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**Food systems of the Andean Quechua:
Countering industrial agriculture through harmonious living, food
sovereignty, and traditional knowledge**

Master of Science Human Ecology - Culture, Power and Sustainability (Two years)
30 ECTS
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Spring 2022

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Master's Thesis	
Title and subtitle:	Food systems of the Andean Quechua: Countering industrial agriculture through harmonious living, food sovereignty, and traditional knowledge
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Examination:	Master Thesis (two years)
Term:	Spring 2022

Abstract:

The Potato Park is an Andean Quechua biocultural heritage territory where six communities restored a rich biodiversity of native potatoes and other crops. Their food system has gained global recognition over the past two decades for the communities' cultural and agricultural conservation efforts. The central question of this study is how do the communities resist the hegemonic industrial agricultural model? In this thesis I am analysing the relationship between agricultural conservation, the Quechua social system of reciprocity and their unique way of combining traditional and Western knowledge in their agricultural efforts and beyond. Through a thematic analysis I found that through rituals and a collective way of tending to the land they united their six communities, led by the 'charisma' and organisational power of the potato and spirits of their landscape. For their agriculture, food sovereignty and autonomy are interrelated in their approach to running the Park independent of the Peruvian state. At the same time local and global food security are at the focus of their work conserving climate adaptable seeds and storing them in local and global seed banks and vaults: this is central for their care for the land and future generations. Their contribution to science production is unique, because in their approach to combining indigenous and Western science, creating a bridge between academia, policy making and indigenous traditional knowledge and present experiences of climate change and challenges of sustainability. Through the concept of translation work I investigate how further collaboration with indigenous groups is possible in the field of human ecology and beyond.

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Acknowledgements

Firstly, my biggest appreciation and deepest thank you to everyone who participated in this study from *El Parque de la Papa* and *Asociación ANDES*, *International Centre of Potato*, Lima and the *UN's Food and Agriculture Organisation*. Muchas gracias por todo.

I would like to thank Vasna Ramasar for her ongoing supervision and support in this semester. Thank you for everything!

Thank you to my mother Mária, father Kálmán and Péter brother for always supporting me, this truly would not be possible without you.

Thank you for my circle of peers and friends at Human Ecology and beyond, for the neverending brainstorming and continuous encouragement: thank you Ana Mandinič, Hannah Wahler, Alexandra McFadden, Clara Colombet, Petra Bíró and Kinga Danesch.

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Abbreviations, short forms

IBHA:	Indigenous Biocultural Heritage Area
ANDES:	Asociación ANDES, the Quechua-Aymara Association for Sustainable Communities [Spanish acronym]
CAS:	Critical agrarian studies
CBD:	Convention of Biological Diversity
CIP:	International Centre for Potato [Spanish acronym]
INIA:	Institute for National Agriculture and Research [Spanish acronym]
LVC:	La Via Campesina
'The Park':	El Parque de la Papa, 'Potato park'
INMIP:	International Network of Mountain Indigenous Peoples
IP:	Intellectual property
ITPGRFA:	International Treaty on Plant Genetic Resources for Food and Agriculture
GTA:	Global Tapestry of Alternatives
GMO:	Genetically modified organisms
NGO:	Non-governmental organisation
RED:	Radical ecological democracy
Técnicos:	'Técnicos locales' in Spanish. Local agronomists from the Quechua communities
TW:	Translation work
SDG:	Sustainable Development Goals
WFS:	World Food Summit <i>of the Food and Agricultural Organisation, 1996</i>

