politics of state and policy processes. We conclude by exploring diverse pathways to mitigating impacting and recovery, highlighting the need to learn from bottom-up civic action and solidarity.

COMPOUNDED UNCERTAINTIES DURING COVID-19

Between 2020 and 2021, countries in both the global North and South have experienced extreme events such as floods, heatwaves, and cyclones on top of the uncertainties and suffering caused by the COVID-19 pandemic. Climatic shocks and hazards are increasing both in frequency and intensity (IPCC, 2021). For example, Mumbai experienced two cyclones in this period— Nisarga in June 2020 and Tauktae in May 2021, a rare conjuncture in the history of Arabian Sea cyclones. As Phillips et al. (2020) argue, these intersect with COVID-19 impacts, relief measures and state responses, requiring local people and policymakers to react not just to the pandemic, but also other ongoing hazards.

We refer to these as compounded uncertainties (Phillips et al., 2020; Pickard et al., 2020; Srivastava et al., 2020). These are multiple uncertainties occurring in spatial and temporal proximity, leading to processes and outcomes that are hard to predict and plan for. Such uncertainties may be triggered by a single event (e.g., a climate or health hazard) but cascade into other economic (e.g., loss of livelihoods), social (e.g., violence, stigma, and marginalisation), and political domains (e.g., rising authoritarianism or increased state surveillance) (Phillips et al., 2020; Srivastava et al., 2020). Systemic inequities and failures put those most vulnerable at further risk, as they are unable to recover or remain resilient in the face of multiple shocks within a short period of time.

We believe that this focus on compounded uncertainties contributes to our understanding of the political ecology of COVID-19 in two critical ways: (1) While the pandemic has been devastating for poor and marginalised communities, there are risks that it becomes the only microcrosm through which we view lives, nature-society relations and livelihoods in carona times. Instead, the impacts of the pandemic have intersected with other uncertainties and crises, often magnifying the vulnerabilities of poor and marginalised people, with impacts differentiated across class, caste, and ethnic lines. (2) Yet, given that communities

at the margins have been living with a range of uncertainties for long time (especially climatic shocks and stresses), they have repertoires of past experiences and knowledges to adapt to uncertainties. They also often resort to bottom-up solidarity, processes of care and civic epistemologies that help in recovery and bottom up processes of change. These issues thus call for focussing on the politics of uncertainty as well as care and justice in future studies of the political ecology on the ongoing pandemic and its recovery, over and above the study of intersectional processes of marginalisation and a critical study of the politics of state and policy processes.

In India, the COVID-19 pandemic coincided with climate shocks and stressors including Cyclones Amphan (West Bengal and Orissa) and Nisarga and Tauktae (Gujarat, Karnataka, Maharashtra) as well as flooding, heatwaves, and drought in different parts of the country. These events challenged communities that were already facing lockdown restrictions. Compounded uncertainties disrupted immediate responses to both COVID-19 and natural disasters, and have also had longer term impacts on the adaptive capacity of social and ecological systems.

For example, during the pandemic the remote islands of the Sundarbans, a delta across India and Bangladesh that is known globally as a climate hotspot, have witnessed two cyclones: super cyclone Amphan in May 2020 and cyclone Yash in May 2021 (Ghosh et al., 2022). The compounding impacts of the COVID-19 lockdown, returning migrant workers, and this cyclonic storm event presented multiple challenges to authorities and local people. Despite early warning systems, the state government's response was compromised by the pandemic. Several cyclone shelters had been converted to quarantine centres, leaving hundreds of people confined in fewer shelters than normal, compromising COVID physical distancing protocols. The cyclone disrupted essential supply chains, impeding the delivery of public services and humanitarian relief, and affecting islanders' access to food, health, water, and livelihoods (Srivastava et al., 2020). This example highlights the importance of addressing how the pandemic has exacerbated vulnerable populations' existing food and livelihood insecurities, particularly as these intersect with disasters and seasonal uncertainties.

As in the above example of Sundarbans, marginalised people in both Mumbai and Kutch have been confronted with climate-related uncertainties, difficulties in sustaining livelihoods, displacement or dispossession by infrastructure or conservation projects, and the impacts of neoliberal, unequal patterns of growth. In urban Mumbai, poor people living in flood-prone areas lack rights to formal housing and basic services, increasing their vulnerability to climatic events. This was particularly apparent in the city's coastal fishing villages—Koliwadas—which have reported increasing storm surges, salinity intrusion, and inundation in their habitations. At the same time, the Kolis are often unjustly blamed by the state for encroaching on fragile coastal environments and held responsible for floods and other extreme events. This is despite Koliwadas' contribution to conserving coastal ecosystems such as mangroves, which protect against flood risks. In Kutch, pastoralists need to deal with changes in rainfall and declining grass cover, alongside hostile

government policies and rapid industrialisation that have led to their dispossession from the commons (Mehta et al., 2019). This is also a result of biassed state policies that denigrate pastoralism, blaming it for environmental degradation. In both environments, the experience of the pandemic has intersected with pre-existing vulnerabilities and exclusionary policies.

As existing literature on the political ecology of disaster shows, there is no such thing as a "natural disaster" (Smith, 2006; Collard et al., 2018). While the origins of COVID-19 are still disputed, its impacts in particular places have exacerbated existing local inequalities of race, caste, gender, ethnicity, income, and informality, intensified by uneven geographies, political economics, historical and sociocultural dynamics (cf. Collard et al., 2018). As with climate change and other disasters that are made out to be "natural" or "acts of God" beyond human control, a political ecology framing highlights how compounded uncertainties have anthropogenic causes and are socially and politically induced. They are part of the "social and biophysical forces through which lived environments, with all their engrained inequalities and forms of power, are actively yet unevenly produced" (Taylor, 2015, p. 19).

Uncertainties around floods, droughts, cyclones, rainfall variability and extreme weather events are experienced in both Mumbai and coastal Kutch. Dominant pathways to deal with climate-linked uncertainty range between capitalist and growth driven trajectories to apathy and neglect of the vulnerabilities of poor people. To understand these intersections of climate with capitalism, we build on Douglass and Miller (2018) conception of compounded disasters, looking at how the spatial and/or temporal proximity of ecological, epistemic and political economy of uncertainty can have compounding and cascading effects (Srivastava et al., 2020).

We also draw on a post-structural understanding of knowledge as something socially constructed and inherently plural and partial (Haraway, 1988). Different actors have framed the COVID-19 pandemic and its related uncertainties in different ways, guided by the knowledge systems in which they are embedded. Thus the pandemic can be viewed as health crisis or as a failure of governance or state preparedness (Srivastava et al., 2020). These divergent framings highlight how the pandemic and its interactions with are socially and politically constructed by people, communities, and institutions, and how these constructions shape different—often contrasting—responses.

Several studies have documented how communities who are highly exposed to climate variability adapt to uncertainty (Scoones, 1994; Mehta, 2005; Hastrup, 2013; Rudiak-Gould, 2013). In Kutch, for example, local communities have responded to drought-related uncertainty by adopting diverse strategies to cope and live with water scarcity (Mehta, 2005). In the first wave of COVID-19 cases, this helped these communities cope with a lack of state support and restricted access to shops and markets. The second wave, however, overwhelmed all, in urban and rural areas alike (Bhatt et al., 2021). Similarly, in Mumbai, Koli artisanal fishers could usually depend on marine fishing for food and income security, a livelihood strategy adversely impacted by lockdown restrictions in both the first and second waves.

In India, as in the UK, Brazil and the USA (under Donald Trump), pandemic responses from "above" have been inadequate and mismanaged (Pickard et al., 2020). While some Indian states have responded with greater transparency and accountability than others in handling the pandemic (e.g., Kerela and Maharashtra) and several officials have gone out of their way to provide support and relief to poor communities, it is now well-established that the Central government's response has largely been hubristic and blind to the situation of the problems of the poor, minorities and vulnerable people (Bhatt et al., 2021). In the absence of state support, bottom-up solidarity and civic epistemologies have come to the aid of smallholder farmers, informal workers, and marginalised people. These civic epistemologies are reflected in bottom-up research by communities, civil society actors, and low-level government officials, acting with the support of engaged academics to produce knowledge about logistics, sites of marginality, finances, accountability and transparency, epidemic management, sanitation, and food supply (Kamath et al., 2020; Kundu, 2020; Parthasarathy, 2020). Ideas of care deployed in feminist political ecology (FPE) help in stressing the role of coping and recovery from the pandemic, based on a commons of caring relations oriented towards wellbeing and equity (Mehta and Harcourt, 2021). This emphasis highlights the importance of conviviality and solidarity. While care is a "deeply gendered and time-consuming activity performed to support the bodily, emotional, and relational integrity of human beings" (Gregoratti and Raphael, 2019, p. 92), it is also an ethical concept, recognising all that we do "to maintain, continue, and repair our world" (Gómez Becerra and Muneri-Wangari, 2021, p. 11). To value care is to acknowledge our mutual interdependence and the need for sustainable flourishing relations, beyond instrumentalism or mere survival, as we rebuild the commons (de La Bellacasa, 2017, p. 41).

In a context of compounding uncertainties, the inability to sustain care regimes prevents communities, households, and individuals from pursuing a "rich plurality of life-activities" (Nussbaum, 2000, p. 54), as in Aristotelian notions of eudaimonia or flourishing. Integrating political ecology and this ethic of care requires us to reject any clear-cut distinction between care and justice (Okin, 1989), as Parthasarathy (2018) argues in his critique of disaster governance in Mumbai. Cascading disasters and compounded uncertainties demand institutions and strategies that show "capacities for empathy, care, and concern for others" (Okin, 1989, p. 248). These capacities were largely absent in the Indian state's pandemic response, but very much visible in the actions of civil society groups. Finally, feminist political ecology also forces us to pay attention to intersectional differences, embodied experiences of climate change and the pandemic, and different vulnerabilities between different groups of people and nature (cf. Tschakert, 2012).

COVID-19 IN INDIA

The COVID-19 pandemic in India, especially the first wave, revealed the interplay of inequality and vulnerability. The spread of the virus compounded uncertainties for poor and marginalised groups, leading to insecurity, stigma, and a severe loss of livelihoods. A draconian national lockdown, announced with 4 h' notice, confined a population of 1.3 billion to their homes. This destroyed farmers' incomes and triggered a mass exodus of migrant workers from cities, placing additional pressures on India's rural communities (Pickard et al., 2020).

The first lockdown also coincided with the monsoon season ban on fisheries that affected most coastal areas in India. The effects were compounded by cyclones and storms in both years that exacerbated uncertainties, especially for women, who play an important role in fish processing and marketing and were disproportionately affected by the resulting loss of income (see Section The Political Ecology of COVID-19: Crisis and Response Among the Kolis of Mumbai, below). The Koli artisanal fishers reported significant damage to boats, loss of life, and income from these cyclones.

As with other disasters and uncertain events that have been politicised to achieve certain ends (Mehta et al., 2019), the pandemic in India has prompted sectarian and authoritarian responses. Rather than treating COVID-19 as a public health disaster, the state responded to the pandemic as a law-and-order problem, criminalising dissent, and detaining those who failed to comply with stringent lockdown rules. These include many activists and state critics who have been arbitrarily detained and are still in jail. Indian jails are congested in the best of times, but during the pandemic this congestion led to additional risks and vulnerability to COVID-19. Migrant workers were particularly hard hit—both by lockdowns, and the state's failure to provide relief, transportation back to their towns and villages, and effective compensation to ensure food and income security. While the first lockdown may have been necessary given India's large population, its severe enforcement has been criticised as more spectacle than governance, geared to achieve maximum visibility for the government (Pickard et al., 2020).

India's first and second waves laid bare existing structural inequalities of caste, class, religion, gender, and education. Existing vulnerabilities hastened the virus's spread—a product of elite biases and unequal political and economic systems. COVID-19 has demonstrated the need for universal social security coverage, including basic shelter, food, water, and sanitation for all citizens of India.

India's second wave was the worst humanitarian and public health crisis the country has witnessed since independence (Bhatt et al., 2021). Countless lives were lost as the surge overwhelmed the country's health infrastructure, leaving people scrambling for hospital beds, critical drugs, and oxygen. With limited government support, many urban Indians took to social media, "sending emergency SOS requests in a desperate attempt to crowdsource vital resources for their families and friends" (Kaul and Kumar, 2021). Official statistics were distorted by a sharp undercounting of cases, infections, and deaths. India's reported COVID-19 fatalities have probably been underreported by a factor of between three and ten (Bhatt et al., 2021). When infections started to fall in urban areas in May 2021, the effects of the second wave continued to be felt in rural areas (Panneer et al., 2022). At the same time, Cyclone Tauktae hit coastal areas

in western India, including Mumbai and parts of Gujarat, with both regions entering the leaner livelihood seasons of monsoon and summer, respectively.

During the pandemic, vulnerable and marginalised people including informal workers, migrants, and rural communities have been hardest hit in terms of their access to healthcare and livelihoods. The pandemic highlighted how Indian cities depend on informal, unregulated activity to keep running. Impacts were felt particularly keenly by those in precarious employment, including women, migrant labourers, and informal workers in both rural and urban areas (see Section COVID-19 in a Context of Uncertainty: The Jat herders of Kutch on Kutch for impacts on rural areas). The pandemic has had very severe impacts for women, given their high involvement in the informal sector. Often employed in unrecognised or informal sectors, the absence of women from the labour force is less likely to be registered in official statistics, calling for more granular, disaggregated data collection in order to address gender-based vulnerabilities during the pandemic (see Bhatt et al., 2021).

At the same time, COVID-19 has reinforced the marginalisation and stigma of minorities, including Muslims and Dalits. The National Campaign on Dalit Human Rights (NCDHR) noted that existing caste and ethnicity induced vulnerabilities have been amplified by the pandemic, laying a "backbreaking burden" on India's marginalised Scheduled Caste and Scheduled Tribe communities. The impact of lockdown was felt more keenly by already marginalised and vulnerable sections of society, many of whom have been stigmatised as likely carriers of the virus (see Pickard et al., 2020). Reports by Ajeevika (on migrant workers) and Oxfam (on health impacts) note the role of the pandemic in amplifying the precarity of those already facing discrimination due to their regional, religious, and caste identities (Thomas et al., 2020; Oxfam India, 2021; see also Pickard et al., 2020).

COVID-19 has intersected with and multiplied existing uncertainties faced by vulnerable groups and communities who have remained largely invisible in India's development storey. In the following sections, we turn to two of these vulnerable communities, presenting case studies from Kutch and coastal Mumbai.

COVID-19 IN A CONTEXT OF UNCERTAINTY: THE JAT HERDERS OF KUTCH

Kutch is the second-largest dryland tract in India. Although the region is arid to semi-arid, this largest district of India has a wealth of ecosystems within its borders, including seasonal wetlands, thorn forests, grasslands, desert, and a long coastline with lush mangrove forests. Historically drought-prone, Kutch's variable water supplies and erratic rainfall patterns have always made life uncertain (Mehta, 2005). Pastoral, farming, and fishing communities have harnessed this variability by developing a symbiotic cultural relationship with these habitats over several centuries (KUUMS, 2013; Srivastava and Mehta, 2017). However, in the past decade, Kutch has been confronted by additional climate-related uncertainties in the form of extreme patterns of variability, including floods. Although people in Kutch have adapted to ecological uncertainties, many are now struggling to cope as these changes intensify and are exacerbated by other social and economic challenges (Srivastava et al., 2022).

Following the 2001 earthquake, which ravaged the district, the Gujarat state government pursued aggressive industrialisation in the name of "development" (Kohli and Menon, 2016; Sud, 2020), leading to rapid investment in infrastructure and major industrial projects, including ports, thermal power plants and cement factories (Srivastava and Mehta, 2017). More recently, Kutch has become a favoured destination for renewable energy (solar and wind) parks, attracting widespread attention and investment (Nair, 2020). This rapid industrial growth has been largely achieved at the cost of irreversible environmental destruction, with changes in land use patterns leading to dispossession of local communities from local lands and commons (Mehta and Srivastava, 2019). Sporadic industrial development in some of Kutch's most ecologically sensitive areas has affected resource dependent livelihoods and the health of this vibrant ecosystem (Kohli and Menon, 2016).

COVID-19 and Cascading Uncertainties

Although the brutal impacts of India's first lockdown were felt across rural and urban livelihoods, the plight of pastoralists remained invisible to the mainstream discourses on livelihood loss and post-pandemic recovery. As Iyengar notes, "the pastoralist lifestyle is poorly understood by the society because pastoralists live on the margins—environmentally, socially and politically" (Iyengar cited in Baker, 2020; also see Mehta, 2005 and Mehta and Srivastava, 2019 for marginalisation of pastoralism in Kutch). With sales of milk and other animal products suspended, and scarcities affecting inputs to livestock upkeep, the pandemic's disruption of agricultural market linkages threw different pastoral groups across India back into abandoned subsistence livelihoods (Pickard et al., 2020). In Kutch, however, herders' established relationships with farmers across the district and the state of Gujarat enabled them to draw on shared histories of receiving fodder and exchanging manure, a cheap fertiliser, for cash or grain. Expected to benefit both parties, these interactions and relationships going back centuries represent an example of care as exchange, and are contingent on herders having something valuable to barter (cf. Gómez Becerra and Muneri-Wangari, 2021). Lacking these advantages, pastoralists elsewhere in India (e.g., Gaddis, Gujjar, and Bakarwal herders in the north of the country) were caught out by lockdown restrictions, which prevented them from returning to their villages (Maru, 2020; Pickard et al., 2020).

In Kutch, the first case of COVID-19 was recorded in Lakhpat taluka (sub-district), adjacent to our research site in Abdasa. Around 30 families with 500 kharai camels use the tropical thorn forests and mangroves in these areas to graze their animals (Mehta et al., 2021). Several herders whom we spoke to in 2020 mentioned that many thought this virus to be a recurring disease, *Mata*, that often affects livestock in the month of March. For example, one herder mentioned: "Allah (God) knows what this disease is? I think this is the deadly Mata disease, a mahamari

(epidemic) and there is no cure for it" (Interview: 17th August 2020). It was news of the lockdown that first made these herders aware of COVID-19. For instance, Saiba *ben* (sister), in Mohadi village, who often shares herding responsibilities with her husband, told us she did not know anything about the virus until they heard about the lockdown (Interview: 17th August 2020). Given the size of the country, different states and regions experienced waves of infections at different times. Initially, much of the focus was on the major urban centres such as Delhi and Mumbai, which were experiencing rapid increases in case numbers, not the country's smaller towns and villages. Cases in Kutch only peaked in July 2020, restricting access to neighbouring towns for several months.

The 2020 lockdown protected these coastal villages from high case burdens during the first wave. In the second wave, a patchy and delayed state response allowed the virus to run through the local population. Across rural India, including Kutch, local people brushed off the symptoms as "seasonal flu" reporting high fever and shivers (Mitra and Maggu, 2021). Testing was patchy and several people resisted going to the health centres for fear or stigma and imminent death. In a Sahjeevan survey of 95 pastoral households across Mitra and Maggu (2021), there was a widespread lack of awareness about symptoms, preventive measures, diagnosis, treatment, and vaccination (Sahjeevan, cited in Mitra and Maggu, 2021). In later sections, we describe some of these communities' lived experiences, showing how pandemic-related uncertainties compounded existing vulnerabilities, cascading into other sectors such as food security and mobility.

The immediate effects of the lockdown were experienced in terms of mobility restrictions and a lack of food supplies. Mobility is the lynchpin of any pastoral system, allowing herders to manage seasonal variation in fodder availability, unpredictable water supplies, erratic rainfall, and climate-related uncertainties. Even in normal times, the mobility of Jat herders has been limited in coastal regions of Kutch. As a border area, the threat of terrorism is often used to justify restrictions on their movement (Ibrahim, 2021; Srivastava and Mehta, 2021). The Border Security Force (BSF) and Forest Department have both imposed severe restrictions on access to creeks and mangrove islands, using punitive measures to control the movement of local herders (Srivastava and Mehta, 2017). Our interviews revealed how an increased BSF presence has restricted women's movement to the mangroves and outside the village (Interviews: May 2019 and January 2020).

In summer (March to June) and winter (October/November to February), kharai camels are taken to bets (islands) near the creeks to graze on mangroves for 2–3 days, before returning to the mainland to access fresh drinking water (pers. comm Sahjeevan). The 2020 lockdown coincided with the crucial summer months, when securing sources of fodder and water has always been challenging. Several herders we spoke to described the problem of fodder and access to pastures early in the lockdown. The police and other authorities were strict in enforcing lockdown restrictions, with no more than three people permitted to visit the bets. One pastoralist said "kya karein, hum khakhi dekh ke darr jate hain *[what to do, we fear the khaki clad police officers]*."

Since the lockdown was declared at short notice, many were unable to return to their villages, or arrange sufficient food supplies for their families. Since pastoralists are always on the move and may lack ration cards, many struggled to access government relief (Pickard et al., 2020). These herders' villages are in remote border areas, so access to hospitals, banks and shops was highly limited. A Jat herder remarked: "food is a big problem; everything is closed, and the shops and markets are also quite far." A member of Sahjeevan, a NGO working with camel herders, agreed:

> "Many of the *oont wale* (camel herders) work 10–20 kilometres away, near forestland or commons. They have no contact with the villages or with government. Many of them keep their ration cards in their villages while they are roaming somewhere else […] Now there are no buyers for camel milk and other products of the *maldharis*, so their income has stopped, and they can't buy essentials. They are also scared to go back home as in some villages, they will not be allowed in." (Bhatti cited in Mukherjee, 2020.)

With the lockdown, all forms of livelihoods were exposed to shocks, albeit to varying degrees. Milk collection and supply chains have suffered throughout the pandemic. Camel milk thus has been shared amongst the villages during this period. Many of the young herders who had eventually taken to working as casual labour in the nearby cement factories also lost their jobs or did not receive their monthly salary (Interview: August 2020). The lack of mobility and suspended livelihoods meant that there was no liquid cash to purchase food and other essential commodities. Many of the herders we spoke to during the lockdown told us "pastoralists who relied on camel were better off than those working in factories" (Interviews with camel herders: August 2020).

With the help of camel herders cooperative KUUMS, Sahjeevan was able to trace herder families, providing food kits (grains, spices, etc.) to last for a month during the lockdown. As the lockdown was lifted, herders were able to move around, though there were still restrictions of mobility. Many herders complained of high transport costs, which affected their access to essential services (health care, medicines, and food).

In September 2020, as Kutch began to emerge from the economic devastation wrought by lockdown, the region experienced flash floods, submerging fields and farmland. One of the herders remarked:

> "The fields and farms however were full of water, it looked like a river. There is still some water in some areas. I don't have a farm. We did not know about the rain. No one told us about it. The grass cover was full though." (Interview: August 2020.)

The impact of excessive rainfall was unevenly distributed; herders benefitted from good grass cover, with fodder and water both available, but many farmers lost their crops.

Care and Solidarity at the Margins

In rural areas across India, including Kutch, the first lockdown coincided with the harvest of rabi (winter) crops (wheat,

mustard, potato, chickpea). With limited labour and agricultural equipment, and restrictions on movement, farmers had difficulties storing, distributing, and exporting their produce (Pickard et al., 2020). Some dumped perishable goods or used crops for animal feed, while others were forced to rent storage space for produce that would otherwise have been left in fields, vulnerable to rain and pests. In Kutch and other parts of the country, many farming families moved to subsistence crops, with access to non-market food sources and their own produce alleviating some of lockdown's pressures on food supplies. Non-agrarian rural livelihoods also experienced hardships and came to a standstill during lockdown.

As argued above, Kutch has largely been a subsistence economy. Local people have developed intricate ways of living with uncertainties, including reciprocal systems of exchange (Virmani, 2020). Before the introduction of fertilisers in the 1970s, farmers and herders shared a symbiotic relationship, where farmers would invite the camels for penning in their fields, in exchange for fodder. With Kutch's rapid integration into the market economy in the past 15 years, these networks and systems were marginalised, if not completely eradicated. Within pastoral households, livelihoods have become increasingly diversified. Some people engage in dryland agriculture, fishing or work for the cement and salt factories. Few young people want to get involved in herding, put off by uncertain and variable incomes.

With normal economic activity suspended, the lockdown revived this abandoned subsistence economy, while simultaneously "galvanising local forms of moral economy and solidarity" (Simula et al., 2021). In Kutch, many Jat families were able to endure the pressures of lockdown because they were less "strongly integrated with the market" than other livelihoods, such as cash crop farmers and craft workers (Virmani, 2020). Elsewhere in the region, Rabari pastoralists were able to hold their stocks while the export of live animals was restricted, relying on grain from farmers and ancillary income sources (leasing land to contract farmers, renting agricultural equipment, etc.) while waiting for prices to recover (Maru, in Simula et al., 2021, p. 60–61). Pastoral and farming communities provided food and milk kits to families of migrant port and factory workers, who were trapped in these regions by the lockdown. Solidarity and cooperation between migrant labour, farmers and pastoralists was seen in various villages on the Kutchi coast (Virmani, 2020).

THE POLITICAL ECOLOGY OF COVID-19: CRISIS AND RESPONSE AMONG THE KOLIS OF MUMBAI

Most COVID-19 cases in India's first and second waves were reported from in urban areas (Gupte and Mitlin, 2021). Pandemics such as COVID-19 depend on socio-ecological interactions, and these are often more intensely felt in the cities of the global South. Globally, around a billion people operate under conditions of urban informality and precarity, often lacking access to formal services such as water, sanitation, secure housing, access to health care etc. (Gupte and Mitlin, 2021). A combination of dense informal settlements, intensified

rural-urban migration, and new urban infrastructure projects are creating zoonotic "accelerator landscapes" (Gandy, 2022, p. 6–8). Migrant labourers and informal workers dependent on forestry, fisheries, agriculture, and pastoral landscapes connect cities to rural areas, creating vectors for viral transmission, while compounding the impacts of pandemic management strategies such as lockdowns.

Mumbai's is one of India's largest urban agglomerations with a history of colonial development around trade, manufacturing, and shipping. From the 1980s onward, as manufacturing declined, the city became a key site for services, finance, information, technology, entertainment, and media. While a large proportion of its population live in informal settlements, studies in recent years have focused on the neoliberal transformation of its coastal ecosystems and resource commons on which the city's earlier inhabitants—the Kolis—have traditionally laid claim (Parthasarathy, 2011; Kamath and Dubey, 2020; Parikh, 2020). The Kolis are artisanal, small scale fishing communities who have enjoyed de facto and de jure rights over the coastal commons which have served as spaces for living, livelihood, and as community spaces. Fishing villages predating the development of Mumbai as a colonial metropolis continue to exist, despite encroachments on their land, the pollution of creeks, beaches, and coastal waters, and destruction of mangroves. Increased competition from commercial trawlers, the use of the ocean for blue economy projects such as offshore oil, and elite infrastructure projects developing coastal land and the sea have further threatened the livelihoods of the Kolis and their coastal commons.

Amid these developments, the city has experienced increasingly frequent extreme precipitation and flood events, with the 2005 floods being the most severe (Revi, 2005). Coastal erosion, rising sea levels, storm surges, and salinity intrusion are severely affecting Kolis' residential spaces, housing, drinking water, jetties, parking spaces for boats, and coastal habitations used for fish markets, boat building, and net repair. As the climate-linked warming of the Arabian Sea creates new uncertainties for the coastal fishers, annual flooding in these villages has become the norm, exacerbated by poor flood risk mitigation by the city municipal corporation and Mumbai Metropolitan Regional Development Authority (Parthasarathy, 2016; Adam et al., 2018).

A neoliberal model of urban growth based around the development of coastal real estate has long been a threat to Mumbai's Koliwadas (the villages inhabited by the Kolis, and over which they have customary rights as commons, Parthasarathy, 2011). From the 1990s, large memorial projects pushed by right wing majoritarian political parties (Thackeray memorial, Shivaji Memorial), and transport infrastructure projects to meet elite needs (Bandra-Worli Sea Link, Coastal Road, Mumbai Transharbour Link) have been contested by environmentalists and Kolis. Such projects severely affect coastal habitats, destroying fish breeding grounds including mangroves and wetlands, obstructing fishing boats, and interfering with inter-tidal flows crucial to ecosystem functions.

In several of the Koliwadas (e.g., Versova, Mahim, Bandra, and Worli), the construction of the Coastal Road project has

been strongly opposed by the Kolis, who have cited disruption and damage to the coastal ecologies upon which their livelihoods depend. These have created new vulnerabilities and exacerbated existing uncertainties, in a context where Koli communities have been unable to pursue legal petitions or otherwise resist these projects. With such schemes winning support from national and global funding agencies, risks highlighted by scientists and environmentalists have been ignored or downplayed, with state agencies making spurious arguments about their sustainability and climate benefits.

Cascading Uncertainties in Coastal Mumbai

COVID-19 led to severe lockdown-related restrictions on fishing, fish processing and fish marketing. In Mumbai and Maharashtra, male fishers and women were both badly affected. Typically involved in fish processing and marketing, Koli women have historically had much greater financial control and autonomy, and the pandemic substantially impacted their roles within households. In addition to the loss of fishery income, the Kolis also faced severe damage to boats and jetties and substantial reduction in the number of fishing days following the Tauktae and Nisarga cyclones. With fishing villages under extended lockdowns, work on infrastructure projects proceeded apace, encroaching on the coastal wetland habitats that Koli women and children used for creek fishing and mangrove foraging. At the same time, restrictions on movement and economic activity removed additional sources of income for those villagers working in Mumbai's informal economy.

When India's national lockdown was imposed in March 2020, the Koli villages of Versova, Worli, and Cuffe Parade were still reeling from damage to their boats and jetties caused by cyclone Maha, which struck India's west coast in October 2019. Pollution, encroachments from infrastructure and real estate projects, and commercial trawling had depleted fish stocks, damaging their livelihoods. For several months, fishers in the Mumbai Metropolitan Region had been protesting coastal transportation and infrastructure projects, which threatened to further marginalise them. They were yet to receive state-provided compensation for damage from Cyclone Maha, while diesel subsidies had been delayed by several months due to an ongoing political crisis in Maharashtra's state government. The Kolis believed they could ride out the pandemic by limiting their interaction with land-based communities, while maintaining their own food security through marine fishing. However, the first lockdown imposed new restrictions on all movement, both on land and at sea. Lacking savings or social security, the Kolis initially tried to break the lockdown restrictions in Koliwadas like Worli, triggering the imposition of a police-led containment zone, including physical barricades. This was in place for several months, despite little evidence of positive COVID-19 cases in Worli and other Koliwadas. In the meantime, the June-August annual monsoon fishing ban continued with no exemptions, such that even a loosening of lockdown restrictions could not be used to resume fishing.

A fisher from Worli complained "without any testing, the BMC (the Greater Mumbai Municipal Corporation) and the authorities said there were a large number of cases and imposed a strict lockdown. We were neither allowed to go into the sea for fishing, nor into the city for purchase of provisions for food". Another fisher leader mentioned that despite a plea to the state government to postpone the monsoon fishing ban, as compensation for the weeks lost during lockdown, this request was not heeded, further affecting the Kolis' income and food security.

A fisher from Versova Kolivada told us that many Kolis had left fishing, with only a quarter from their fishing village continuing. They blamed this on the lockdowns and other pandemic-related factors, as well as ongoing infrastructure projects. The increasing frequency of cyclones made life harder. After the central government relaxed Coastal Zone Regulation norms, the creek became a dumping ground for the construction industry. A lot of building work has taken place along the coast, reducing mangrove cover, and affecting spawning, leading to a decline in the number of fish.

Likely amplified by rising sea surface temperatures, cyclones Nisarga in June 2020 and Tauktae in May 2021 caused further damage to Koli fishing villages, housing, boats, and infrastructure. Offshore oil companies' lack of preparedness resulted in significant damage to their ships, barges and tankers, a loss of life numbering in the hundreds, and extensive oil spills. These affected fish species in the fishing grounds close to Mumbai and prevented fishing activities for many months, with many Koli villages still affected.

These cascading events and hazards—natural and anthropogenic—resulted in a steep decline in fishers' wellbeing, particularly among Koli women who traditionally controlled household finances through their involvement in fish processing and marketing. Women depleted what little savings they had (Soni, 2021), and men were forced to migrate to work in the urban informal sector, even as the state delayed or denied compensation for cyclone damage.

Political Power and Koli Marginalisation

Kolis have been among the most vociferous and litigious actors in contesting violations of the Coastal Regulation Zone norms (Chouhan et al., 2016). Together with environmental activists, they have reversed these violations and delayed construction, even if they could not always prevent coastal infrastructure and urban development projects. These developments have destroyed vast swathes of Mumbai's coastal ecosystems, especially its wetlands and mangroves, which provide food, habitats, and breeding grounds for fish and crustaceans. The lockdown provided an opportunity for the state to circumvent resistance to these projects, which construction continuing even amid restrictions on work and mobility.

During the lockdown, Koli fishers across the Mumbai Metropolitan Region have complained about increasing police surveillance of their movements and new restrictions on cultural and religious activities. The Kolis in Worli argue that the declaration of their locality as a containment zone was unjustified, with little or no evidence of community transmission.

These moves seem to have been motivated by a desire to pre-empt any Koli protests or mobilisation against infrastructure projects, and the multiple deprivations, risks, and vulnerabilities to which the fishers are exposed (Interview: October 2021). The ruling Shiv Sena party's provision of limited and partial food relief, in partnership with a major international infrastructure and mining company, only added to these suspicions. An example of care as distribution, this state government relief often has treated marginalised groups as as passive recipients of support, inhibiting their agency (cf. Gómez Becerra and Muneri-Wangari, 2021).

With support from government agencies, foreign consultants, contractors, and funding agencies, work continued on projects such as offshore oil drilling and the Coastal Road. In one case in Worli Koliwada, Koli informants have informed us that work resumed in mid-2020, despite a stay order from the local High Court citing clear illegality in obtaining permission for the coastal road project. The lockdown restrictions made it difficult for the Kolis to mobilise, organise protests or seek remedy through the judicial system—eventually resorting to a blockade of the project, on land and sea, as restrictions eased from October 2021. This was also the case in other Koliwadas, such as the Cuffe Parade Koliwada in South Mumbai. Oil drilling, the Transharbour Link, Shivaji Memorial project, new cruise ship terminals, and encroachment on the commons for parks and residential development proceeded, even as fishers were prevented from using their boats or engaging in informal street vending for survival.

These events lead us to critiques of urban political ecology and "methodological cityism" (Angelo and Wachsmuth, 2014), which advocate for the need to research processes of urbanisation, dissolving the distinctions between urban-rural and society-nature, and question the concept of the urban, rather than focusing solely on the political ecology of the city. They point us towards alternative conceptualisations of neoliberalism and "neoliberal natures", as "political doctrine, as economic project, as regulatory practise, or as process of governmentalization." (Bakker, 2010, p. 715)

In further marginalising Koli communities, this neoliberalisation of coastal resource commons prompted collective action—not just opposition to coastal infrastructure and urban development projects, but also new civic initiatives to cope with the most severe effects of the pandemic and lockdown.

Responding to the Lockdown: Civic Politics and Civic Epistemology

Even before the lockdown, ongoing marginalisation, long-running protests, and natural disasters had already diminished the Kolis' capacity to cope with the pandemic and sudden stoppage of livelihood activities. India's first lockdown was imposed suddenly, giving little opportunity for people to prepare or return home. With the government failing in its responsibility to support the poor and vulnerable, the Kolis—like millions of other Indians—experienced a loss of earning opportunities, and had to stock up on basic supplies with the aim of riding out the lockdown.

But the Kolis also revealed a more humane face of pandemic management. Pooling the little resources they had, they were able to collectively address the basic needs of food and shelter for several months when they were unable to go out to sea to catch fish. Using their knowledge of the city, and building on their existing networks, they collectively self-mobilised to meet the needs of the most vulnerable (Parthasarathy, 2020; Soni, 2021).

The Kolis' civic epistemology (Jasanoff, 2011) was reflected in the networks they were able to access, the ways they mobilised resources without state support, and the logistics they put in place to deliver relief (Kamath et al., 2020; Kundu, 2020; Parthasarathy, 2020). Youths from Mumbai's Koliwadas mobilised kinship, caste, and village networks to identify and distribute relief supplies during the first lockdown from March 2020, when almost the entire Indian population found it difficult to access basic provisions, especially goods related to food, medicines, and sanitation. Within 3–4 weeks they were able to open local clinics, with safety protocols in place. Some managed to produce, procure, and distribute sanitation and hygiene products, including masks, hand sanitiser, and sanitary pads. Coordinating with municipal and police officials to minimise barriers to movement, their distribution of goods followed safety norms with physical distancing and sanitation practises strictly enforced. Responding to the state's "displacement of care to the private space" during the lockdown (Gómez Becerra and Muneri-Wangari, 2021, p. 3), the Kolis' ability to coordinate support among local bureaucrats, civil society, and community leaders revealed a more empathetic and reciprocal sense of care, apparent at the neighbourhood level.

Once the immediate needs of Mumbai's Koliwadas were met, the youth began to coordinate with, obtain data from, and organise supplies for fishing villages in neighbouring districts, such as Palghar, where they had kin and caste group connexions. While the state and rest of civil society either neglected the needs of migrants or denied their existence, the Kolis fed, clothed, and housed other fish workers throughout the lockdown, until they could return to their villages. The Kolis' attention to the needs of migrant labour in the small scale fisheries sectors is particularly noteworthy, constituting an example of care as a practise of reciprocity. Support for migrant workers was inclusive and collectivised, fostering stronger social ties that also benefitted the Kolis, who sought to "maintain, continue, and repair" their "world" on a long-term basis (Gómez Becerra and Muneri-Wangari, 2021, p. 4).

The Kolis thus exhibit an alternate, more compassionate civil politics oriented founded on a civic ideal that values labour relations, the need to ensure food security, and the imperative to support those least able to fend for themselves during a pandemic, including the elderly, the disabled, children, women, and the poor. This civic action was ironically rooted in a larger, historical experience of collective environmental management, ensuring social security within their communities, and sustaining socio-ecological relations built around sustainable, small-scale fisheries livelihoods. These actions were built around a civic epistemology that drew upon the Kolis' customary knowledge of spaces, routes, and village demographics. They supplemented their existing knowledge by conducting surveys to organise

supply logistics, assess needs for food, sanitation, water, and medicines, and coordinate with academic researchers and activists, where needed, to reach out to donors, suppliers, and solution providers. These efforts to remain resilient and ramp up relief made each Koliwada an "urban observatory," collecting, analysing, and presenting data to support planning and interventions that could address the pandemic's impact on lives and livelihoods (Acuto et al., 2021, p. 3).

Within the Koliwadas, women played a vital role in mobilising and organising food resources, setting up community kitchens, cooking, and building networks that came to constitute informal social safety nets (Soni, 2021). In an interview in October 2021, a senior Koli woman cited the role of community networks in providing fish for vending, with supplies coming both from neighbouring districts and more distant fishing villages in the city. When some boats could not operate, women vendors bought fish from non-family members. As she explained:

> "During lockdown fishing was not allowed in Versova so we got it from other places outside Mumbai, e.g., Alibaug. All the women pooled in resources to get the fish. Even though this was illegal, we had to do it to keep us going. Why didn't the government help us? Corona came to us, but did it come to the fish? It's just been awful what has happened to us fishing communities. During the pandemic, the state is also interfering with our market halls and trying to take these spaces away, which will be disastrous for us women who play a major role in selling the fish."

In her documentation of community kitchens set up by the urban poor in Mumbai's informal settlements, Kundu (2020) claims such acts represent a reimagination of feminist labour, shoring up community level infrastructure, and recognising its contribution to collective responsibility in times of crisis. In the case of the Kolis, the villages' relative internal homogeneity, customary practises of resource and spatial governance, and control over their territories differentiated their coping strategies from those seen in informal settlements, which relied on local party leaders to access relief from state politicians and private NGOs (Auerbach and Thachil, 2021).

DISCUSSION AND CONCLUSIONS

This paper has focused on how existing inequalities and compounded uncertainties have exacerbated poverty and the vulnerabilities of India's marginalised social groups during the COVID-19 pandemic. In both the first and second waves, the state was unprepared and hubristic, leading to a significant loss of lives and livelihoods. The pandemic has also been politicised, with the central government clamping down on human rights, including the right to dissent and free speech. The compounded uncertainties described in this paper magnified the vulnerabilities of poor and marginalised people, with impacts differentiated across class, caste, race, and ethnic lines. Narrow, top-down framings of the pandemic and disaster response prevented action to address the structural causes of vulnerability and injustice that left poor people to bear the brunt of these cascades.

In Mumbai, the political ecology of COVID-19 shows the state's opportunistic use of the pandemic, in close collaboration with capital, to push through environmentally and socially damaging projects which marginalise commons-dependent fishers. Far from enhancing the resilience of the urban poor by providing relief and food security, the state authorities often exacerbated the impact of the pandemic and lockdown. As demonstrated by ongoing protests (physical occupation on land and in the sea by fishers and their boats since October 2021) against the coastal road project, the state has taken a hardened position towards the Kolis and the Koliwadas while continuing with destructive projects, and this has been the case since the beginning of the pandemic.