Chapter 1

1.1 Introduction

El Parque de la Papa is a unique 15000 ha reserve high in the Andes mountains near Pisac, Cusco focussing on conservation of the region's potato biodiversity, autonomously managed since its foundation in 2002 by the six Quechua speaking indigenous communities (Angé, 2008; Argumedo and Wong, 2010). In the Andes mountain range the Quechua are one of the two biggest indigenous groups living in Southern Peru and North-Western Bolivia, and they preserve ancestral spirituality and culture from the times of the Inca empire. Closer to the location of this study, in the Cusco region also known as the 'navel of the world' the Quechua aspire to live in harmony with nature through their unique social system called *ayllu* (collectiveness of kin), and as Walshe and Argumedo explains, it rests on the values of reciprocity (*ayni*), equilibrium through complementary dualism (*yanantin*), solidarity through unity (*chanincha*) (2016). In the Potato park, the Quechua peoples became internationally acknowledged and supported for the regeneration and conservation of their native potato varieties, and their other activities such as ancestral natural weaving from alpaca yarn, medicinal herb products or local cuisine are all part of their biocultural heritage. As part of their Inca heritage, the Quechua use zone agriculture to grow temperature sensitive crops at different altitudes, and the spectacular, terrace-like views of mountain agriculture across the Cusco region attracts approx. 3 million tourists annually (Andina.pe, 2018).



Figure 1: *Potato park members celebrating during a community festival. Courtesy of ANDES.*

In this thesis I will explore the ways in which the Park has created a sustainable alternative that counters industrial agriculture, and analyse their relationship to land rights, seed ownership and human and indigenous rights issues experienced by the Quechua communities. In this study I will analyse the ways in which they conserve both their agriculture and their traditional knowledge and frame it as a resistance towards hegemonic agriculture and an act of community self-preservation. I will explore the Park's ontology and relationship to land and what it offers for conventional agriculture; the implications of how food sovereignty and food security are understood by the Park and its (long and short term) partner organisations. Finally, I will analyse how an academic practice termed as 'knowledge translation' can contribute to a dialogue between traditional and Western scientific knowledge production, and explore what it can offer to our understanding of agriculture.

Since its foundation the Park has actively mobilised against transgenics and for intellectual property (IP) rights, whilst the communities have sustained their rich cultural heritage and ancestral cosmology, complemented by their unique agro-ecological conservation practice, thriving 3000 metres above sea level (ANDES, 2006). For these reasons, many people have described the Park as a 'viable alternative' to hegemonic industrial agriculture. Throughout the past twenty years, the conservation and breeding method of the Andean communities of the thousands of varieties of tubers have received much of Western academic and institutional attention (FAO, 2009; The Guardian, 2019; CropTrust, 2015). At the same time, their unique understanding of the world (ontology) and community values of the members of the Park have been in the interest of a limited number of anthropology scholars and activists (Arnold, 1987; Angé, 2008; GTA, in press). Whilst previous studies bring the Andean indigenous way-of-life and cosmology together with the agroecological conservation of the Park, they do not portray it as an indigenous resistance movement and way-of-being against hegemonic industrial agriculture. More specifically, I propose that the Park can offer a unique intersection of traditional knowledge and Western knowledge weaved into their day-to-day work: whilst they protect their local knowledge, the communities and ANDES strategically disseminate, merge and work with Western scientific knowledge. Arguably, translation work, a concept explained in detail in later chapters, has not yet reached its full potential in social sciences, and as part of this thesis I propose it bridges traditional and Western science to facilitate a dialogue for sustainability. In this study I understand *sustainability* (inspired but not limited by the Brundtland report) as the ability to meet the population's needs today, whilst not compromising that of the future: I suggest that sustainability incorporates an equilibrium of human and nonhuman needs, too (Brundtlandt, 1987). Therefore, in this thesis, inspired by *The Cultural Values Enabling Adaptation to Climate Change in Communities of the Potato Park*, I will investigate the following research questions (Argumedo and Walshe, 2016).

Main question:

- How does the Andean communities' ontology, values and conservation practices contribute to resisting the hegemonic agricultural model?

Sub-research questions:

- How does the Quechua way of life represent a different ontology and connection to land?
- How is the Park establishing food sovereignty and autonomy?
- How does the Park use traditional and Western knowledge, and what does that offer as a possible alternative for agriculture?