In contrast, the Kolis' own response reflects an incipient pathway to more equitable and caring civic strategies that, if responsibly incorporated into disaster risk mitigation governance, can help move towards a transformative strategy that helps challenge the status quo and realign power relations. For this, however, we need to understand the civic epistemologies that enabled the Kolis to efficiently address problems of logistics and distribution mechanisms, while identifying the most vulnerable in a time of crisis (Nussbaum, 2007). This emphasises the need for knowledge co-production and hybrid knowledge, a key component of the TAPESTRY project (Mehta et al., 2021). Such civic strategies were also reflected in the relatively efficient way in which Mumbai contained the pandemic during the second wave. In the large informal settlement of Dharavi, municipal actors, charitable private hospitals, local community organisations, and corporate social responsibility actors came together under the leadership of autonomous and empowered municipal commissioners. As Prakash and Rege (Forthcoming) show, a range of factors, including the willingness of the state government to delegate authority to mid-level municipal officials, legal provisions enabling the takeover of private hospitals, a history of civil society mobilisation in informal settlements, and private sector philanthropy, all contributed to Mumbai's relative success in tackling the pandemic.

In Kutch, in the first phase of the pandemic, the remote rural location meant that infection rates were relatively low. Nevertheless, the mobility of pastoralists was severely curtailed, cutting them off from essential food and medical supplies. Many rural residents survived by falling back on subsistence production, mutual aid, and solidarity networks that predated the market-based relations now seen in Kutch. Although milk supply chains were suspended, milk was consumed locally or distributed within the village. Similarly, farmers provided food aid where possible to stranded migrant workers. These moral economies, although transient and sporadic, demonstrate the ethic of care and solidarity that emerged during the lockdown. In the second wave, Kutch, like other remote areas, was badly affected. But unlike Maharashtra, Gujarat's state government had been underreporting cases, infections, and deaths, so when the second wave hit, people were largely unprepared. Infrastructure projects were supported throughout the pandemic, despite strong protests from local farming and fishing communities. This resulted in the increased securitisation of the coast, creating further challenges for Jat herders, and restricting their mobility.

Facing future events amplified by climate change, government agencies and organisations will need to develop new plans for preparedness, tailored to better accommodate regional contexts and local populations' existing vulnerabilities. In confronting compounded uncertainties, there is a need to include diverse actors, and reflect perspectives from different disciplines and global, regional, and local scales. As an example, our research on climate uncertainties in marginal environments shows how bottom-up initiatives—building on partnerships between local communities (farmers, fishers, and pastoralists), NGOs and academics—can address climate-induced livelihood uncertainties whilst engaging with issues of social justice, agency, and empowerment (Mehta et al., 2021). We argue that compounded effects of climate and pandemic related uncertainties may undermine existing solidarities and co-produce new ones. These new solidarities offer promise for thinking about potential transformative pathways to sustainability, equity, and justice at the margins. How can we nurture and sustain these "bright spots" of solidarity?

At the time of writing, 52% of Indians have been fully vaccinated with the longer-term impacts of the Omicron variant still unclear. The pandemic has caused severe economic distress in India, setting back progress on poverty reduction and efforts to achieve the Sustainable Development Goals (Bhatt et al., 2021). To relieve the distress and suffering of marginalised and vulnerable groups, opportunities for robust livelihoods recovery need to be found and should be linked with the Mahatma Gandhi National Rural Employment Guarantee Act, which has helped lift people out of poverty in the past. It is also important to improve social safety nets, especially for those whose livelihoods depend on natural resources, including fishers, pastoralists, and farmers. These groups require need guaranteed social protection in terms of food (especially for children) and universal basic income (Venkataramakrishnan, 2020; Bhatt et al., 2021).

The Indian state (especially at the Centre) has showed a lack of capacity and willingness to cooperate with civil society organisations—but it is the actions of local community groups, social movements, and civil society actors that have provided relief and welfare to vulnerable groups. There have been remarkable storeys of solidarity, the pooling of resources and food supplies, and inspiring conversations and dialogues seeking to reimagine India's future to address the failures witnessed during the national lockdowns and their aftermath. It is these bottom-up visions, solidarities, and civic epistemologies that planners and policymakers should be seeking out as resources to address the aftermath of COVID-19, through recovery and beyond. Where the central government has clamped down on civil society action, further outbreaks and future pandemics will require governance systems to be made more transparent, accountable, and open to engaging with humanitarian and development organisations.

COVID-19 is a reminder of our uncertain world and future. Indeed, these uncertainties are multiple and compounded, requiring flexibility, iteration, and adaptive learning (Leach et al., 2021). They indicate a need to push for greater equality and solidarity, both within and across countries. COVID-19 responses need to consider not just epidemiological and public health issues, but also how to address food and livelihood insecurities of vulnerable populations when these intersect with seasonal uncertainties and variability. The voices and experiences of marginalised groups need to shape government preparedness. Plural, more radical and justice-oriented approaches to preparedness may help us embrace uncertainty, instead of enforcing controlling visions that restrict creativity, while undermining rights and democratic values in the name of "unknowns" (Srivastava et al., 2020).

For us personally, as (feminist) political ecology researchers, the pandemic has also required us to look critically at our own "interconnected vulnerabilities" and conventional ways of approaching and conducting research (Gonda et al., 2021). Those of us outside India were unable to visit sites and places we know and love for about 2 years. We were worried and anxious about the health and wellbeing of local people and colleagues we have known for a long time, wondering how they were coping with the ongoing uncertainties and crises which led us to seek ways to extend solidarity and care from a distance. In writing this paper, we had to fall back on remote interviews and digital ethnography with these communities, drawing on long-standing relationships and previous insights. As Gonda et al. (2021) argue, this also meant looking at our own uncertainties and vulnerabilities due to the inability to be physically present in the field with communities and research partners we would normally work with, and being aware of role of emotion, affect, care and solidarities in our own research networks.

Finally, can the ongoing crises around the pandemic be seen as an opportunity for transformation? The pandemic has laid bare problems with local and global inequalities, unequal access to public goods, and unsustainable human-nature relations. The pandemic intersected with ongoing crises of food, water, and climate, threatening already fragile livelihoods, and compounding uncertainties for vulnerable and marginalised people. COVID-19 has also highlighted the key role played by migrant workers and informal economies in propping up a capitalist system, and their neglect and invisibility in development discourses. In most countries, the responses from above have proven inadequate, arriving too late, or failing entirely. In some cases, authoritarian leaders have used the pandemic "other" and victimise minority groups, polarising society along racial, ethnic, and religious lines.

While responses from "above" have been inadequate, in many cases—as in our research sites—the pandemic has seen an outburst of local forms of mutual aid, solidarity, and civic action. There are also many examples of resilience at the local level, as demonstrated in this article, especially amongst communities that have largely relied on subsistence production. Large-scale protests have challenged racial inequality and injustices (e.g., Black Lives Matter protests in the US and Europe), calling for a fairer and more just future. COVID-19 has also highlighted the need for investment in public goods such as public health systems and the need to universalise access to water and sanitation. Historical studies of epidemics have shown how past plagues led to protest and new visions of political and societal organisation (Atwood and Williamson, 2020). Pandemic recovery efforts should build on these lessons to bring about the

systemic shifts needed to realise locally appropriate, socially just transformations to sustainability. By drawing on the knowledge and epistemologies of vulnerable communities in marginalised and fragile ecosystems, our research shows that bottom-up research, co-produced with local communities, can facilitate transformative pathways. More importantly, new forms of social solidarity have emerged during the pandemic as a response to the compounding of uncertainties, increasing communities' coping capacities and fostering knowledges for resilience that may stand them in good stead during future crises.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

AUTHOR CONTRIBUTIONS

LM wrote the first draught building on contributions from all the co-authors, developed the conceptual framework, added some text to the case studies and finalised the article. SS provided the Kutch case and read and commented on the article. DP provided most of the Mumbai text and added some sentences to the introduction and conclusions. JP authored a brief on COVID-19 and compounded uncertainties in India that this article builds on and led in addressing reviewers' comments. All authors contributed to the article and approved the submitted version.

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Exploring the Love Triangle of Authoritarianism, Populism, and COVID-19 Through Political Ecology: Time for a Break-Up?

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Authoritarian and populist regimes have used the coronavirus pandemic as another excuse to further push back on democracy. Through the lens of boundary-making, we discuss power processes in pandemic politics of three countries whose governments and power constellations rely on authoritarian and/or populist politics (Hungary, Nicaragua, and Guatemala). Our aim is to envision the conceptual and practical possibilities for breaking up the unhealthy love relationship amid pandemic politics, authoritarianism, and populism, and for ultimately dismantling all three. On the basis of secondary data, personal communications, and our lived experiences, we analyze pandemic politics in authoritarian and populist contexts, exploring their ambiguous and co-constitutive effects through three apparent contradictions. First, we discuss control, or the ways in which the framing of the pandemic by authoritarian and populist regimes as an emergency, a quasi-war situation, or an excuse for political opportunism entails an attempt to justify command-and-control policies upon public behavior, intimate daily life, and subject classification. However, these control measures also bring about contestation through self-quarantine calls, accountability-driven demands of epidemiological data, and/or counter-narratives. Second, we engage with the contradiction of knowledge, by pointing out how authoritarian knowledge politics regarding the pandemic are based on over-centralized decision-making processes, manipulation of epidemiological data, and the silencing of unauthorized voices. Simultaneously, these measures are challenged and resisted by counter-knowledge alternatives on pandemic data and the struggles for subaltern forms of knowledge that could make relevant contributions to public health. Third, we discuss the contradiction of subjectivation processes. Authoritarian regimes make extraordinary efforts to draw a line between those bodies and subjects that deserve state protection and those that do not. In this situation, multiple forms of exclusion intersect and are reinforced based on ethnic, political, national, and gender differences. The manipulation of emotions is crucial in these divisions, often creating "worthy" and "unworthy" subjects. This highlights interconnectedness among vulnerabilities and emphasizes how care and solidarity are important elements in defying authoritarian populism. Finally, we conclude by proposing strategies that would allow political

ecology to support prospects of emancipation for social justice, desperately needed in a pandemic-prone foreseeable future.

1 INTRODUCTION

The COVID-19 pandemic has given rise to unprecedented and related forces across the world (Fernando, 2020a; Fernando, 2020b). In many countries, pandemic-related regulations – as a tangible form of bio-power (Foucault, 1998) – have drastically impacted social relations and bodily freedom while granting extraordinary rights to governments (Boschele, 2020). In particular, authoritarian and populist regimes, a feature of the 21st century's new political moment (Mouffe, 2018; Scoones et al., 2018; Bello, 2019; Bernstein, 2020; Edelman, 2020), use the COVID-19 pandemic as another opportunity to push back further on democracy (Cupples, 2020; Guasti, 2020). In many places, competing claims and inherent uncertainties regarding the need for major control or, contrarily, a *laissez-faire* approach (vis- à-vis the spread of the virus, persons' mobility, and the dissemination of "fake" news on the pandemic) have contributed to legitimizing authoritarian and populist politics. The pandemic has relegated questions of social-environmental justice (for example, in relation to gender, race, class, geographical location, nationality, caste, and political affiliation) to a secondary level (Pleyers, 2020). It has also exacerbated or intensified processes of extraction and accumulation (Covid-19 Citizen Observatory Nicaragua, 2020; Benites and Bebbington 2020), once again transferring the risks and costs of the crisis to marginalized parts of the population (Acosta, 2020; Mbembe, 2020).

Yet, while the pandemic seems to have barely shifted the overall existing relations of neoliberal, postcolonial, and patriarchal forces, it has shaken them and exposed further cracks. In this article, we argue that these cracks potentially open up new possibilities for emancipation. The historically unique moment brought on by the pandemic, recently termed the "Virocene," indeed constitutes "a critical battleground" that can potentially challenge hegemonic power relations (Fernando, 2020a; Fernando, 2020b; Pleyers, 2020). We understand emancipation as fundamental alterations to political, economic, and socionatural relations, practices, values, and meaning-making (Nightingale, Gonda, and Eriksen 2021), and we focus on the *process* of emancipation rather than its outcomes. Moreover, in our understanding, contributions to emancipation do not always need to materialize in grand and visible actions, especially in authoritarian contexts; we do not imagine them as always leading to the full overcoming of oppression. We hence avoid the "action bias" in engagements with emancipation, recognizing that other, more subtle cognitive processes, motivations, desires, and aspects of our ethical activity can also count (Madhok, 2013). Furthermore, when thinking about emancipatory politics, we understand them as always "in the making" likely to be "(re)configured,

subverted, and transformed by individuals" (Sundberg, 2004, 46–47).

Discussions about pandemic politics in authoritarian and populist contexts have addressed topics such as the psychological reasons for people's acceptance of state measures that increase control and contribute to putting democracy on hold in the name of the pandemic (Caduff, 2020; Edwin, 2020; Envio, 2020; Wnuk et al., 2020); the ways in which pandemics have served as an excuse to strengthen border politics by states with a history of strong frontier security policies (Neyrat, 2010; Estévez, 2018; Kenwick and Simmons, 2020); and the authoritarian and undemocratic grip on power in times of COVID-19 (Kellner 2021). Others have highlighted the importance of the science-society-democracy nexus to argue for the dismantling of epistemic injustices (Fernando, 2020b, 650) and the promotion of epistemic plurality regarding the scientific knowledge that is supposed to feed into pandemic policies (Boschele, 2020). Thorough engagements with uncertainty, however, are missing in critiques of pandemic politics (Leach et al., 2020). In our discussion of the "love triangle" among populism, authoritarianism, and pandemic politics, we explicitly embrace the uncertain, unpredictable, and ambiguous character of power processes as they constitute potential openings for emancipation (Butler, 1997).

Recently, extensive discussions about the intimate relationship between authoritarianism and populism have suggested conjoining these two terms as one expression – authoritarian populism – to refer to undemocratic politics that rely discursively on the sovereign rule of "the people" described in homogeneous terms (Abts and Rummens, 2007; Bernstein, 2020 see also **Section 2.2**). The appearance of a third party (the pandemic) has created a crisis and put both authoritarian and populist politics under pressure. Our hypothesis – especially at the beginning of the pandemic when we started writing this article – was that these politics could be transformed given the pressure provided by the pandemic. This article focuses on this transformational potential.

In our analysis we emphasize the relational, cross-scalar boundary-making processes through which COVID-19 politics reinforce and, sometimes simultaneously, challenge authoritarianism and populism. We explain how these processes strengthen exclusionary knowledge claims to (re) produce binaries and produce particular subjectivities affecting specific population groups through, for example, the manipulation of fear and anxiety. Inspired by feminist and decolonial political ecology (e.g., Elmhirst, 2011; Sultana, 2015; Mollett, 2017; González-Hidalgo and Zografos, 2019; Mollett et al., 2020) and through a threefold conceptual focus on authority, knowledges, and subjectivities, we ultimately explore conceptual and practical opportunities for emancipation in these

times of interconnected social, political, environmental, and public health crises. As political ecologists coming from different backgrounds, epistemologies, vulnerabilities, and parts of the world that are differently affected by the pandemic, we join our efforts to strengthen calls for de-naturalizing (Mostafanezhad 2020), de-colonizing, and re-politicizing (Leach et al., 2020) responses to the pandemic. The concomitant focus on prospects for emancipation resonates with recent discussions on transformations to sustainability (Stirling 2014; Feola 2015; Manuel-Navarrete and Pelling 2015; Patterson et al., 2017; Blythe et al., 2018; Fazey et al., 2018; Scoones et al., 2020; Zografos et al., 2020) and their effort to embrace uncertainties, recognize entangled vulnerabilities, and envision new anti-imperialistic and democratic ways of living life in common.

In the next sections we discuss boundary-making processes in pandemic politics as our main analytical framework (**Section 2**). We then provide a brief reflection on our positionality and the methods we have used (**Section 3**). In **Section 4** and **Section 5**, we illustrate how pandemic politics in the selected contexts of Nicaragua, Hungary, and Guatemala are embedded in and imbued by an authoritarian and populist rule of law and how these might be contested by emancipatory initiatives. In **Section 6** we conclude by offering key elements for a political ecology research agenda.

2 PANDEMIC POLITICS, BOUNDARY-MAKING, AND EMANCIPATORY POSSIBILITIES

Intersectional and historical vulnerabilities are central to the burgeoning literature on the COVID-19 pandemic (Amon and Wurth, 2020; Dyer 2020; Leach et al., 2020; Matthewman and Huppatz 2020; Sokol and Pataccini 2020; Gonda et al., 2021; Menton et al., 2021). Yet political ecology analyses of the pandemic that engage more profoundly with possibilities for radical transformations are scarcer. Notable exceptions are Jude L. Fernando's articles in which he prompts political ecologists to radically rethink justice, vulnerability, and connectedness within socionatures (Fernando 2020a, b). Fernando argues that we need to imagine counter-hegemonic ways of engaging with the socionatural vulnerabilities that the pandemic has further revealed. In other words, we need a new moral perspective that opens up the conceptual possibilities for emancipation "without dismissing hegemonic and counter-hegemonic narratives in the name of otherness, difference, universalism or sameness" (Fernando 2020a, 685). Fernando also highlights the role of emancipatory subjectivities (understood as subjectivities shaped by emancipatory ideals) yet warns that highly repressive contexts are not favorable for their emergence: the challenge "is that of assisting those who are threatened by COVID-19 to question their own subjectivities as these have been embodied in oppressive economic and political ideologies" (719). This is important to counter the expectation of only a short-lived crisis and a longing for a "new normal" in which these exclusionary processes and ideologies are not further challenged. Indeed,

"[those made vulnerable by the arrival of the Virocene] may – understandably – shrink away from challenging dominant ideologies and practices, instead pursuing any number of alternative social paths within them – or, perhaps, simply accept the status quo and search for ways to survive. Moreover, privileged social groups who genuinely aspire to live life in harmony with society and nature, by being unwilling to give up their privilege or their well-intended actions, do not necessarily help transform the systemic injustices faced by the less privileged" (Fernando 2020a, 719).

To engage with the ongoing global conversation on the political dynamics brought about by the spread of the novel coronavirus, without losing sight of emancipation, we use a situated understanding of power processes. Inspired by feminist and decolonial political ecologies (Faria and Mollett, 2020; Zanotti et al., 2020), we pay attention to the ambivalent, complex, and uncertain character of power processes.

2.1 Power Processes and Boundary-Making in Political Ecology

A critical and nuanced understanding of power is indeed necessary to delve into the particularities of authoritarian and populist pandemic politics and to explore the conceptual possibilities for emancipation. We use the lens of boundary-making processes as our hermeneutical device to engage with this challenge.

Broadly speaking, there has been a tendency in political ecology to frame power in dual ways (Ahlborg and Nightingale, 2018). The "people" at the micro-level often get analyzed through empirical studies (e.g., Hill and Byrne, 2016; Aguilar-Støen, 2018), and power has been frequently discussed as a relational (in)capacity to act or as a vulnerability conceptualized as something negative and relatively fixed (Fernando 2020b). In parallel, the power of entities such as the state has often been understood through the resources (both material and symbolic) they hold and the knowledge they have monopoly on (Scott 1998; Robbins 2008). This understanding tends to render the notion of the state as a stable entity and risks constructing "the people" as helpless and agentless (hooks, 1990; Long 2001), as if power processes had a "structural determination" (Ahlborg and Nightingale 2018, 384).

More recently, some feminist and decolonial perspectives have complexified perspectives on power. Feminist political ecologists, for example, have argued that power processes can be simultaneously situated and interconnected, as well as cross-scalar, aleatory, and ever-changing (e.g., Elmhirst 2011; Nightingale 2011; Sultana 2011; Arora-Jonsson, 2014; Nygren 2015; Gonda 2019b; Nightingale 2019). These processes are a "relational, productive force that generates contradictory effects within the same actions" (Ahlborg and Nightingale 2018, 382). This understanding of power processes draws attention to the contradictory and ambiguous effects of power (Butler 1997), thereby signaling that "governance processes can both empower and create new relations of domination at the same

time" (Ahlborg and Nightingale 2018, 382). Thus, dominance and emancipation are not always in stark opposition. They are closely intertwined in a constant dispute over power balances whose outcomes are contingent upon an ample range of agencies (Butler 1997). An emancipatory initiative "may be vulnerable to co-option by the very forces it seeks to transform" (Fernando 2020b, 638). Importantly, no oppression is absolute and there are always possibilities for emancipation.