1.2 Problem statement: the hegemonic industrial agriculture

This year, *Silent Spring*, Rachel Carson's book came out sixty years ago: since its publishing it has been one of the most wide-spread critiques of the agroindustry, drawing attention to agrochemicals destroying fundamentally important pollinator wildlife, putting people's health and access to food at risk (Carson, 1962). Since her book, numerous activists and scholars have dedicated their lives to make sense of the structural issues the agroindustry presents us with. Vandana Shiva, Indian environmental scholar has brought much attention to the effects of what became known as the Green Revolution in India: from the 1970s onwards private corporations were taking over productive land across India, poor farmers were pressured to sign their contracts, and turned them into single-crop monocultures of grains destined for export dictated by consumer societies of the Global North (Shiva, 1991). She explains that such fields lack the protective, relational network of a high biodiversity field (mimicking wild nature itself), therefore they are weak and reliant on agrochemical spraying treatments (ibid).

Looking at the state of agriculture in Peru in the 20th century, the 1969 agrarian reform was initiated by the government and aimed to change the concentrated land ownership of the *hacienda* landlord system, a remainder of colonialism (Zimmerer, 1996:70). Many argue that the land reforms achieved little change, especially from a social justice and equality perspective for *campesino* (indigenous peasant) communities and by and large the communities remained poor and without much access to land ownership (ibid). Zimmerer found that intensive agriculture on these hacienda lands has resulted in loss of fertility and depletion in nutrients, and the agrochemical industry introduced fertilisers and new resistant seed varieties destined for monocultures (ibid: 76). The government artificially kept the prices of the potatoes low and systematically underpaid the campesinos who worked the land, keeping them vulnerable to the government (ibid). The agroindustry has far-reaching consequences beyond food production. It can erode communities; degrade environments; lead to the loss of traditional knowledge and many other consequences. Given the critical state of the planet and our search for sustainability, we need to find alternatives to the agroindustry. In this thesis, I explore one alternative and its potential to offer a different way of engaging with agriculture.



Figure 2: *The Cusco region is in the South-East of the country.*

1.3 Background: The history and state of agriculture in Peru in the 20th century

Across Latin America over the course of the past fifty years, indigenous and local peasant movements have been responding to issues of land rights (Cant, 2018), seed ownership rights (Peschard and Randeria, 2020; Shiva, 2000; Brandt, 2014), transgenics (Altieri and Toledo, 2011). The region shares these patterns of oppression and similarities in social struggles as the Americas were colonised by the Spanish and the Portuguese, an act that left a legacy of oppressing, market oriented, neoliberal states that produce the narrative of the land conceptualised as a set of ‘resources’, and seeds portrayed as ‘plant genetic resources’: arguably, arenas of production to be exploited (Kloppenburger, 1988:152). As a result, indigenous and peasant movements, mobilisations, ways-of-being share traits of what the academia termed ‘decoloniality’, broadly understood as a form of relationality, or in other words, the dialogue between local histories and epistemologies that enable to “contest the totalizing claims and political-epistemic violence of modernity” (Mignolo and Walshe, 2018:1).

The dark colonial history of the continent is still felt through the ongoing state oppression of marginalised, indigenous and landless peasant communities who throughout the twentieth century have been demanding land rights, food sovereignty, social autonomy, and spiritual, cultural or religious freedom, and right to self determination (Akram-Lodhi et al, 2021; Collier et al, 1994; Altieri and Toledo, 2011). According to the NGO *GRAIN*, Latin America is home to the greatest inequality globally, where more than half of the farmland is owned by 1% of rural landowners (GRAIN, 2020). Looking specifically at land ownership inequalities in Peru, Albertus points out that indigenous groups have been struggling against the concentrated land ownership of postcolonial elites appropriating their ancestral lands, and adds that indigenous groups pushed towards

collective land care more so than mestizo (white and indigenous mixed descent) Peruvians (Albertus, 2021:241). Starting in 1980s and peaking throughout the 1990, Peru has seen neoliberal reforms and austerity programmes under the Fujimori regime: most productive land was turned into export oriented, highly industrialised, largely monocultural, often private sector agribusiness-dictated farms that try and keep up with the global consumer demands (Crabtree, 2002; Stavlig, 2022).