In her ground-breaking effort to move beyond sticky discussions of power as "being held," Andrea Nightingale has argued for more focus on *where* power processes occur and how these locations create boundaries. Such a focus helps us better understand how political authority works, i.e., "who is authorized to govern change, who is required to make changes on the ground, and what subjectivities and pathways emerge" (Nightingale 2018, 689). She recommends closer scrutiny of the making of three analytical boundaries, namely: 1) the state-society boundary, as in private versus public use and ownership, 2) the society-nature boundary, as in the arbitrary division between human-made nature and wilderness, and 3) the citizenship-belonging boundary, as seen in the "rights-holder citizen" versus "illegal alien" binary. According to Nightingale, the very boundary-making processes create "relational inclusions and exclusions that encompass the non-human, and shape what emerges as 'resources' and 'subjects' in need of governing" (Nightingale 2018, 689). For us, what is of key importance is how a better understanding of these boundary-making processes can help us to question the authoritarian and populist state as well as its knowledge politics under the pandemic, and how emancipatory subjectivities can emerge.

2.2 Authoritarianism, Populism, and Boundary-Making in Pandemic Politics

While we understand populism and authoritarianism as two separate parts of the "love triangle," scholarly discussions on authoritarian populism are useful for exploring boundary-making processes in pandemic politics under authoritarian *and* populist rule, as both typically thrive by binding consent and strategically shifting the state's role. When Stuart Hall, for instance, first coined the term authoritarian populism in 1978 (Hall et al., 2013) – and addressed it in subsequent essays (Hall, 1979; Hall, 1980; Hall, 1985) – his intention was to highlight the importance of the operations designed to bind or construct popular consent behind authoritarian politics. Consent in pandemic politics can be naturalized by delegitimizing any disagreement about the fact that "we" need to unite efforts to stop the virus's spreading. In other cases, consent can be naturalized instead by downplaying the importance of the pandemic. In either case, consent is politicized, and oppositional claims vis-à-vis the status quo are deemed by the authorities as obstructing efforts made in humanity's "common" interest. With pandemic politics, depending on the particulars of each region of the world, there seems to be a dual movement between the individualization of responsibilities (i.e., the strengthening of anti-statism) and the shifting roles attributed to the state, which is increasingly authorizing the use of coercive

power while retaining "most (though not all) of the formal representative institutions in place" (Hall 1979, 15).

An important feature of authoritarian and populist politics of the 21st century is their contradictory and chameleonic nature (Mamonova 2018; Scoones et al., 2018; Bello 2019; Edelman 2019; McCarthy 2019; Middeldorp and Le Billon 2019; Hart 2020). This feature often relies on narratives of inclusion, justice, national sovereignty, religious sentiments, and solidarity, which – at the surface – may sound emancipatory and aligned with building consent. It is often the pseudo-emancipatory narrative that provides the opportunity for authoritarian populist discourses to prosper (Lubarda 2018). Hence, a way to understand emancipation under authoritarian and populist rule stems from an analytical engagement with its contradictions (Neimark et al., 2019).

Moreover, as (Scoones et al., 2018, 2) note, "authoritarian populism typically depicts politics as a struggle between 'the people' and some combination of malevolent, racialized and/or unfairly advantaged 'Others,' at home or abroad or both." They argue that "[c]onflating a diverse and democratic people with images of dangerous and threatening crowds – 'a brutal and ignorant mass' (Rancière et al., 2013) – allows for the putting of one ideology and position 'first,' while excluding others and generating tensions across society" (Scoones et al., 2018, 3). Similarly, for Slavoj Žižek, what is at stake is "how to sustain the fiction of the Other" and how to leave "the subject vulnerable to another paranoiac impostor" (Zizek, 1998, 1).

In engaging with boundary-making processes in pandemic politics under authoritarian and populist rule, there is a need to analyze "who is incorporated and to what extent, and who is excluded, and under what conditions" (Scoones et al., 2018, 2, building on; Rancière et al., 2013). Put somewhat differently, we need to understand how (and which type of) exclusions sustain the intersection between pandemic politics, authoritarianism, and populism (what we call the "love triangle"). Gisselle Benites and Bebbington (2020), for example, illustrate how boundary-making processes in Peru have further legitimized extractive mining, which benefited economic and political elites under the pandemic, when most other economic activities in the country, in particular those of people with fragile livelihood strategies, were shut down.

Additionally, a decolonial perspective on boundary-making processes in authoritarian and populist politics allows for holding in creative tension the question of how such processes can rely on and *at the same time* challenge existing hierarchies based on the worst cases of capitalism, racism, and patriarchy. For emancipation to be put back on the political agenda, even in times of pandemic, we must not lose sight of this colonial legacy. We need to expand "the archive" (Mbembe 2015) and re-center marginalized knowledges, epistemes, and cultures to be able to think beyond the status quo (Ngugi, 1993).

2.3 Authority, Knowledge Politics, and Subjectivities in Pandemic Politics

The making – and remaking – of state-society, society-nature, and citizenship-belonging boundaries through pandemic politics

requires mobilizing consent as well as generating strategic exclusions and inclusions. These processes are based on claims of authority and knowledge, as well as the creation of particular subjectivities. In what follows, we expand on the threefold conceptual focus that we adopt to envisage opportunities for emancipation under authoritarian and populist pandemic politics.

2.3.1 Authority

Drawing on key political-ecology scholarship (Valdivia 2008; Sikor and Lund 2009; Nightingale and Ojha 2013; Burke and Shear 2014; Svarstad, Benjaminsen, and Overå 2018), we understand authority as being always in the making "through the process of successfully defining and enforcing rights to community membership and rights of access to important resources" (Lund 2016, 1199), including knowledge. Thus, the workings of pandemic politics in terms of both normative directives and knowledge trustworthiness will reveal the essence of such authority (Lund 2016, 1221). The attempts at governing both society and its changes, and of dealing with pandemic-related questions, will be as much about governing those citizens that the regime constructs as its "people" (Valdivia 2008) as it is about dealing with the virus per se. Rather than understanding authority as a form of power held by the state, we understand it as a set of power relations co-constitutive of the state itself. It is through the exercise of public authority, entangled in a set of human and non-human relationships, that the state emerges as a socio-natural becoming" (Nightingale, 2018). Considering this notion, struggles over authority become foundational to state-society boundaries (Nightingale 2018, 692) as power processes are performative and relational: ". . . states do not have power, rather, they have the exercise of power; its recognition and legitimization (Sikor and Lund 2009) *produces* 'stateness' and subjects" (Nightingale 2018, 692 italics in original). This understanding of the state as a multisited and contradictory entity, whose (re-)negotiation can have unintended outcomes, is key as it opens up the conceptual possibility for re-imagining public authority (Nightingale 2018).

2.3.2 Knowledge

Knowledge politics are deeply embedded in and imbued by authority. Our reliance on a decolonial perspective permits a nonhierarchical and relational reading of power, that is, a reading where the exercise of power at the geopolitical, biopolitical, and micro-political levels of pandemic policies are not unidirectional but instead affect each other and have contingent results (Castro-Gómez 2007; Beltrán-Barrera and Yilson, 2019). The decolonial perspective underscores forms of onto-epistemic subordination – or "cognitive empire" (Ndlovu-Gatsheni and Sabelo, 2021) – geared at suppressing nonmodern or nonuniversal modes of constructing knowledge as well as of living and being in the world (Grosfoguel 2013; Blaser 2014). This violence is, for instance, manifested in the reduction of the ontological difference to a cultural difference; that is, complex forms of knowledge of, or experiences and relationality with, the world are reduced to a different (and wrong) way of understanding a unique world with a universal reality (Escobar 2014; Kothari et al.,

2019; Blaser 2020). Through this production of a hierarchy of subject positions, some subjects are authorized to know the world through so-called objective knowledge while other subjects can only interpret it (but not understand it) from their belief systems (Escobar 2014). Because "[t]he asymmetry of ways of knowing overlaps the asymmetry of powers" (De Sousa Santos, 2009, 116), not having "valid" cognitive authority transforms into lack of political authority to decide (Blaser 2020).

In the context of pandemic politics, techno-scientific and technocratic logics are imposed, reducing or completely foreclosing the possibilities for dialogue between plural public health approaches based on local knowledge and needs. Fernando's discussion of "anti-science trends" shows how "political hostility to scientific knowledge also exacerbates the vulnerability of racially marginalized communities to COVID-19," and the need for a "knowledge justice framework" rather than "better or more accurate scientific knowledge." He writes: "the survival of (neoliberal) regimes thus depends not only on production but also on the suppression of scientific knowledge that is detrimental to the (neoliberal) narrative" (Fernando 2020b, 649). Decolonial knowledges are plural; they help us rethink, embrace, *and* challenge embodied experiences, without establishing an opposition between science and traditional knowledge; they can affect each other and sometimes complement each other, although this process is not always free of tensions (De Sousa Santos 2006; Horowitz 2015).

2.3.3 Subjectivities and Emotions

The citizenship-belonging boundary is key to our discussion of authoritarianism and populism as it relates to who (citizenship based on specific intersectional claims) and what (e.g., human bodies' mobility) become targets of state rule. These boundary-making processes create subjects through subjectivation processes, i.e., the ways in which people are brought into relations of power. Subjectivation is always ambiguous (Butler 1997; Mbembe 2001) because it paradoxically also confirms subordinating norms (Butler 1990). Thus, "the exercise of power is ambivalent and produces contradictory outcomes in many instances" (Ahlborg and Nightingale 2018, 386). Contested boundaries help (re-)imagine political authority and socio-environmental relations, including subjectivation processes related to pandemic politics.

Decolonial literature importantly points to counter-subjectivation processes by examining, for example, forms of political authority beyond the state (Escobar 2014; Middleton 2015; Álvarez and Coolsaet, 2020), such as autonomist territorial initiatives (Zibechi 2006) and the appeal to the principles of sovereignty and self-determination (Middleton 2015). Therefore, by "carefully observing the actions of the condemned, in the process of becoming a political agent" (Maldonado-Torres 2007, 162 our translation) as a way to "re-invent social emancipation," struggles are made visible in their own terms and according to their own conditions and experiences (De Sousa Santos 2006).

Finally, feminist political ecology's special attention to the embodied level also brings an important and under-scrutinized topic into the debate: that of the emotional aspects of processes that make people vulnerable (Sultana 2011; Sultana 2015; Singh

2017; González-Hidalgo and Zografos 2019; Graybill 2019). Discussing how emotions and affect are manipulated by pandemic politics and how they can constitute other ways of knowing and experiencing pandemic politics (Anderson and Smith 2001), as well as how they can open up the conceptual possibility for emancipation (Nightingale, Gonda, and Eriksen 2021), is key for envisaging relational processes based on solidarity and care (Gonda et al., 2021). West-centered knowledge has typically favored "logos over pathos" (Boff 2005), thus exacerbating the divide between nature and culture and undervaluing ways of knowing that are relational, experiential, affective, embodied and emotional because they are not based on what is deemed to be scientific knowledge (Kothari et al., 2019).

3 METHODS AND POSITIONALITY

This article builds on a collaboration among peers who felt an urge to unite their voices as fellow researchers and world citizens working on similar topics to ask: When, if not now, will we stop and engage with the meanings and consequences of emancipation? In particular, we connect through our concerns for ongoing populist and authoritarian politics in countries that all of us have lived and worked in, namely: Hungary, Guatemala, and Nicaragua. The shared analysis and discussion push us to reflect on our own position with respect to the existing power hierarchies in each of our respective (home and host) countries and our role as critical, caring, and engaged citizens and academics. This position may be different for every one of us, but we are united in the desire to engage with solidarity and critical reflection to expose processes of social injustices, especially as this pandemic appears to magnify the skewed distributive processes of broader socio-ecological crises. Even more so since some of the glimpses of hope and solidarity that we have seen at the beginning of the pandemic appear to have been watered down into a political status quo by the time we are finalizing this article.

In very different ways, we have all been confronted with lived contradictions and mixed feelings of fascination, fear, hope, and fatigue since the start of the pandemic. Some of us have lived through very strong confinement measures while others have faced tough choices of voluntary confinement related to an apparent lack of state regulation. Especially for those who were away from home throughout this time of reduced mobility and differentiated experiences, the emotional toll has been heavy. We have also experienced changes in our workplaces. These include bureaucratic impositions and expectations regarding transitions to online learning and research, which have impacted chances for intellectual creativity, as well as the confrontation with labor differentiation when some had the possibility to go into (voluntary) confinement while others could not. Even from our privileged positions in terms of (comfortable) confinement, strong personal networks, and rather stable professional situations, as for so many people, it has been a physically and emotionally trying endeavor to combine care work with our professional activities. At the same time, this period has created a momentum to reflect on what matters most in life, with instances of both optimism and pessimism.

The following analysis is based on a review of official and nonofficial secondary sources, media publications, personal communications, and a review of academic literature. The main search was completed by mid-November 2020. Since then, new articles on the topic are published regularly. As mentioned, the selection of cases grew "organically" through our combined reflection on the contexts we are familiar with.

4 CASE STUDY CONTEXTS: HUNGARY, NICARAGUA, AND GUATEMALA

In this paper, our objective is not to enter in discussions about where Hungary, Nicaragua, and Guatemala are situated on the authoritarian and populist scale. Rather, we aim to demonstrate how the boundary-making processes in pandemic politics rely on, and reinforce, authoritarianism and populism. We hope to better understand the practices of pandemic politics in other authoritarian and populist contexts and spur further reflections on productive conceptual possibilities for emancipation that stretch beyond the struggle against populism and authoritarianism.

Authoritarian and populist politics take different forms in our cases. Hungary – where Prime Minister Viktor Orbán has won three successive elections since 2010 – is recognized as one of the most authoritarian states of Europe. In the international and opposition media, its politics are qualified as right-wing (McLaughlin 2018), anti-liberal (Tharoor 2017), and anti-democratic (Rovny 2016), and Orbán's regime is often compared to Putin's Russia or Morawiecki's Poland. Among other strategies, the Hungarian regime has excluded political detractors, favored privatizing agricultural land, via processes that would allow national economic and political elites to concentrate a large part of the land and agricultural subsidies granted by the European Union (Gonda, 2019a; Bori and Gonda, 2021). This capitalist accumulation has been accompanied by the dismantling of workers' unions, the neutralization of the political opposition, and the creation of a media empire to control the national political agenda (Scheiring and Szombati, 2020). In this way the regime has managed to limit the emergence of civic and political opposition while appearing to maintain democratic institutions. These institutions, however, favor the ruling party and deploy coercive patronage and a nationalist but exclusionary discourse through social programs for disadvantaged sectors (Scheiring and Szombati, 2020). In Hungary, the pandemic prompted the declaration of a state of emergency as early as March 2020, which has allowed the regime to, for example, modify the Constitution in ways that institutionalize the oppression of LGBTQ people, among other exclusionary measures that were already in process before.

In Nicaragua, the ruling (and former revolutionary) political party, the *Frente Sandinista de Liberación Nacional* (FSLN), has developed strategic alliances and increased repression, which have contributed to the emergence of an autocratic regime. Since its return to power in 2006, the Sandinista regime relies on neoliberal economics while drawing on a post-neoliberal, morally conservative, and religious discourse (Duterme 2018). The early alliance with Hugo Chávez's Venezuela gave President

Daniel Ortega access to discretionary loans and international markets, which facilitated a pact with the private sector and the possibility of financing social programs to maintain his party's social base (Martí Puig, 2019; Cruz and Arturo, 2020). Additionally, his cooperation with conservative sectors of the Catholic Church enabled him to deploy a populist propaganda that mixes strong personalism with notions of socialism and Christianity. This, for example, is reflected in political slogans such as "Nicaragua Cristiana, Socialista y Solidaria" (Nicaragua Christian, Socialist, and in Solidarity), written on giant banners that show a photo of Ortega and his wife (and currently also vice president), Rosario Murillo, thus instantiating a messianic image of Ortega (Aragón 2018). The regime has progressively installed a new dictatorship by governing according to an undemocratic model of political and economic extractivism (Osorio, Cortez, and Sánchez 2018), dismantling the incipient institutions (Contreras, 2011), ignoring social plurality (De Gori, 2018), and weakening any meaningful political opposition (especially from those calling to respect the base of incipient democracy: freedom and power independence). Consequently, a socio-political crisis broke out in 2018, resulting in continuing and ever-increasing social polarization and political repression (De Gori, 2018). In March 2020, the Nicaraguan government's initial strategy was to dismiss the threat of COVID-19. This included, for instance, medical staff's initial ban on wearing mouth-masks, arguing that this would create unnecessary panic. However, recognizing that a new sanitary crisis on top of the existing economic, political, and environmental ones could be used by opponents in the political struggle, the government promoted public activities for their political supporters as a symbol of strength, thus calling for solidarity with all people of the world suffering from COVID-19, as if Nicaraguans were immune to the virus (Buben and Kouba 2020; Salazar Mather et al., 2020).

Guatemala has been marked by economic, political, and social violence for decades. In part, this is because two thirds of its arable land is concentrated in the agro-industries of sugar cane, palm oil, and rubber (FAO 2018), while 60 percent of the population currently lives below the poverty line – a figure that rises to 78 percent in the northwestern provinces, inhabited mostly by indigenous peoples (INE, 2020). In this context, economic and military elites exercise direct violence against those who are seen as "promoter[s] of social conflict" (Aguilar-Støen and Bull 2016, 35 our translation) because they oppose the extractive agenda of the national development model. The violence and restrictions on human rights have led to descriptions of Guatemala as a hybrid regime that mixes characteristics of liberal democracy with autocratic elements (The Economist, 2020). The current tensions between the traditional and the emerging elites over control of the state (Aguilar-Støen and Bull 2016), and recent corruption and illicit financing scandals, led to the electoral victory of President Alejandro Eduardo Giammattei Falla – a right-wing populist – based on his promise of "working for the people." Giammattei, whose first year in office was 2020, is a trained physician, whose degree in medicine seems to have helped him foresee what was coming with the spread of the SARS-CoV-2 virus and likely prompted a swift response as of 13 March 2020, after the country's first infection was officially acknowledged. This sort of medical leadership, however, rapidly diminished due to widespread

mistrust among the citizenry vis-à-vis a perceived lack of transparency in how the available emergency funds were being used. Giammattei embodies an authoritarian ruling style, which is deeply seated in an ethos of the Guatemalan oligarchy, whose right-wing activism stretches beyond national borders. His elitist rule, colloquial demeanor, and medical training make him a major player in the love triangle of authoritarianism, populism, and the pandemic.

5 AUTHORITARIAN AND POPULIST PRACTICES OF BOUNDARY-MAKING IN PANDEMIC POLITICS

When analyzing the cases of Hungary, Nicaragua, and Guatemala through the making of the state-society, society-nature, and citizenship-belonging boundaries (Nightingale 2018), three main tensions or contradictions come to the fore with respect to control, knowledge politics, and processes of subjectivation. In what follows, we discuss these tensions and identify some of the key challenges to breaking up the unhealthy tripartite love relationship between authoritarianism, populism, and the COVID-19 pandemic.

5.1 The State-Society Boundary: The Contradiction of Control

The pandemic has highlighted an important conceptual challenge of emancipation: how control can prospectively appear positive in the face of planetary emergencies, yet retrospectively can often be seen as negative and undemocratic (Stirling 2015). In non-crisis times and in modern democracies, measures such as limiting people's mobility and the imposition of curfews would probably be deemed problematic. During a pandemic, however, these same measure may be perceived as useful and justified (Wnuk, Oleksy, and Maison 2020). Similarly, in other crisis situations, such as the aftermath of terrorist outbreaks or disasters, people are also more willing to accept surveillance and control of their liberties if these measures provide a sense of increased safety (Klein 2007; Asbrock and Fritsche 2013; Wnuk, Oleksy, and Maison 2020; Kaufman 2021). Roccato et al. (2020) documented this tendency, based on survey data collected in the Spring of 2020 in pandemic-affected Italy, underscoring how the pandemic and related socio-economic threats contribute to increasing support for undemocratic political systems.

5.1.1 Emergency Discourse and Normalizing the Exceptional

In Hungary, the prescription for control has been reinforced through the framing of the pandemic as an "emergency" and "disaster," which led the way to further securitize the pandemic (Molnár, Takács, and Harnos 2020). More specifically, Prime Minister Orbán's communication on social media has relied on military metaphors to legitimize the measures taken during the state of emergency and to amplify the persuasive effect of his messages on citizens. As early as on 6 March 2020, and as reported by the pro-regime research institute Századvég Foundation, the pandemic ranked third (at 56 percent) among things most feared in the minds of Hungarians after climate

change (87 percent) and illegal migration (63 percent). This study was not aimed at assessing Hungarians' fears; rather, it served to put the pandemic on the regime's propagandist agenda as one of the major "threats" to Hungarians' lives. This is similar to how illegal migration has been conveniently used by the regime, since 2015, to justify its nationalist politics (Scott 2020), and how climate change now also serves anti-migration and eco-fascist advocacy in the United States (see the idea of ecobordering in Turner and Bailey 2021, or the most recent examples in the United States such as Republicans in Arizona now using climate fears for anti-migration purposes in Kaufman 2021). Like his rhetoric on illegal migrants, Orbán's messages regarding the pandemic on his social media platforms

"[mobilize] the technique of personalization, which involves presenting a threat and offering rescue or shelter from it (...). Fear (...) [is] presented as instilled by imminent danger threatening human lives, society and economy. Discourse (...)[focuses] on national cohesion and unity of action but in the photos the PM (...) [is] visualized as the protagonist of the fight against the COVID-19 virus (Molnár, Takács, and Harnos 2020)".

Using the discourse of emergency to reinforce control has served to perpetuate and deepen specific exclusions – a similar phenomenon has been described in other emergency situations such as after the 2010 earthquake in Chile by Gould, Garcia, and Remes (2016). In Hungary, the state of emergency has, for instance, allowed the regime to institutionalize intolerance against the LGBTQ community by inscribing gender normative principles into the Constitution under the guise of the pandemic. So far, however, critiques of this measure have tended to focus on *how* the state of exception has been used and abused in Hungary rather than questioning its *raison d'être* (see, e.g., Guasti, 2020).

The emergency discourse justified by the pandemic has been steadily acquiring a permanent character with important consequences on the consolidation of the state-society boundary. Originally understood as something extraordinary, emergency policies become "sticky" (Dodds et al., 2020) and get normalized in the "risk society" (Beck, Lash, and Wynne 1992). Thus, under the pandemic, the state-society boundary is constantly remade in such a way that the state appropriates exceptional rights for controlling citizens, bodies, borders, and mobility while certain types of (racialized, gendered) subjects become excluded. In Hungary, this manifests in measures directly related to stopping the spread of the virus, but also to measures that are totally unrelated. The initiatives taken under the guise of the pandemic against academic freedom and refugees help reinforce an authoritarian and populist regime through its racist, intolerant, illiberal and extreme-right underpinnings (see also **Section 5.2.1**).

5.1.2 Economic and Political Control by and for the Elites

Control is not necessarily only reinforced from a central vantage point. Historical privileges – in particular those of economic and political elites, who often support authoritarian and populist

regimes – are reproduced in multiple ways through pandemic politics. While the coronavirus pandemic seems to be rewriting economic geographies in many countries, there is a clear rush by already powerful economic actors to further consolidate their power. In Hungary, the regime's oligarchs do so by grabbing most public procurement tenders on mask and respiratory device purchases (Hungary Today 2020), while strategic alliances, such as those with China and Russia, are reinforced by becoming buyers for their vaccines. This is a way for the Orbán regime to secure economic and political support within and outside Hungary's borders (Sokol and Pataccini 2020).

In Guatemala, pandemic politics illustrate the further maintenance of colonial legacies and authoritarian modes of rule that perpetuate oppressions related to ethnicity and class (Hurtado-Paz y Paz, 2019; Bergeret 2017; Caballero-Mariscal 2018; López de la Vega, 2019). For example, private hospitals in Guatemala, particularly the wealthiest ones, tend to offer higher-quality services while state-sponsored medical facilities are oftentimes understaffed, undersupplied, and underfunded. In fact, first-line medical staff dealing with the pandemic had not received their salaries as late as several weeks into the pandemic despite the strenuous conditions that they had to endure.

In Nicaragua the regime has also undertaken strategies to secure its political and economic control and that of its elites. These included the Nicaraguan president presenting himself as a victim of a coup and subject to hostile (foreign and internal) forces – both in light of the popular uprising of 2018 and in light of the pandemic. Systematically neglecting the importance of the threat caused by the virus in itself was also a way to avoid the need to economically support those hardest hit by the crisis. For example, at an extraordinary session held at the Nicaraguan National Assembly at the end of March 2020, the president of the economic commission requested that the microphones of any deputy of the opposition party who wanted to talk about the pandemic be turned off (Team Envío 2020). He also disqualified opposition members' proposals to provide economic aid to people working in informal and small businesses who suffered from the pandemic-related economic crisis as "astonishing political opportunism" and "madness" (Team Envío 2020).

5.1.3 Controlling International and Local Mobility

Controlling the nations' borders and people's mobility is another strategy to physically and geographically delimit the boundaries of a nation-state and its society through pandemic politics. In the case of Hungary, the underlying script of border politics under the pandemic is the continuation of the country's oppressive refugee politics, with fences at the borders, based on a racialized narrative. While Nicaragua did not officially close its borders, the narrative stated that those who stayed within the frontiers of the country were safe, thereby reinforcing the image of a regime that was in control of the situation despite the absence of any meaningful action.

In general, border politics under the pandemic have the potential to reinforce the distinction between those citizens who ought to be protected by the borders and those who are not. It also shows how "[i]nternational borders are a handy heuristic for decision-making under uncertainty" in

authoritarian and populist politics (Kenwick and Simmons 2020, 7). Michael Kenwick and Beth Simmons note that, in general, states that have invested heavily in border politics before the pandemic tend to "redeploy those investments in fighting the pandemic" (2020, 19). The United States' border politics vis-à-vis Central American migrants show this continuity, while Nicaragua's (lack of a) border control strategy can be attributed to a desire to justify how well its ruling regime controls the pandemic.

Another type of mobility control has also been central to pandemic politics' reinforcing of undemocratic measures. The prohibition of citizen gatherings, for example in Hungary, – including strikes and political rallies – have further limited possibilities for the opposition to voice their demands. In Nicaragua, the regime reclaimed the monopoly of mobilization, for example, by organizing marches in the name of "love in times of COVID" (El 19 Digital, 2020). These marches insinuated that life could and should continue as usual, thereby downplaying the threat of the virus and strengthening the perception that the regime is in control of the situation – i.e., reinstating government authority.

A potentially emancipatory tension, then, lies in how this control is not free of contestation. On the one hand, in its attempt to control the population in increasingly authoritarian ways, the process of boundary-making generates more exclusions than ever. Exclusions become a way of asserting the state's authority and subjugating certain members of society to preserve what is considered the existing order under the "state of exception" (Agamben 2005). On the other hand, while this seems to be accepted to a certain extent under the "state of exception," we argue that this is also where current tensions emerge and can constitute the opening from which emancipation can arise. The cracks in authoritarian and populist politics could widen once the oppressed manage to ally and politicize oppositional claims on pandemic politics, as we show below.

5.2 The Society-Nature Boundary: Contradictions in the Pandemic's Knowledge Politics

The main tension that emerges at the society-nature boundary relates to the pandemics' knowledge politics and the use of two apparently opposite but equally exclusive approaches. On the one hand, the technocratic approach focuses on science and certainty to address a biological and bodily issue. This side of pandemic knowledge politics has been underpinned by efforts to reduce uncertainties and expand the field of the knowable, even though it is increasingly accepted that more information does not necessarily reduce uncertainty (van der Steen et al., 2016). On the other hand, we have the approach based on post-truth politics, which includes elements of economic nationalism, anti-institutional rhetoric, social polarization (e.g., between pro- and anti-pandemic measures) (Neimark et al., 2019), and even different levels and forms of denialism (Altinörs 2020).

Using these two approaches, authoritarian and populist regimes leave little room for deliberation on pandemic politics. Rather,

these regimes silence dissenting voices while engaging in a race for more and better "scientific" information or singling out these voices as conspiratorial and destabilizing. Consequently, these two types of knowledge politics avoid contemplating other forms of knowledge through the co-production of knowledge and responses to the pandemic (Bremer et al., 2017; Goldman, Turner, and Daly 2018). These other ways of knowing, based on ontological and epistemological pluralism, include emotions, affective relations, and experiential knowledge (Anderson and Smith 2001) or invoke the need to embrace post-normal science (Ravetz 2020). The latter focuses on safety and (shared) responsibilities rather than on the probabilities of risk. It, hence, embraces the ethical, social, and political aspects of safety (Ravetz 2020) and opens up the possibility to envision processes of emancipation rather than ways to return to "normality."

5.2.1 Struggles Over Data Management and Knowledge Claims

In Nicaragua, the knowledge politics behind data management on infection and death rates have been marked by authoritarian and secretive practices. This includes a systematic downplaying and denial of cases and deaths in official statistics and opaque reporting. Official statistics in Nicaragua, for example, report an increase in lung diseases rather than attributing hospitalizations or deaths to COVID-19 (Nicaraguan Sciences Academy, 2020). The official information on COVID-19 is centralized, incomplete, and confusing. For instance, the official statistics presented via a press release in the second week of November 2020 (Nicaraguan Ministry of Citizen Power, 2020) attributed one death to COVID-19 that week; but they did not report on the deaths of people who were officially in intensive care for pulmonary thromboembolism, diabetes mellitus, acute myocardial infarcts, hypertensive crises, and bacterial pneumonia that could have been COVID-19 related. This incomplete and confused weekly reporting has consistently been the practice of health authorities in Nicaragua. In addition, the official media also played a role in downplaying the threat. For example, at the beginning of the pandemic, one official journalist described the virus as "the Ebola of white and rich people" (100% Noticias, 2020a) thereby downplaying the virus's impact on the majority of the population.

Importantly for emancipation, though, this secretive and strategic handling of COVID-19 data has prompted initiatives based on counter-knowledge claims such as those of the Covid-19 Citizen Observatory Nicaragua (2020a) (see www.observatorioni.org). The Citizen Observatory is a collaborative and participatory effort by an interdisciplinary team that collects data from organizations, networks, and citizens with the objective of filling information gaps on COVID-19 in the country, resulting in thirty-five press releases as of November 2020. They built on assembled information from citizens and medical personnel in the country's main cities. By 18 November 2020, the Citizen Observatory had reported 2,796 deaths, 5 percent of them from pneumonia and 95 percent suspected to be related to COVID-19. In contrast, the governmental report one day earlier had stated less than 200 deaths from COVID-19 (Nicaraguan Ministry of Citizen Power, 2020).

In addition to this participatory data management, citizens have been circulating videos and photos on social media about

people collapsing in the streets or about secretive nighttime burials. This kind of circulation of information is similar to what happened during the most intensive period of the recent political crisis (April–May 2018), when people used cellphones to expose the massive mobilization that was taking place on streets and the assassination of protesters by regime-supported snipers.

Authoritarian and populist regimes typically deploy efforts to silence these counter-knowledge claims. The Nicaraguan regime, for instance, has been discrediting medical organizations that have called for lockdowns. The regime also encouraged public hospitals to fire doctors who question their authority (Munguía 2020), including Nicaraguan doctors who stated that health authorities had forced them to change the reported diagnosis of COVID-19 to other illnesses (López 2020). Under the pandemic, police violence against journalists and the media that started after the 2018 insurrection has continued. For instance, in the midst of the pandemic (on 27 October 2020), a law against "cybercrime" was approved by the Nicaraguan National Assembly (2020b). Journalists and civil society organizations have interpreted this law as a means to criminalize the production and dissemination of alternative, non-official data. On 28 May 2020 Sergio León, a journalist for Radio La Costeñísima was judicially summoned for a "defamation and insult" lawsuit for "unfaithfully" reporting on the COVID-19 situation through an interview with a public official (PEN International 2020); and on 14 July 2020, a female lawyer was declared guilty of defamation after having shared six audio recordings stating that a political supporter of the ruling party died of coronavirus in the northern city of Somoto (Barrantes 2020).

Under pandemic politics, efforts to silence dissident voices have been implemented in Hungary too: Act XII of 2020 about the Containment of the Coronavirus (also called the Coronavirus Law), made the deliberate distribution of misleading information that obstructs responses to the pandemic punishable by up to 5 years in prison. The use of "knowledge" on how the pandemic started, and what solutions to the pandemic ought to be, is also clearly a battlefield in Hungary (see more in **Section 5.3.1**). The Nicaraguan Citizen Observatory on COVID-19 may also be pressured for its activities through similar legal strategies as the ones in Hungary. Nevertheless, in response to the Nicaraguan regime's attempts to silence the Citizen Observatory, the latter uses strategies based on maintaining anonymity and shared and collective responsibility. In that sense, the Observatory does not only provide hope in terms of emancipatory power, but also is an example of how to survive in oppressive conditions.

5.2.2 Pandemic Knowledge Politics and the Coloniality of Knowledge

On 6 June 2020, a Maya K'ekchi' spiritual leader and herbalist, Domingo Choc, was burned to death in the northern province of Petén, Guatemala, by a mob accusing him of witchcraft. Soon after, social media in the country was flooded with racist messages implicitly supporting the assassination (Monzón 2020), and investigators found that religious fundamentalism was a prime motivator for the crime. Shallow explanations for this atrocity soon appeared, blaming ignorance and rural poverty for what happened to Mr. Choc. Fernando Barillas (2020) shed a different light on this case by

framing these acts of violence as stemming from an anachronically obtuse rationale deeply connected with other exclusionary processes within pandemic knowledge politics. Mr. Choc's knowledge and practices were deemed threatening to a particularly self-righteous notion of spirituality, despite international recognition of the scientific and social relevance of his work (Monzón 2020). This assassination, and the controversies that followed it, show how deeply rooted some processes of boundary-making are, and how they crystallize under the pandemic reinforcing the divide between "valid" knowledge and any wisdom stemming from subaltern actors whose audacity to persevere is dealt with in this case by setting them on fire in a context characterized in recent years by an average of 130 lynching events per year (Corvino, 2021).

Pandemic knowledge politics in both Guatemala and Nicaragua reinforce the historical undervaluation of proposals coming from indigenous people and subaltern sectors of civil society. This closes down opportunities to develop potentially emancipatory social experiences (De Sousa Santos, 2009), multicultural innovations, and multi-epistemic collaborations (Escobar 2014) through new networks of care, solidarity, and various non-hegemonic approaches to pandemic knowledge politics. It may also have negative implications for indigenous peoples: it risks undermining their capacity to adapt autonomously to the threat of the virus, hampering the creation of conditions for these populations to transform, adapt, and innovate knowledge and norms from within their own unique worldviews and not only according to "the experts" prescription (Escobar 2014). These innovations may include territorial approaches to health management that respect indigenous worldviews and ontologies and community forms of care. These territorial approaches to health management take into account the "biocultural" security demands of the members of the territories in terms of mixed health models that consider both their own worldviews and the supply of "modern" health services. (Borde and Torres-Tovar 2017). These initiatives also incorporate attention to exacerbated violations of indigenous rights in the context of the pandemic, such as territorial invasions and food insecurity (Acosta 2020). In both Nicaragua and Guatemala, increased threats to indigenous rights will be critical elements due to the impact of recent hurricanes Eta and Iota in November 2020, which destroyed entire communities (many of them with large indigenous populations), forests, and infrastructures – another disaster that intersects with the political, economic and public health crises.

5.3 The Citizenship-Belonging Boundary: Creation of Subjects and Manipulation of Emotions

5.3.1 Gendered, Racialized, and Politicized Processes of Othering

Through pandemic politics, citizens are governed in multiple ways that go beyond merely regulating public behavior through mobility constraints or the prohibition of certain activities. In Hungary, another important process of subject-creation, which helps to secure the regime's authority, relies on constructing strategic boundaries between those citizens that are "worthy" of protection and those that are not. This is in continuity with Prime

Minister Orbán's broader authoritarian political project and the ways in which "enemies of the Hungarian people" are strategically constructed. For example, the first case of COVID-19 in Hungary was, according to official sources and the mainstream media, "imported" by an "Iranian" person (Amon and Wurth, 2020). The Iranian person was described in governmental media in such a way that readers would imagine a violent Muslim man with a big black beard (in Hungary the public discourse has been racist and anti-refugee, especially against Muslims). In fact, it was a young woman in her twenties of Iranian origin but of Swedish nationality who was studying medicine in Hungary (HVG 2020). The young woman was expelled from Hungary, along with fellow Iranian students who tested positive for SARS-CoV-2, based on a claim that they failed to cooperate with the health authorities. While the legal persecution of the Iranian students was later dropped, their case helped the regime to stoke xenophobia by establishing a discursive link between illegal migration and the pandemic as early as March 2020 (Amon and Wurth, 2020), even if the "Iranian persons" in questions had no link whatsoever to illegal migration.

The ways in which the creation of intersectional exclusions in pandemic politics helps consolidate an authoritarian and populist grip on power is also illustrated by how the state of emergency allowed for the introduction of the concept of gender at birth into the Hungarian Constitution, thereby ending legal recognition of trans people as well as their possibilities for sex change (Walker 2020). The only link between these anti-LGBTQ measures and the pandemic is that it would have been difficult to gain approval for them in ordinary times as members of oppositional political parties in the Parliament would probably not voted for these measures. Under the state of emergency, however, their votes were not needed. While the racist discourse has not prompted any major oppositional echo in Hungarian society, the anti-LGBTQ measures have led to the emergence of a widespread campaign on social media with the slogan "A Family Is a Family" ("A Család az Család"), which has somewhat united civil society members against the regime's exclusionary narrative and measures.

In Nicaragua, political subjectivation and othering are reinforced by pandemic politics in a context of high political polarization. Those who criticize and demand measures to control the pandemic are perceived by the regime as "golpistas" (coup plotters) and portrayed as terrorists and destabilizers who threaten the economic recuperation, the tranquility, and the emotional well-being of "the people" through the generation of panic and the dissemination of fake news. Indeed, the "Libro Blanco" ("White Book") on the pandemic (Nicaraguan Government 2020) states that the pandemic is aligned with the popular uprising of early 2018 through informational terrorism that relies on fake news:

> "Nicaragua is an example of unfounded attacks regarding what is happening with the pandemic. [L]ie after lie, media such as Telenica, Repretel and La Nación whose owners represent the Costa Rican Oligarchy, are blatantly lying against their sister nation of Nicaragua... The Nicaraguan coup plotters

and their sponsors from the United States, on a daily basis, lie to the people in order to undermine trust in the government (Nicaraguan Government 2020, 44–45 our translation)."

In Guatemala, the pandemic has exacerbated preexisting processes of ethnic othering. An illustration hereof is the previously described case of the assassination of Mr. Choc (Amigo Santiago, 2020). Despite the shared ethnicity of Mr. Choc and his executioners (both Maya K'ekchi'), an argument of racism has been put forward on the grounds of the perceived contempt shown by the attackers toward the ancestral subjectivity embodied in their victim (Amigo Santiago, 2020). In that sense, the murder of Mr. Choc has been associated with the negative otherness he embodied (Figueroa Ibarra 2013), that is, the sort of second-class citizenry whose community-based organization and non-Westernized world vision were portrayed as evidence for backwardness and their political stance as a threat to the modern nation. The pandemic has, in this sense, become a new disciplining grid triggering both a shift toward an authoritarian regime and a widespread sense of impunity among those who strategically reproduce repressions and contribute to silencing particular voices in order to reproduce the status quo.

5.3.2 Emergence of Emancipatory Subjectivities

In reaction to these boundary-making processes, several emancipatory subjectivities have emerged, seeking to engage on their own terms with the public health crisis and its intersections with other crises. This is the case for the previously described Citizen Observatory in Nicaragua, but also for the territorial self-quarantines of indigenous and Afro-descendant communities along the Caribbean Coast of Nicaragua appealing to the principles of autonomy and self-determination (100% Noticias 2020b). In this regard, members of the Afro-Indigenous Rama-Kriol Territorial Government have demanded that state institutions and tourists avoid visiting their territory. Contrary to the official discourse and practice of the central government, they have asked that mass events be canceled and requested regional and national authorities to provide real and updated information. In Karawala (Nicaragua), an Ulwa-Mayangna fisher-agricultural indigenous community has self-quarantined and called for solidarity under the slogan "if the virus does not kill us, starvation will".

The Nicaraguan government's response to these counter-movements of voluntary confinement has been the militarization of the community in order to control, manage, and monopolize any kind of donation and support to the community (**Figure 1**).

Still, we argue that these counter-initiatives and the emancipatory subjectivities that have emerged in the face of crises and in response to repression require further scrutiny: they bear the potential to pave the way for bigger and more radical changes. The question is how to strategically build on these processes and how to connect them in such a way that they become potentially transformative. At the same time, it is important to bear in mind how seemingly emancipatory subjectivities that emerge through "the will of not to be governed

FIGURE 1 | Call for a solidarity collection of medical supplies and food for the Karawala community, organized by the Community and local radio La Costeñísima. Source: 100% Noticias (2020c).

FIGURE 2 | Sticker placed on building doors in Hungary. The red sticker states that it is prohibited to enter, as a person under the surveillance of epidemiologic authorities is living on that property. It further stipulates that the person is not allowed to leave the flat. Source: koronavirus.gob.hu.

thusly, like that, by these people, at this price" (Foucault 2007, 75) can also reinforce the status quo (Death 2016). It is therefore key to give sustained attention to whose voice counts in the making of the "new normal" and the related encounter of different perspectives. For instance, as COVID-19 cases increased in Guatemala, wealthier brackets of society expressed soon enough their refusal to be locked down and deprived of their right to move around freely. Informal workers, on the other hand, were forced to jeopardize their health by leaving their homesteads in search of daily sustenance (Ola 2020). The former complained about the restrictions hindering their leisure – and their chances for exchange value creation – while the latter found themselves cornered by a powerful virus and the dire need to make a living. The new normal has become, in essence, the embodiment of an emotional boundary-making process but also the ignition device for those hitherto subaltern subjectivities in their renewed struggles for recognition in current power dynamics.