Over the decades, this neoliberal turn and the intensifying and tangible effects of climate change have sparked a new wave of resistance of peasant and indigenous groups in the country against capitalist extractivism, land grabs, state monopolies, chemical fertilisers and pesticides (Escobar, 2018:150; Brosius et al; 2005:231; Huarcaya, 2019:574). Community organisers, members and indigenous groups have long been warning decision makers that top-down implemented 'progress', 'economic growth', or categorically called 'development' will only lead to exponentially faster destruction of the environment, and within it, human and non-human health (Shiva, 1991; Escobar, 1992). Many Latin American scholars have come to question whether change can emerge from within the confines of the modern capitalist, consumerist and largely profit oriented industrial agriculture, and argue that independent, autonomous, smaller scale chemical-free farms run by fairly paid workers and peasants even have the potential to produce the yield enough to feed the world population (Figueroa-Helland et al, 2018; Altieri et al 2012).

The Latin American local resistance to such oppression and the aim for autonomous can be characterised in two ways: on the one hand there have been a plethora of social movements (both armed and unarmed), and on the other hand there are various ways-of-being or slower processes which aim to restore a harmony with nature and food production, and a general sense of wellbeing for the communities. Some movements and indigenous ways-of-being are intertwined and intersectional: a few examples are *buen vivir* (Bolivian, Ecuadorian), *Zapatismo* (Mexican indigenous from Chiapas), *suma qamaña* (mostly Bolivian Aymara) – and at the focus of this thesis, *sumak kawsay*, the Peruvian Andean harmonious way-of-being (Huanacuni Mamani, 2010). These groups aim to counter the hegemonic capitalist agriculture, and demonstrate that there is a multiplicity of alternative production of culture-agriculture. Inspired by the Zapatistas, Colombian scholar Arturo Escobar coined the term 'pluriverse', the alternative to the universe, where various world designs can be actively created and cultivated, and I would argue that these movements all belong to the pluriverse (Escobar, 2017). I would argue that the Andean indigenous conservation work and way-of-being is one of these alternative world designs, cultivated by six Quechua communities who aim to live in harmony with their natural environment which includes spirituality, and conserve their ancestral cultural and agricultural practice through cultivating one of the highest biodiversity of native potato varieties and local crops.

Chapter 2: Theoretical framework

In this study, the following theoretical branches will be applied throughout the analysis in order to respond to all main and sub-research questions of the Andean agricultural resistance in Peru. Firstly, the broadest theoretical frame will situate the Park in Latin American decoloniality in order to respond to the question of how the Park is resisting hegemonic industrial agriculture. This is relevant because Andean peoples' history is bearing the traces of colonialism, patriarchy and oppression of land rights. Arguably, the Park's transformative process cannot be understood without seeing it through the lenses of decolonial theory which has emerged over the course of the past fifty years in countries where indigenous, ethnic minority groups and/or women are affected by colonial oppression, collectively called the Global South (Kothari et al, 2017:xxii). Secondly, taking a closer look at the unique characteristics of the Park, I will draw a parallel between the Park's peoples' way of living and agricultural work with the radical ecological democracy (RED) concept for its aspiration towards harmony with nature, creating sustainable food systems, and community initiated, or 'bottom up' approach towards self-governance (Kothari, 2019; Escobar, 2017). Thirdly, collectively examining these aspirations that are based in the land will be the lens of critical agrarian studies (CAS), exploring how living and working in collective land ownership cherishes values of reciprocity, gifts and periodic offerings across communities to foster ecological and societal harmony as opposed to the industrial agricultural practice viewing land as a resource to extract or as private property to isolate. Embracing all these theories will be translation work, which is partly a recently established research method and partly an epistemological position, and partly a methodology in indigenous health sciences. It advocates for bridging Western science and indigenous science whose practice differs primarily, but not exclusively in epistemology, asking what *is* science. While these theoretical elements appear broader than the scope of the study, each will be addressed through the respective research questions and themes that have emerged in the analysis Chapters 4,5 and 6.