5.3.3 Manipulation of Emotions

Emotional boundary-making process are also central in pandemic politics and reinforce authoritarian and populist rule. In Hungary, the official (relatively low) numbers regarding COVID-19 during the Spring of 2020 conveniently fitted the regime's overall discourse, which suggested that Hungarians die much less often of COVID-19 as compared to surrounding countries, thereby glorifying the regime's exceptional capacity to deal with the pandemic. Additionally, there has been a particularly harmful and shocking process of blaming infected people and compelling them to "come out" to be judged by the public purview. Infected, people are obliged to quarantine (under regular police surveillance) and to put an

official red and yellow sticker, respectively, at their collective (in case of apartment buildings) or individual entranceways (**Figures 2**, **3**). These stickers ominously echo the WWII practice of putting yellow stars on buildings to signal that Jewish people lived there (most of whom were eventually deported and killed in concentration camps). The emotional baggage from these colored stickers is carried by and still painful for part of the Hungarian society. The stickers remind of the Orbán regime's recurrent anti-Semitic stances. The manipulation of negative emotions and embodied memories of WWII contributes to the creation of compliant, depressed subjects who will not rise up against authority.

FIGURE 3 | Sticker placed on apartment doors in Hungary. The yellow sticker warns of the presence of a person in the building under surveillance by epidemiologic authorities. Source: ripost.hu.

6 CONCLUSION: A PROPOSAL FOR FURTHER ENGAGEMENT WITH THE POLITICAL ECOLOGY OF PANDEMICS

Our discussion of the cases above highlighted some of the contradictions that underly pandemic politics in authoritarian and populist settings. The contradictions and complex interactions between different stances related to control, knowledge politics, and subjectivation processes are important to understand because they highlight some of the cracks through which we can and must think about emancipation.

Control, for instance, is prescribed by authoritarian and populist politics for certain type of subjects and in certain contexts, and that control should come from the state. Indigenous communities' initiatives of self-quarantine are therefore discredited and even countered by the authoritarian ruler. It is also important to unveil the continuity of prescriptions for control: in some contexts, pandemic politics consolidate previous exclusionary measures toward refugees via the control of borders; in other contexts, they reinforce already existing obstacles to indigenous populations' participation in decision-making. In this sense, pandemic politics become another instrument of boundary-making between state and society, in addition to being a purported means for halting the spread of the virus.

Pandemic knowledge politics, in particular, are paved with contradictions. The way uncertainty is engaged with not only privileges expert interventions and scientific knowledge claims over alternative and local knowledges, it also downplays the importance of the embodied, affective, and emotional ways of "knowing" the pandemic. This downplaying is materialized in ways that ignore how getting sick from SARS-CoV-2 is a potentially traumatic embodied and emotional experience with uncertain and unpredictable outcomes. By ignoring that, pandemic politics have been calling for masculinist responses that are hand in glove with authoritarian leaders.

Not every form of anti-institutional knowledge is, however, emancipatory in itself, as evidenced by sprawling denials and post-truth strategies. Strategies that bank on relativism are particularly dangerous because they exacerbate the vulnerability of excluded groups, especially when these strategies are coated in the discourses and rhetoric of economic nationalism, social polarization, and anti-migration. The civic initiatives put in place to build and foster solidarity, information, and care are delegitimized by authoritarian and populist regimes because they represent a threat, no matter how local or small they are. From a central vantage point, they are hardly disciplinable forms of authority. By embracing uncertainty rather than silencing it, and by highlighting the relevance of emotional commitments to collective action, different relational, affective, and potentially democratic ways of knowing and dealing with the pandemic can emerge.

The third contradiction we have highlighted – with the aim of identifying the cracks in authoritarian and populist ways of dealing with the pandemic – is related to subjectivation processes. We have discussed some of the ways in which racialized, ethnicized, politicized, and gendered subjects are created through exclusionary pandemic discourses and measures with the aim of creating the compliant and sometimes depressed subjects of authoritarian and populist politics. Understanding and countering these processes and engaging in affective and emotional relations on the basis of our interconnected vulnerabilities is a pathway, we argue, for emancipation. The biggest contradiction has been how the pandemic (the third party in the love triangle) has served to consolidate authoritarian politics and populist politics' love relationship, rather than breaking it up.

In summary, endeavoring to gain a better understanding of boundary-making processes under pandemic politics, and the ways in which these processes create and reinforce specific exclusions to strengthen authoritarian and populist rule, is both timely and important. Because of its long-standing and diverse engagement with the making of vulnerabilities and the workings of power (in relation to authority, knowledge, and subjectivities), a political ecology approach is particularly pertinent to uncovering the contradictions, tensions, and ambiguities within these boundary-making processes and helps open up the conceptual and practical possibilities for emancipation. Hence – building on this article's endeavor to break up the unhealthy love relation among pandemic, authoritarianism, and populism – we call for political ecologists to pay increased attention to: 1) the needed dialogue between political ecology and political ontology, 2) the importance of emotions and affective relations; 3) the centrality of the politics of place, and, 4) the need to expose and denounce the chameleonic and hypocritical nature of authoritarian an populist pandemic politics.

First, in the Virocene epoch that we find ourselves in Fernando (2020a); Fernandob (2020b), in which the drastic and accelerated destruction of socionatures causes new zoonotic threats, the dialogue between political ecology and political ontology, and the contributions of indigenous and Afro-descendant movements that demand a radical difference, promises to be particularly fruitful. This dialogue could aim at thinking together about how to challenge the previously-discussed boundaries and rethink human-nature relationships through caring and community-making (Álvarez and Coolsaet, 2020; Ybarra 2018, 2013); for instance, by analyzing and documenting territorial approaches for the development of health protocols (Borde and Torres-Tovar 2017). Paying attention and making such alternative worldviews and practices that help rethinking entanglements between humans and non-human beings visible "contributes to actively defending these worlds in their own terms" (Escobar 2014, 109 our translation) and can help us to imagine and enact eco-political communities with different relationships of authority and different proposals related to belonging based on reciprocity rather than hierarchy (TallBear 2011; Whyte 2017; Escobar 2018).

Second, our discussion aimed to highlight some of the aleatory, affective, and emotional aspects of processes that spawn vulnerabilities, such as those related to the pandemic but also to authoritarianism and populism. We suggest that political ecologists should give more sustained importance to emotions, affect, and experiential knowledge, as they can be manipulated and can become counterpoints to exclusionary pandemic politics. Emotions and affective relations have an epistemic potential for emancipation: they are key to envisioning relational processes based on solidarity and care

(Anderson and Smith 2001; Singh 2013). Emotions and affect can offer a counter-narrative vis-à-vis West-centered knowledge, which has typically privileged reason over emotions (Boff 2005), thus exacerbating the divide between nature and culture and undervaluing alternative ways of knowing whose methods and rationales go beyond conventional scientific practice.

Third, we argue for privileging the politics of place, with special attention to the micropolitics of subjectivation (Nightingale 2019). We need to understand better how local alternative grassroots groups come into being and how they denaturalize existing categories (such as "vulnerables" and "beneficiaries") and thereby re-imagine possibilities for social emancipation (De Sousa Santos 2006). In addition, subjectivation processes need to be understood in their historical continuities with long-standing repressive and othering politics.

Furthermore, all of this may sound like a case for "non-authoritarian" and "non-populist" models under the banner of social democracies. We want to stress, however, that we do not want to idealize the "Western" status quo as the model to strive for, and we recognize the inherent exploitation at other scales, in line with older core-periphery conceptualizations of uneven exchange. For us, it is key to show that these authoritarian and populist politics are precisely the consequence of (historically-rooted) models of uneven development, based on the creation of "otherness." While this may be beyond the scope of our paper, we want to make it clear how "a struggle for emancipation," without having those links continuously in mind, risks legitimizing the uneven status quo: is it possible to fight for a non-authoritarian reality in any of the countries we focus on without risking a fall back into the other status quo (as "democratic" as its bubble may be), which remains a model based of uneven exploitation elsewhere (in order to keep that bubble alive)?

Finally, the chameleonic and even hypocritical features of authoritarian and populist politics, including in relation to the pandemic, should never be underestimated: they need to be exposed and denounced. These features are exceptionally visible in their apparent reliance on scientific knowledge and expert advice, both presented in the narrative as objective. While the pandemic has repercussions on the most intimate, affective, and embodied spheres of our lives, the proposed responses are largely presented in a detached way. Their rationale focuses on halting the virus from spreading rather than questioning the pandemic's relations with the features of our modern society such as unsustainability, patriarchy, racism, and environmental degradation (Wallace 2020). At most, pandemic politics look for some kind of transition that provides, at the same time, continuity with the historical exclusions on which authoritarian and populist rule prosper. These politics do not seek transformation in the face of the crisis. They rather approach the crisis as something manageable and in need of orderly control by disciplining citizens through the use of particular forms of knowledge and technological

innovation (Stirling 2015, 54). However, no crisis – be it health, political, environmental, or social – justifies securitization, oppressions and putting democracy on hold. Emancipations need to involve diverse political alignments, a plurality of social innovations, "challenging incumbent structures, subject to incommensurable knowledges and pursuing contending (even unknown) ends" (Stirling 2015, 54). In the Virocene epoch, this is more urgent than ever.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

Conception and design: Original conception and design of project and idea for this paper: NG - Input for discussing conception and ideas: NG, JPPC, FH, GH. Data collection and analysis: Hungary case study: NG - Nicaragua case study: JPPC. Writing of paper: First drafting of paper: NG - Collecting literature for lit review: FH - Writing up literature review: NG - Inputs in methodology: NG, JPPC, FH, GH - Writing up methodology: FH - Substantial input in literature review, framework and analysis: NG, JPPC, FH Discussions on drafts: NG, JPPC, FH, GH Writing up conclusion and agenda for PE: NG, JPPC, FH Editing final draft: NG, GH.

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Why is farming important for rural livelihood security in the global south? COVID-19 and changing rural livelihoods in Nepal's mid-hills

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Over the last three decades, Nepal has experienced a rapid transition in rural livelihoods, from largely subsistence farming to more diversified off-farm employment and remittances. Despite this, subsistence farming continues to be a central part of rural production. Why does farming persist in the face of other, more remunerative, off-farm employment options? In this article we argue that subsistence food production continues to be important for rural livelihood security by providing food needs from farming, thus helping households to cope with uncertainties in off-farm employment and international labor migration. Taking the COVID-19 pandemic as an example of a high level of livelihood stress, the paper provides insights and further explanations on the logic of maintaining subsistence food production as part of rural households' livelihood security. Drawing on in-depth qualitative study, complemented with a quantitative survey from eight villages in rural Nepal, we examine the impact of the pandemic on farming and off-farm activities and explore the reasons behind peoples' choice of livelihood strategies and how these vary between different social groups. We show that there was only limited impact of the dramatic disruptions caused by the global pandemic on subsistence farming, however it brought substantial challenges for emerging semi-commercial farming and off-farm incomes, including both local and migratory wage labor. During the pandemic, people increased their reliance on locally produced food, and subsistence farming served as a critical safety net. Our analysis underscores the continued importance of subsistence production amidst contemporary shifts toward off-farm employment among rural households. We also find a growing interest in semi-commercial farming among farmers with better access to land who seek state support to develop such production. This suggests that it is important for agricultural development policy to recognize and support subsistence farming alongside emerging commercial agriculture production as an integral foundation of future farming and rural livelihood security.

KEYWORDS

subsistence production, food security, smallholder farming, migration, Himalaya, mountains

1. Introduction

Nepal's rural areas have undergone rapid transition over the past three decades with a significant move toward more diversified and off-farm livelihood strategies. Migration to cities and abroad has become a major phenomenon since the 1990s, and remittances have become a major source of income for many rural households (see Sunam, 2020). These trends have been driven, at least in part, by growing stress in farming due to declining farm size, shortage of farm labor, and the effects of climate change (Ensor et al., 2019). At the same time, outmigration has provided new opportunities for cash income that was not available in the past. However, despite the overall decline in agricultural dependence in rural areas (Ojha et al., 2017), reports suggest that rural people continue engaging in farming (subsistence or semi-commercial) to support their livelihoods (Chhetri et al., 2021; Sugden et al., 2021). A growing body of research suggests that off-farm employment, particularly labor migration, involves high levels of uncertainties with unstable incomes and precarious work conditions and therefore entails a need to maintain farming in parallel (Rigg et al., 2016; Sunam, 2020; Sugden et al., 2021).

These trends have been exacerbated by the COVID-19 pandemic. Following dramatic lockdowns, many countries–especially in South Asia–saw a large reverse migration of off-farm laborers into rural areas (Gupta et al., 2021; Kumar et al., 2021). Growing research shows that the sudden loss of jobs and income has resulted in increased food insecurity of rural households (Workie et al., 2020; Adhikari et al., 2021; Gupta et al., 2021), while also compromising smallholder agricultural production due to inaccessibility of inputs and markets (Adhikari et al., 2021; Kumar et al., 2021). Our work builds upon this research to explore what we can learn from the COVID-19 pandemic about rural agricultural systems. Using the COVID-19 pandemic as a lens, our analysis below provides further empirical evidence on the role agriculture as a basis of rural livelihood security, and we explore some of its lessons for agricultural policy.

Drawing on detailed qualitative data from two contrasting villages of a mid-hill district of Ramechhap and a survey conducted in eight villages in Kavre and Ramechhap districts, we investigate the impact of COVID on farming and draw lessons from the pandemic for the future of farming and farmed-based rural livelihoods. Given the large-scale disruptions following COVID-19, it has potential to generate valuable analytical and policy insights for the future of farmed-based rural livelihoods in the Global South. The key insight of this paper is that the subsistence farm production plays a fundamental role in enabling households to cope with diverse shocks and stressors. While agricultural policy in Nepal and elsewhere has primarily favored support for commercial farming, the significance of subsistence food production is often overlooked (Sijapati et al., 2017; Gupta et al., 2022). Drawing insights from our analysis, the conclusion argues that policy support for both subsistence production and commercial crops is important to support secure and prosperous farming futures amidst contemporary social and economic changes in rural areas of the global south.

Indeed, the Nepalese case exemplifies many prominent trends in agrarian change in South Asia and other parts of the world (Sunam and McCarthy, 2016; Rigg, 2020; Subedi et al., 2021). Growing stress on farming has pushed rural households to look for off-farm employment opportunities. However, the off-farm employment options are also not providing reliable income to sustain household livelihoods. Consequently, rural households continue to use farming as an important source to mitigate the risks of such uncertainties and combine farming with off-farm employments such as labor migration (Rigg et al., 2016; Chhetri et al., 2021). Such situation, when households need to engage in both agriculture and labor markets, has been described as a scenario of progression in sideways (McCarthy, 2020). The growing trend of labor outmigration from rural areas has been reshaping household labor dynamics and land uses. With shortage of family farm labor, households are often unable to manage the farm as before, and therefore keep part of their productive land in production while deactivating other farmland (Maharjan et al., 2013; Adhikari and Hobley, 2015; Ojha et al., 2017; Sunam, 2020). Some have predicted that remittances might be invested in entrepreneurial agriculture, as happened in Indonesia (Peluso and Purwanto, 2018) and some Central American countries (Davis and Lopez-Carr, 2014; Radel et al., 2018). In Nepal, however, only a very small fraction of remittance has been reinvested in agriculture (Sunam and McCarthy, 2016; Jaquet et al., 2019).

The next section briefly outlines the methodology, where we provide context of our study sites and present the methods used to collect data. Section three provides a brief context of changes in rural livelihoods in the Nepalese mid-hills situated in the broader context of transitions in rural livelihoods in the Global South. Thereafter, lived experiences of COVID-19 related measures in rural areas and implication for managing household level food security are presented in section four. Section five focuses on the impact of COVID on farming and what COVID meant for peoples' decision on future livelihood options. We discuss the findings in section six, focusing on what insights the COVID pandemic can offer to better explain the rural change. We conclude the paper by drawing some analytical and policy implications.

2. Methods

This paper is primarily based on qualitative research involving intensive field work in two contrasting villages from Ramechhap district (Table 1). Our qualitative analysis aims to provide rich, place-based data on experiences and impacts of COVID-19 and associated economic disruptions on household farming strategies. Additionally, we complement these insights with descriptive analysis of data derived from household survey, comprising 240 households from eight villages from Ramechhap and Kavre districts (see Table 2; Figure 1). Overall, we center our analysis on qualitative insights, yet our survey data provides additional information to illustrate generalizability of some key trends to a large sample of households in the region. Together, our data sources reveal different aspects of agriculture and food security during the COVID-19 pandemic, which allow us to paint a

TABLE 1 Key features of two in-depth case study sites.

Site/description	Altitudinal range	Geography	Weather conditions	Farmland and productivity
Khimti	625–1,500 m	V-shaped valley and upland area	Receive more rain compared to Chyasku, good irrigation facilities	Good quality *khet*[a] land in the valley and *bari* land in upland areas
Chyasku	1,500–1,900 m	Located on a ridge, fields located in slopes	Dry area as it receives limited rainfall, water is a major stress	Mostly *bari* land with two crops during and after monsoon period

[a] *Khet* is integrated terraced land for paddy production and *Bari* rainfed sloppy land.

TABLE 2 Description of the survey sites.

Village	Palika and district	Key features
Chapakhori	Temal RM, Kavre	Located in mountain slops (~85 Km from Kathmandu) with sub-tropical semi-arid climate. High out-migration rate, predominantly subsistence food production (sufficient for <6 months).
Robi Opi	Dhulikhel M, Kavre	Located in north-facing slopes (25 km east from Kathmandu) with sub-tropical and humid climate. Both irrigated (khet) and non-irrigated (bari) land. Majority of households involved in commercial vegetable cultivation and milk production.
Khanidanda	Ramechhap M, Ramechhap	Located in southeast slope (150 km east of Kathmandu) in semi-arid temperate zone. Largely subsistence farming with water as scarce resources and people sell some surplus (lentils, fruits and vegetables).
Bhorle (Lyanglyang bazar)	Ramechhap M, Ramechhap	Located at about 145 km east of Kathmandu, sub-tropical climate and semi-arid zone. High level of out-migration and largely subsistence farming (sufficient for only 3~6 months) and some level of semi-commercial vegetable cultivation.
Bimire, Rasnalu	Gokulganga RM, Ramechhap	Located in temperate zone (170.4 km east of Kathmandu) with higher rate of precipitation (about 263 mm). Largely subsistence farming and some households started commercial farming (kiwi, vegetables).
Pharpu	Gokulganga RM, Ramechhap	Located at 150 km east of Kathmandu with subtropical to temperate climate. Subsistence farming (most HHs produce sufficient food (from Khet and Bari), relatively lower migration, water is not an issue.
Yangbel	Temal RM, Kavre	Sem-arid zone with sub-tropical to temperate climate, located 71 km away from Kathmandu. High migration rate, mostly subsistence farming. Water is scarce for even drinking.
Kalche	Dhulikhel MP, Kavre	A valley with humid sub-tropical climate located at 36 km east of Kathmandu. Most of the households involved in commercial farming, sufficient water for drinking and irrigation.

broader picture of the impacts of COVID-19 on farmed-based rural livelihoods.

The two in-depth qualitative study of Khimti and Chasku (mid-hills region) vary in terms of socio-economic and biophysical conditions (see Table 1). Khimti, located in a valley has flat and productive land for agriculture and less exposed to rainfall risks because of irrigation and higher level of precipitation. Whereas, Chyasku is located on mountain slopes with marginal productivity as it has no irrigation facilities, and the region is located in semi-arid region. Both sites have a significant level of adult outmigration and hence a shortage of farm labor.

Qualitative data collection in these sites were carried out during the COVID induced travel restriction periods of 2020 (August-September). Given these constraints, we used a combination of virtual communication and in-person fieldwork. Trained local research staff arranged telephone interviews with villagers and researchers in Kathmandu then conducted the telephone interview following a checklist. Semi-structured interviews were conducted with selected households (28) and key informants (9). Of these, about half were carried out from a distance and rest were done in person (through field trips in both 2020 and 2021). The households were selected to represent different social groups, and we deliberately included a majority of households with recent migrant returnees (either returned from national cities or abroad). Key informant interviews were conducted with knowledgeable persons in the villages which included *palika*/ward

representatives, CFUG leaders, schoolteachers, commercial farmers, local businesspersons, and youth entrepreneurs. With them, we intended to understand the impact of COVID on farming and peoples' future livelihood strategies.

A follow-up visit was conducted in these two qualitative case study sites in September 2021 when we conducted five household-interviews and four group-interviews in two villages. In the follow up visit, we explored how people experienced the second wave of the pandemic, its impact on farming and people's choice of livelihood options throughout this time.

Our survey was carried out in eight villages in two mid-hills districts of Ramechhap and Kavreplanchok (see Table 2). The villages were selected purposefully considering socio-economic, environmental, and agricultural dimensions. Consequently, they have both similarities and differences in terms of key aspects such as the intensity of migration, social composition, land uses and local environmental conditions. While most of the sites are located in rural areas, two sites (Rabi Opi and Kalche) are close to urban centers. Some villages have irrigation facilities with higher levels of agricultural productivity, while others are located on mountain slopes, with significant water stress and frequent damage to crops from wildlife. All sites have a significant level of adult outmigration and hence a shortage of farm labor.

In total, 240 households were selected randomly from population registers in each village (30 households per village). These surveys were conducted by trained field staff starting in
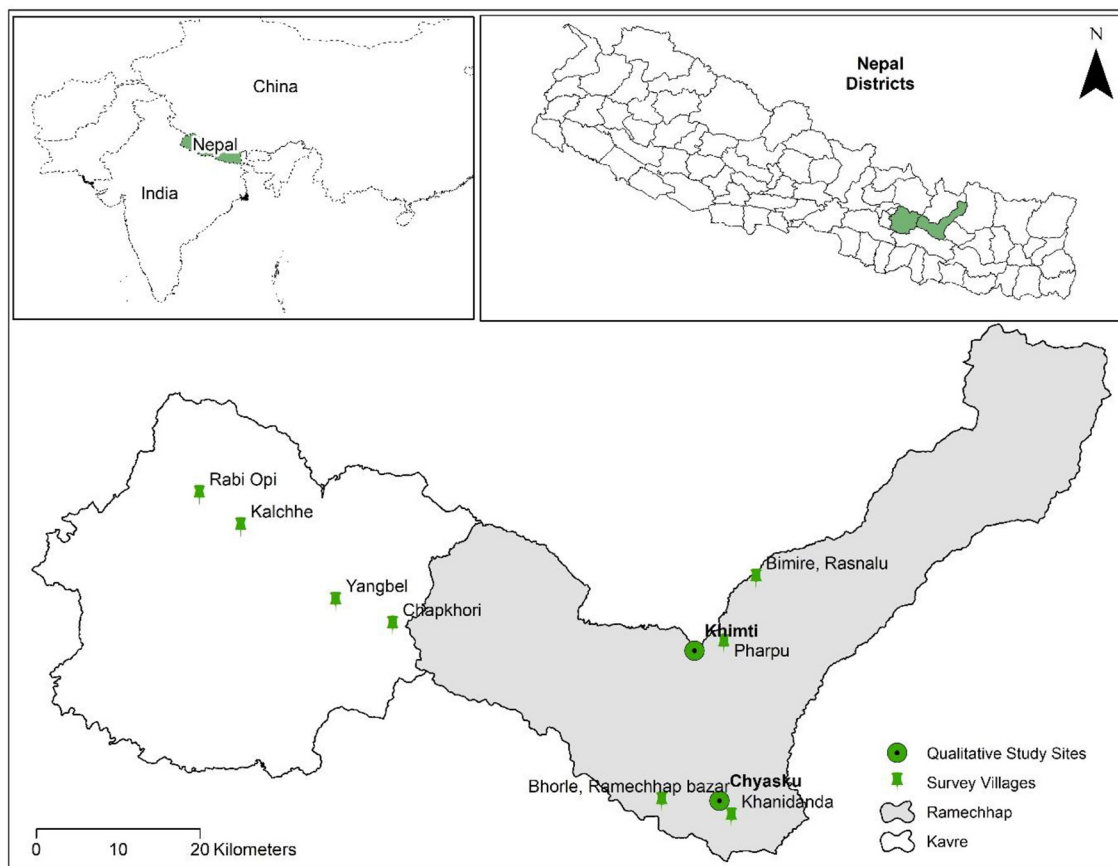
FIGURE 1
Map: Case study and quantitative survey sites.

May of 2020, roughly 2.5 month after the initial lockdown. We revisited the households approximately monthly over the coming year, allowing us to capture data on ongoing impacts of COVID-19 disruptions and examine general trends in household responses. We focus this paper on data collected in months of June through August, which coincided with the first monsoon planting season following COVID-19.

Since our primary objective is to situate the qualitative data within broader trends across the study region, our data analysis is primarily descriptive complemented with some bivariate analysis to test the generalizability of observed associations. We used the statistical program R, version 4.1.3 for data analysis and the visualizations were developed using *ggplot* version 3.3.5, and lattice version 0.20–45.

3. The context of changing rural livelihoods

In the past (until the late 1980s), while commercial agriculture existed in some pockets near to larger cities, subsistence farming was nevertheless the mainstay of the rural economy throughout most of Nepal. Most of the rural households produced food for their daily needs and some who did not produce sufficient food

would cover periods of food scarcity with agriculture wage labor in the village or went for long periods of work outside the village. Our study areas broadly follow these trends. For example, we learned from the qualitative fieldwork that until the 1980s most households in the dry landscape of Chyasku produced food only sufficient for less than half of the year and therefore members of many households had to work as porters. They carried rice and other commodities from Tarai, on the mountain paths to the local markets in Ramecchap to make their families survive. Others went for longer periods to work in coal mines in India. In contrast, households in Khimti had access to irrigated fields that produced sufficient food for the whole year and relatively few villagers were involved in non-farm activities at that time.

Throughout much of Nepal, as in our study area, the rural economy has changed dramatically over last 30 years with diversification of livelihood options. These changes were driven by the market integration leading to demand for cash income in one hand, and increased stress on farming because of declining farm sizes and other climate and non-climate related stressors, on the other hand. Since 1990, foreign labor migration has become a strategy to sustain households' livelihoods (Sugden et al., 2021; Sunam et al., 2021a) and remittance has become a key source of income, both nationally as well as within the rural economy. A national survey (CBS, 2019) estimates that 2.8

million Nepalese went abroad for work during 2017 and 2018 (Baniya et al., 2020). This means that one out of five Nepalese (primarily men) in working-age (between 15 and 64 years) are engaged in foreign labor migration (Sunam, 2020). The total sum of $7.8 billion of remittance received in this period is equivalent to around 25% of Nepal's GDP (Banco Mundial, 2020). Such large scale of migration means that remittances today provide a main source of income to many rural households and that many villages have turned into what Sunam (2020) termed as "remittance villages," a condition where "remittance incomes have increasingly become more important than agrarian production for household reproduction" (Sunam, 2020, p. 4).

The average farm in Nepal is 0.7 ha[1] and as our survey showed in our case study villages it is 0.4 hectare, which is far too small for sufficient food production for most families. In Nepal, traditionally the parents' holdings are inherited between the sons, so land becomes even smaller for each generation. The decreasing farm sizes, ongoing rural out-migration and shortage of farm labor and other associated changes such as climate change impacts and problem of damage of crops by wild animals are pushing multiple changes in in rural livelihoods. Yet, rural households continue to engage in farming and food production. In other words, most of the rural households combine food production with other off-farm employments to sustain livelihoods. In recent years, some rural households have also started semi-commercial farming. They grow some cash crops such as vegetables to sell in the nearby market alongside producing food to meet the daily needs of the family. For example, in our case study village of Chyasku farmers sell beans and vegetables and raise smaller livestock such as pig and goat. Similarly, in Khimti villagers produce rice, milk, vegetables and sale the surplus. Among the eight villages we conducted the quantitative survey, the two villages closer to urban areas, Rabi Opi and Kalche, are involved in more intensive commercial production of vegetables and milk.

In much of rural Nepal, there is an increasing trend of idling[2] of land in areas where farmers are facing growing stress of labor shortage. For example, in the upper slope of our study site Khmiti which consist of rainfed Bari land, people are leaving farmland fallow and moving into more extensive land use such as fodder areas (*pakho*) and growing trees (Poudel et al. under review in Human Ecology). Our survey gives a broader sense of the overall magnitude of this decline in area of land under cultivation per household: it shows a median of 0.408 hectares in 2010 (10 years before our survey) which is down to 0.255 hectares by 2019 (the year before COVID-19)–a roughly 40% reduction, as we explore more in the text to follow. Indeed, idling farmland has become a growing phenomenon across Nepal and some reports suggest that

up to 30% of the agricultural land has been omitted from the annual production systems in a certain part of the country (Adhikari et al., 2021; Subedi et al., 2021). The phenomenon of idling land has been seen as important challenge for domestic food production and food security as farmers move from labor intensive cropping production to more extensive practices such as growing fodder and in many cases, or even in some cases completely abandon farmland (Adhikari and Hobley, 2015; Ojha et al., 2017).

It is in this context of changing dynamics in rural livelihoods involving intertwined processes of migration and land use transition, the COVID pandemic landed in February 2020 posing an unprecedented challenge to rural livelihoods. Below we elaborate on how rural people experienced the pandemic and what impact it has left on rural livelihoods.

4. Experiences of the pandemic and food insecurity in rural Nepal

The measures taken by Nepalese government to contain the spread of the Coronavirus during the first wave of the pandemic included nation-wide lockdown during March-May and travel restrictions until September 2020. Mobility of all kinds of vehicles was restricted except for essential services such as ambulance, press, medical persons and food supply. In the villages, schools, offices and market centers were closed and public gatherings were restricted. Many local governments (*palikas*) also took their own initiatives to seal local borders from outside visitors, for example by blocking bridges, mobilizing volunteers in the major entry points to the *palika*. Yet, in the agricultural fields, villagers continued working with their crops as this was the time of year when they sow their maize and transplant paddy.

Due to the national lockdown, many villagers working in urban centers lost their daily income and had to return to their respective villages. Some of them returned just before the lockdown in anticipation of it, while others walked part of the distance and later continued *via* transportation arrangements made by local governments. This had a significant impact on a large number of households; on our survey villages, 37.5% of households (90 households of 240) had one or more household members that returned in the first 2 months of the pandemic. The restrictions in mobility and halting construction activities also meant that villagers depending on daily wage labor (e.g., in their villages and nearby towns) lost their income. A man in his mid-40's from Sunuwar ethnic group reported: "To be honest, we had more fear of famine than Coronavirus during the lockdown. I have a small amount of farmland (2-3 ropani, 0,1 ha) and I used to live from daily labor work. But (now) it is impossible to find work here."

The COVID situation also affected people working abroad. People depending on family members sending remittances faced difficulties due to reduced income, and some even stopped receiving money during certain periods. Individuals working abroad (e.g., the Persian Gulf countries and Malaysia) faced problems such as losing their job or being reduced to part-time work; many were stranded with limited support provided by the employers. A woman whose husband was stranded in Dubai mentioned:

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1   The average size of agricultural landholding is 0.7 hectare in rural areas and 0.5 hectare in urban areas. Five percent households do not own any land but work other people's land on a contractual basis (Nepal Living Standards Survey, CBS 2011).

2   Idle land is a deactivated land (mostly *bari, pakhobari and kharbari*) which has low economic potential, but farmers extensively use it for fodder and timber production. These are idled because farmers choose to invest less labor in such land, instead they prefer to invest on land having access to road, irrigation, and market.

> My husband is in Dubai. He has not received a salary for months but is still working part-time. He stopped sending money home. I am happy that he is well and surviving with some support from the company [that employs him]. I hope he will receive payment as he has continued working.

Our household surveys affirmed that food insecurity was common across the sites. In our first survey in May-June 2020, ~2.5 months after the initial lockdown was initiated, 37% of households reported "some" difficulty in getting enough food for their family, and 7% reported "significant" difficulty (Figure 2A). Unsurprisingly, these experiences vary across our broader sample. Figures 2B, D shows how food insecurity was far more acute for lower caste households (Chisquare test, $p < 0.0001$), households with smaller landholdings (spearman rho = 0.147, $p < 0.0001$), and those who derive a larger proportion of total household income from wage labor (spearman rho = 0.147, $p < 0.0001$) (Figures 2A–D).

These variables—caste, off-farm income, and land size—are common markers of socio-economic status in rural Nepal, which point to the highly differentiated experience of impacts across segments of society. Caste reflects entrenched patterns of social marginalization and *Dalit* (lowest in the caste hierarchy and considered as untouchable groups) have smaller landholdings. Wage laborers are often households with higher levels of poverty and fewer productive assets in our study area. Wage labor is typically insecure and often seasonal (for example agriculture or local construction projects when available); overall local wage labor was highly disrupted during the COVID lockdowns. Likewise, those with less land have overall higher levels of poverty, and often have smaller food stores from previous production, which also likely exacerbated food security challenges. Importantly,
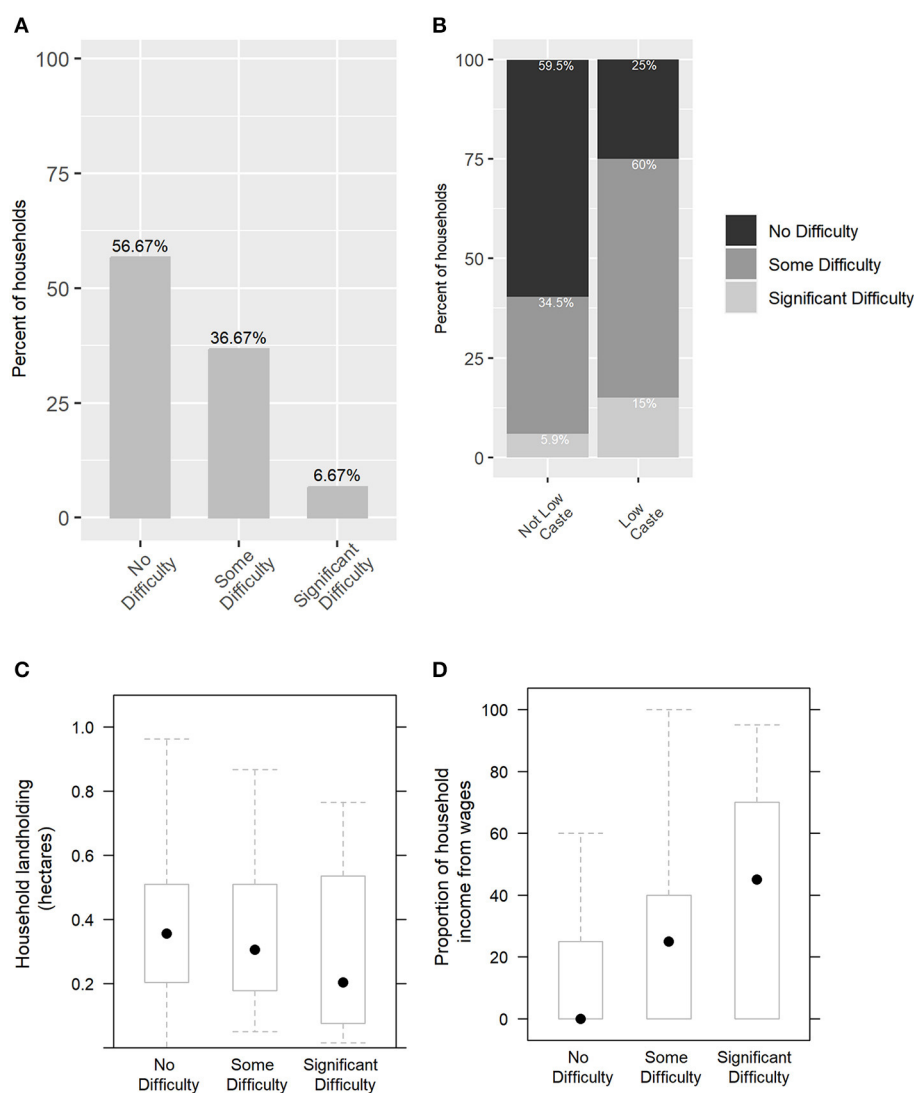

FIGURE 2
Experiences of food insecurity. Households reported "no," "some," "significant" difficulties in accessing sufficient food in the 2 months following the initial lockdown in 2020: **(A)** in overall percentage; **(B)** across caste groups; **(C)** by proportion of income from wage labor; **(D)** according to landholding size. General castes in **(B)** represent higher castes such as Brahmin and Chhetri and Janajiti.

these three variables are often highly correlated i.e., land poor households often rely more heavily on wage labor, for example. Our main point here is simply to show that experiences of food insecurity were widespread and concentrated especially–but clearly not exclusively–among more marginal groups.

The qualitative data indicates that disruption in off-farm income had longer-term financial implications for some households. The households who did not have sufficient food production or storage from the previous productions had to borrow money to buy food. A few households described that they used their savings to meet daily needs and others needed to borrow money. Some borrowed from family and friends and others turn to money lenders or local cooperatives, often with very high-interest rates. As they reported, the cooperatives charge up to 18% of interest, the local money lenders charge between 24 and 36% per annum (whereas, the interest rates of commercial banks ranged from 9 to 11%), it is easy to understand how a loan taken to address acute problems can become a burden that compromises financial stability well into the future. For example, about one-third of the interviewed households (qualitative interviews from both sites) have reported an increase in loans taken during the lockdown period. This means, for some households, the loss of job or income has generated longer-term effects in terms of household wellbeing.

Despite challenges, many migration returnees reported that they were happy that they could meet and spend time with family. In some contexts, there were even reported to be small celebrations in the villages with good food and family gatherings. However, as the lockdown period extended, many households felt increasing stress to feed the increased number of family members living at home. A high caste man in his 50's reported:

> We are now 5–6 members in the family and household expenses have grown compared to normal. The food stock that was kept for the whole year as well as for special festivals such as Dashain and Tihar has been almost finished since my sons have returned home. The situation might be worse for people who have larger families than ours.

Additionally, an increase in food prices further stressed many households to feed the family. Although we were not able to systematically capture commodity prices quantitatively, in our qualitative interviews households often spoke of a significant increase in food price during the lockdown period-with reported price increases of up to 30–50% on some commodities, such as rice and cooking oil.

In the follow-up field visits in September 2021 we learned that people developed some level of confidence living with the pandemic. Though there were more people infected in both villages in the second wave in 2021, the lockdown was less strict, people were more comfortable about measures such as wearing face masks, using sanitizer and using physical distancing and people had a lower level of fear and anxiety compared to the first wave. Despite this, respondents reported that the increase in basic food prices continued.

How did households respond to these challenges? Our survey data showed a slight increase in subsistence food consumption within the overall food bundle following the initial lockdown.

In our first survey (2.5 months after the first lockdown), we asked households to report the proportion of total household food derived from subsistence production vs. other sources (e.g., market, state food support) over the previous year (June 2019-May2020). In repeated surveys (approximately monthly), we then asked the same regarding food consumption over the month preceding our visit (through months June-December 2020).

Figure 3 depicts these trends. In June, households reported patterns of food consumption roughly equivalent to the previous year on average. However, as the pandemic wore on, the amount of food derived from subsistence production increased in August and October before reducing again in November and December. This is interesting since it suggests that challenges of accessing sufficient food were not simply the result of disruptions in transport of food to villages; despite initial challenges of accessing markets after the lockdown, dependence on self-produced food was in fact greater in the succeeding months–as cash reserves became increasingly stressed and households had fewer alternative options available.

In short, pandemic restrictions generated challenges for accessing food for a large proportion of the population, especially poorer and more marginal groups Amidst continued disruptions, consumption of self-produced food appears to have become more important for households' overall sustenance. Thus, even though most families continued to depend on food from other sources, our data points toward the important contributions of subsistence food production for household security when other food and income sources are disrupted or run out.

5. COVID impact on farming and future livelihood strategies

5.1. Impact on farming

Interestingly, our data suggests that COVID-19 has not had a significant impact on farmers' decisions to cultivate their land. However, we do find evidence that it influenced farmers' decisions of which crops to grow, at least in the short term.

Figure 4 from our survey data shows that households' total land under cultivation declined on average from 2010 (10 years before our survey) until the present (t-test, diff. of means = −0.141, p < 0.0001). We see a marginal increase between 2019 (the year before the pandemic) and our surveys during the 2020 pandemic. Between 2019 and 2020, a few households (20 of 240, e.g., 8%) report marginal increases in their total area under cultivation (between 0.02 hectares and 0.25 hectares increase per household) (t-test, diff. of means = 0.007, p = 0.036). Overall, these trends point toward a broad decline in farming over the past 10 years, as households have gravitated toward off-farm income earning opportunities. Compared to these broader trends, the increase in overall cultivation since the pandemic is marginal indeed.

Our qualitative data paints a similar picture. Overall, the interviewed households in both qualitative study sites reported that they had experienced only minor negative impacts of COVID-related restrictions on their subsistence food production. They explained that they had been able to do their regular agricultural activities as normal as they had their own seed for sowing stored since last. In Table 3 we summarize the responses about the impact
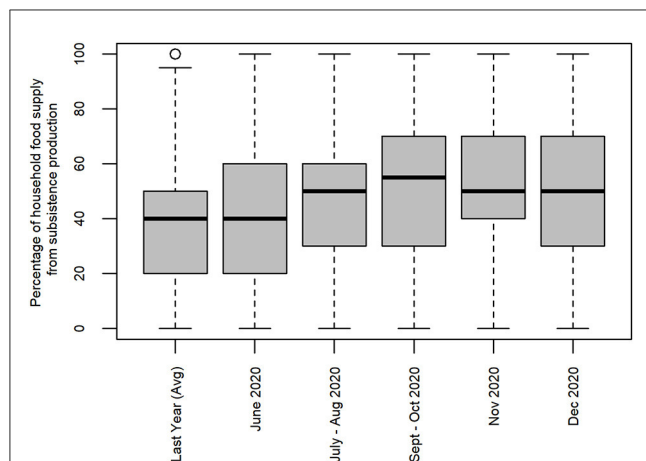
FIGURE 3
Subsistence food consumption before and during pandemic.
Boxplot showing the proportion of household food derived from
subsistence production compared to other sources (market and
state food support). Median subsistence food consumption is very
similar between the first month of our surveys (June 2020) and
households' overall estimates from the preceding year. However,
subsistence consumption increased in the following months
(August and October) in the context of continuing disruptions,
before reducing again (Nov and Dec).
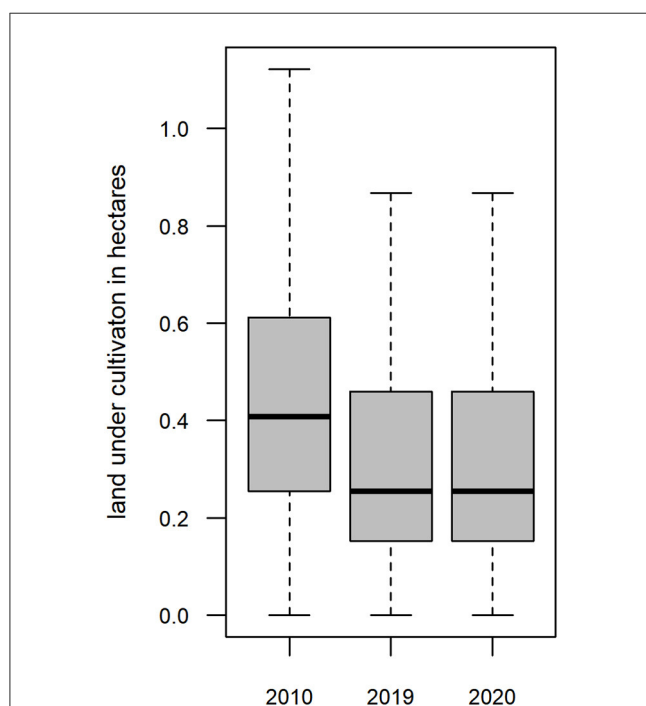
FIGURE 4
Land under cultivation. Households total land under cultivation has
declined since 2010 on average (10 years before our survey) amidst
growing investment in off-farm employment. Several households
(20 out of 240) report small increases in productive land between
2019 and 2020, however this change is marginal and is not
perceptible in the graph.

of COVID on farming derived from the qualitative data. For many
households' subsistence production actually improved as a result of

TABLE 3 Effects of COVID on farming.

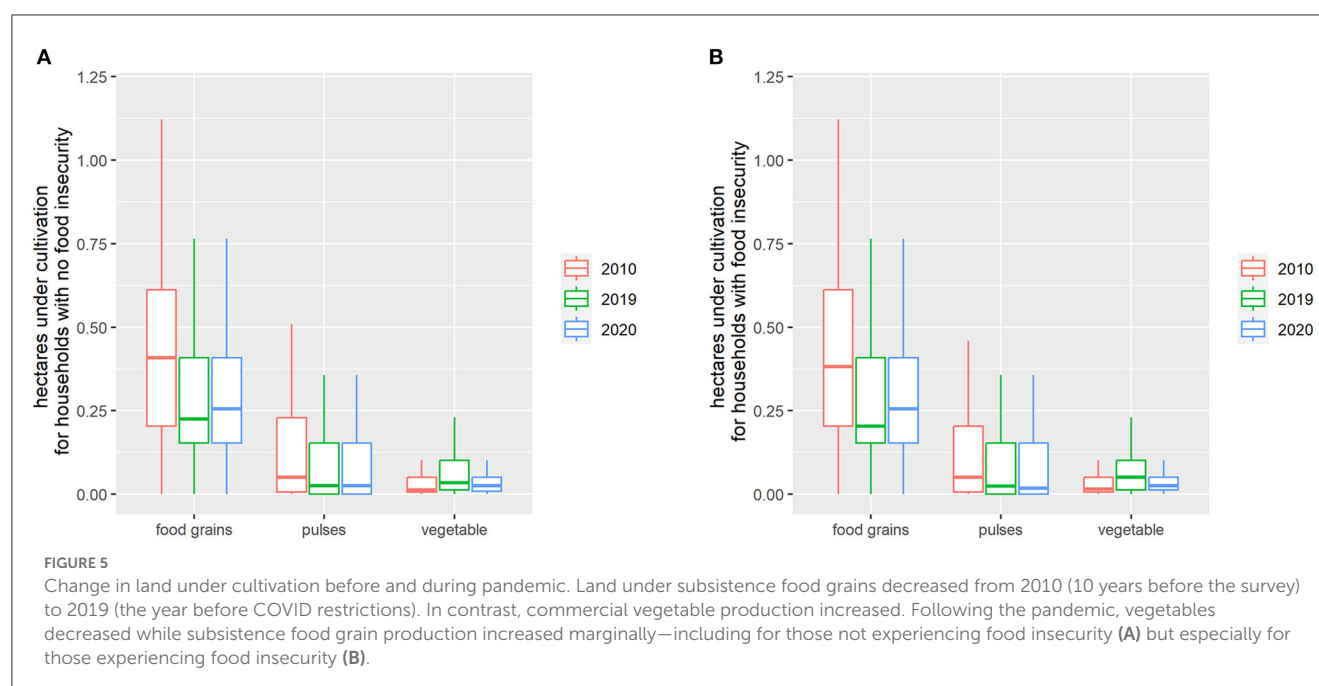| Case study sites	Effect on subsistence farming	Effect on cash crops (semi-commercial farm)
Chyasku (N = 19)	Limited impact (19 HHs)	Loss of income due to challenges accessing markets (13 HHs)
	Increase in size of production (4 HHs)	Increase in price of inputs (increased cost of production) (13 HHs)
	Increased price of inputs (19 HHs)	Reduction of size of production (5 HHs)
Khimti (N = 9)	No effect (9 HHs)	Loss of income due to challenge accessing markets (6 HHs)
	Increase in production (1 HHs)	Increase in price of agricultural inputs (increased cost of production) (6 HHs)
	Increased price of inputs (9 HHs)	Reduction of production (5 HHs)

reverse labor migration. For example, farmers in Chyasku reported
that extra labor available in the household made farming easier, and
therefore they did not need to hire labor which they would normally
do. A Tamang man who grows vegetable in Chyasku said, "In my
family, six members have returned from Kathmandu during the
lockdown. It has [therefore] been easier to cultivate due to more
hands available in the household."

These findings were also supported by our survey data, which
shows that during the first wave of pandemic (2020) 37.5% (90 out
of 240) households had members returned in the family (mostly
from cities). In the qualitative interviews respondents reported that
about half of the contributed to family farming during their stay
in the village. This means there was more labor forces available for
farm work than the previous year. However, it appears that such
labor availability was temporary; a vast majority of returnees went
back to cities after the situation was eased in early autumn.

However, when looking closer at the choices of crops grown
during the pandemic, some distinct trends could be seen when
comparing across different the categories of food grains (e.g., maize
and paddy), pulses (e.g., kidney beans), and vegetables (a diversity
of high-value cash crops) (Figures 5A, B). The data shows that
the decline in total land under cultivation over the past 10 years
has led to a reduction in food grains, which are grown primarily
for households' food need (t-test, diff. of means $= -0.141$, $p <$
0.0001). In contrast, vegetable production, while relatively marginal
in overall land holding size, has shown a significant increase in
production between 2010 and 2019 (a median increase of 218.75%
t-test, diff. of means $= + 0.0422$, $p < 0.0001$). Vegetables are high-
value crops, which have been made possible by growing market
integration especially through improved road connectivity. Thus,
the general trend during the last decade has been that while
subsistence cultivation of grain has declined, some farmers have
been able to take advantage of new marketing opportunities and
have started to plant vegetables for sale.

However, this trend has slightly changed during the pandemic
(Figure 5). Most significantly, we find an increase in food grain

FIGURE 5
Change in land under cultivation before and during pandemic. Land under subsistence food grains decreased from 2010 (10 years before the survey) to 2019 (the year before COVID restrictions). In contrast, commercial vegetable production increased. Following the pandemic, vegetables decreased while subsistence food grain production increased marginally—including for those not experiencing food insecurity **(A)** but especially for those experiencing food insecurity **(B)**.

TABLE 4   Migration returnees' decision on future livelihood strategies.

Case study sites	Re-joining migration	Continue farming	Investment of remittance on land/farming	Cultivation of abandoned land
Chasku (19 HH)	11 HHs with people expressed plan to re-joining migration	Seven migrants shared plan to continue farming but move to commercial farming	3 HHs invested remittance on land/farming (for buying land in Tarai (1 HH), starting commercial farming (2 HHs)	3 HHs reclaimed abandoned land and 2 HHs re-engaged in farming
Khimti (9 HH)	In 7 HHs member/s expressed plan to re-join migration	Four returnees shared plan to re-engage in farming and move to commercial farming.	1 HH invested remittance on land/farming (buying irrigated land in Khimti)	No households have reclaimed abandoned land and re-engage in farming

production between 2019 and 2020. Interestingly, this increase was *only* statistically significant for households that experienced some level of food insecurity following the pandemic (either "some" or "significant" difficulty as noted above; t-test, diff. of means = -0.008, $p = 0.0430$) but not for other households (t-test, diff. of means = -0.004, $p = 0.46$). It is important to note that the increase is not of great magnitude. But it does suggest that households gravitated toward increasing subsistence food production at the margin, which may have been connected to households' situation of food insecurity during the pandemic.

Qualitative enquiry identifies a variety of challenges faced by semi-commercial farmers across our study area. For example, some farmers in Khimti involved in commercial production reported a shortage of inputs such as hybrid seeds, chemical fertilizer, pesticide, and animal feed during the first lockdown in 2020. With the shortage of inputs, the prices raised quickly. These challenges sometimes had compounding effects. For example, one pig farmer in Khimti reported that the price of pig feed increased by 30%; moreover, he could net get the pigs to market and thus had to feed them much longer than normal. This increased the cost of his production considerably.

The restriction in mobility made it hard to sell products for several semi-commercial farmers. The few who had private vehicles

(e.g., motorbike) could manage to take their products to the market in a nearby town, but most semi-commercial farmers rely on public transport to bring their products to the market, and these were all canceled. Further, market areas (the *bazars*) were closed during the lockdown. In many cases, the fresh vegetables produced in the villages could not be sold, and many resorted to feeding them to livestock. A female farmer from Chyasku reported:

> I worked as usual on my farm during the lockdown. The main problem was that I could not sell [my] products in the weekly Ramechhap Bazar where I used to sell fruits, vegetables, and beans. I can store pulses, but I had to either distribute vegetables with neighbors or feed them to the cows.

Another respondent in Chasku shared:

> Ramechhap bazar was closed, and there were no transportation services during the lockdown. The use of porters would have been expensive, and the income from vegetables would not cover the transportation cost. We cooked the cabbages and gave them to pigs as feed. I was eventually able to sell about 100–200 kg of cabbage but at a very low price of 10 NRP/kg.

With such difficulties with selling products, a few of the farmers decided in the 2020 growing season (starting from June) to grow subsistence crops instead. One such example, is a farmer in Chyasku who used to cultivate vegetables and raise pigs. With the prospect of upcoming market uncertainties and increased costs for inputs due to the COVID situation, he decided to temporarily halt the vegetable cultivation and instead spent time on reclaiming a 0.2 ha field, which had been left as fallow for ten years, to use for millet production. He argued, "I lost income from vegetables and my family needs food to grow locally."

In a follow-up qualitative field visit in September 2021, we learned that the second wave of COVID-related restrictions had relatively less impacts compared to the first; neither subsistence nor commercial farming seemed to have experienced any lasting changes in Chyasku or Khimti. Overall, our findings suggest that, while the pandemic had some initial impact on farming strategies, the effects have not been great, and we have little evidence to suggest that experience of this shock will alter farming trends over the longer-term, at least overall. Nevertheless, our findings do point to the continuing importance of subsistence farming, as we shall discuss in the coming section.

5.2. Continuing importance of agriculture and future livelihood strategies

Despite the major changes in land use during the last decades, it is important to note that farming continues to be important for many smallholders. Notably, a vast majority of households (231 of 240, 96%) in our quantitative survey continue to cultivate at least some amount of land. Likewise, households estimated a median 40% of total household food grain sources are derived from their own production the year before the pandemic (2019)–an amount which increased during the early months of the pandemic lockdown. Thus, even if total land under cultivation has declined over time, agriculture does remain important for rural livelihoods– and is likely to remain important into the future.

Moreover, while we find no major long-term changes in agriculture across our data (quantitative of qualitative), qualitative interviews offer some indication that certain farmers may evaluate their overall investment in agriculture. In Khimti and Chasku, among the 28 people we interviewed that returned from abroad during or just before the pandemic, nearly 11 shared a preference to go abroad again, and that they would prefer to stay in the village and engage in the farming. Of these 11 respondents, two households had moved completely out of the village and had not been doing farming over past few decades (see Table 4). Among them, a man interviewed in Chyasku described restart farming after 20 years of living away from the village, as he explained:

> I started to plow land that had been abandoned for 8 years. (My) parents used to cultivate that land as long as they could work, then the land was left fallow. I used to work outside as a driver but decided to give up my job and I started to plow land and do traditional farming i.e., maize, beans. I have also constructed a shed for goats and pigs and will have a few of them. I want to invest in poultry and construct sheds for this.

> I am planning to work closely with a trader from Manthali [a bigger market town] who agreed to invest in the chickens and feed and will later buy all the products.

Farmers who expressed a desire to reinvest in their agriculture indicated that they were interested to start semi-commercial farming such as vegetable cultivation, raising cows, pigs, goats, and poultry. For example, a young man from Khimti who returned during the first lockdown period described intentions to start a semi-commercial cow farm. Another farmer in Chyasku described wanting to move into fruit production. He explained that the family thought about starting up commercial farm for quite some time and that the pandemic situation became an opportunity to start it.

An official from Likhutamakoshi Rural Municipality, in which Khimti lies, reported an increase in the number of people wanted to register new agriculture firms specializing in goat, pig, and fruit production during the pandemic. Registered firms allow farmers to claim state support such as a grant or loan with subsidized interest rate fand/or technical support from the *Palika* (municipality).

Thus, while our survey data suggests that the pandemic has not led to a large-scale return to farming, these accounts show that it has catalyzed interest to do so among some returned migrants. It also stands as testament to the continuing importance that many households place on farming and its potential, even despite widespread challenges. However, it is also important to note that these accounts were relatively few, and it remains unclear whether households will continue to pursue such efforts over the long-term.

6. Discussion

The findings of this paper showed a relatively small impact of the global COVID pandemic on farming in the mid-hills in Nepal, a finding has resonance with other studies (Adhikari et al., 2021). Overall, poorer and more marginal social groups saw greater challenges to access sufficient food during the pandemic (also see Bista et al., 2022). People with less land were particularly impacted, and this may be partly a result of limited food stores from previous production. We find that household dependence upon subsistence food sources increased in the months following the initial lockdown, which may have resulted from increasing distress as savings were exhausted. Many families were forced to borrow money, with potential longer-term negative impacts on household economic security.

Overall, subsistence food production was not negatively impacted by the lockdown, and we saw a marginal increase in land under subsistence food (grain) production among households that experienced food insecurity. However, semi-commercial farming was to some extent negatively impacted due to households' inability to access inputs and markets. In response, many farmers made temporary changes to their crops, primarily from semi-commercial production to subsistence food production. However, our data suggests that these changes were for the most part only temporary modifications. The pandemic has thus had limited effect on the overall agricultural strategy and livestock husbandry; however, we find evidence of increased interest in agricultural production among some farmers. Together, these findings underscore the continue importance of subsistence food production to secure

livelihood among rural households (Rigg, 2020; Chhetri et al., 2021; Sugden et al., 2021) as well as the potential for further growth in semi-commercial farming (also see Bista et al., 2022).

Our examination of the impact of COVID pandemic on farming and overall rural livelihoods shed some light on why it is so important for rural households to continue subsistence food production despite continued challenges as well as more remunerative off-farm livelihood options. Indeed, subsistence food production remains an important part of the safety net of food security for rural households, particularly in the times when off-farm incomes such as remittance are unpredictable or disrupted. This strategy of course has its limits, and as seen in Figure 2 those families with little farmland were more likely to suffer food insecurity during the COVID crisis.

This has important policy implications. At present, the agriculture development policy of Nepal appears to have prioritized commercialization in agriculture and state support for commercial agriculture favor larger scale farmers (Sijapati et al., 2017). For example, the 20-year Agriculture Development Strategy (2015–2035) has prioritized support for technology driven commercialization and mechanization. The agriculture ministry has initiated programs such as the Prime Minister Agriculture Modernization Project (see Gupta et al., 2021) to support the modernization policy. While the state has some programs to support smallholder farmers such as small subsidies for chemical fertilizer, agriculture extension services, and distribution of improved variety seeds, a major proportion of support has been on promotion of larger scale commercial farmers.

Our work indicates that there is indeed an interest in commercialization. Yet, this emphasis fails to acknowledge the continued importance of subsistence production in sustaining rural livelihoods. Our work shows the importance of developing agriculture policy that explicitly recognizes and supports subsistence food production in addition to commercial agriculture. Yet, policies targeting subsistence food production will not benefit those who have limited access to land. Thus, agriculture policy should also consider interventions toward enable the access to land for people who are landless or have very small land holdings. For, example some reports (see Gupta et al., 2022) suggest the schemes such as land pooling and collective/cooperative farming could be a way forward.

Despite the importance of subsistence farming for rural households' daily needs and a growing interest on semi-commercial farming, it nevertheless appears farming alone is not sufficient (or profitable) to secure livelihoods of most of the rural households. As a result, most of rural households are forced to explore some form of off-farm employment, either domestically or internationally. Studies show that both domestic wage labor opportunities and international labor migration are associated with numerous risks and uncertainties (Rigg et al., 2016; Sunam, 2020; Sugden et al., 2021), while remittances alone often do not generate sufficiently stable nor enough incomes to sustain a family and improve overall wellbeing (Sugden et al., 2021). This is why it is important for the rural households continue to engage in farming often in combination with off-farm employment (see McCarthy, 2020; Rigg, 2020; Sugden et al., 2021).

During the initial months of the pandemic, some reports (Sunam et al., 2021b) anticipated that large-scale reverse migration may lead people to go back to farm and that this would lead to

a reinvigoration of agriculture production. However, as findings from this and other studies have shown (see Gupta et al., 2022), this did not happen. In hindsight, this is not surprising given the fact that the rural agriculture is facing a mix of structural challenges including declining farm sizes (Marquardt et al., 2016), lack of farm labor, low profitability, and climate change impacts (Bardsley and Hugo, 2010; Gentle et al., 2014). In recent years rural farmers has also suffered from increasing harvest losses of crop and livestock by wildlife (Bista and Song, 2021; Andersson and Hansson, 2022). These challenges threaten the safety net function of subsistence farming and suggest that off-farm employment will continue into the future. This is precisely why it is so important for state policy to explicitly target small holder farmers' needs. Taking these challenges seriously are critical to safeguard basic wellbeing and to contribute to maintaining rural areas as dynamic places of agriculture and economic vitality.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Author contributions

DK played lead role on conceptual development, methodology development, supervision of qualitative data collection, led qualitative data analysis, and writing manuscript. KM: contribution to conceptualization and methodology development, support on qualitative data analysis, and significant contribution on writing manuscript. HF: contribution to development of conceptual idea and framework, take lead on developing and conducting quantitative survey, overseeing quantitative data analysis, and significant contribution on writing manuscript. SK played main role on qualitative data collection (field work), provided support on qualitative data analysis, and writing manuscript. DS carried out quantitative data analysis and provided inputs on writing. DP: contribution on methodology development, support on field data collection, and contribution on data analysis and writing. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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