2.1 Decoloniality, the broadest framework

Maldonado-Torres writes that key to decoloniality are issues of visibility: for him, decoloniality is the process of revealing mechanisms that make some people visible, and some invisible (2007:262). He argues that decoloniality is challenging hegemonic world orders of capitalism, development, and the racist hierarchy of society of the modern world (Maldonado Torres, 2016:26). Mignolo and Walshe conceptualised decoloniality as the *relational* web of perspectives of local experiences of oppressed, marginalised or silenced groups around the world (2018:1). The authors' argument is twofold: on the conceptual level, decoloniality, rather than being merely a concept carrying a single universal meaning, is decentralised, locally situated, multifocal perspectives of groups oppressed through colonial power. On the other hand, it is also macro narratives of two kinds: one being

group cosmologies (origin stories) from pre-Columbian times in the case of Latin America; and the other recounting what happened after the moment of the arrival of the Spanish that stretch all the way into the present (ibid). Important to this thesis, Boaventura Sousa de Santos makes an epistemological inquiry about the nature of science, and what is at stake when doing science through a decolonial lens: in order to build a more democratic world we must incorporate different perspectives and sciences to cultivate an “ecology of knowledges” (2007:xx). Vandana Shiva frequently discusses the notion of the “monocultures of the mind”, linking the agricultural and the spiritual planes together (1993). I understand decoloniality following Santos and Shiva, and argue that when a diversity of knowledges is applied in science, humanity has better chances to not only survive, but thrive in coexistence, respect and biodiversity of all beings amidst the challenges of climate change. Therefore, decoloniality is applied in this thesis as the central guiding perspective and as a more practical tool for reflection for the researcher.

2.2 Radical ecological democracy (RED)

In order to grasp the complex relationality of nature, peoples and spirits or collectively called *sumak kawsay* in Quechua, the concept of RED helps to position it under the terms of Western science. In the *Post-Developmentalist Dictionary* Ashish Kothari scholar-activist writes that across the globe various grassroot (community initiated) movements have been increasingly concerned with social and ecological justice, autonomy and knowledge plurality, which he altogether termed as RED (2019: 291). In the context of this study, RED is understood as a set of principles that help construct alternative, ecologically and socially just societies countering the dominant capitalistic world. At the heart of RED movements is partly a critique of developmentalism, and the strive for harmonious human-nature relationships, self-governance, respect for non-human beings, and social equity (ibid). It is *radical* because it challenges the modernist-developmental economic model and urges us to look beyond it, it is *ecological* because at the heart of it is a strive for living in harmony with nature, and it is *democratic* because it proposes a participatory political model based on social equity (Demaria and Kothari, 2017). As mentioned in the Background, some Latin American examples, some of the internationally better known RED movements are *buen vivir* and *Zapatismo*, or the focus of the study, the Andean *sumak kawsay*, or ‘harmonious living’. From a broader perspective, the concept of Andean harmonious living incorporates intergenerational dialogue, social justice and self-sufficiency. The native potato acts as a charismatic organising force of local peasant society centred around respect, and it operates as a guardian spirit for agricultural innovation, much like how corn is understood by Mexican peasant society (Angé, 2008; Aguilera, 2016:206).

2.3 Food sovereignty

Closely related to the principles of RED, the concept of food sovereignty will be discussed when analysing the food systems. In this paper the definition of the global peasant movement La Via Campesina (LVC) is the most relevant, as it understands food sovereignty as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (LVC, 2021: 2). To unpack that definition, food sovereignty stems from local autonomy: locally designed sustainability (*from* the people, *for* the people) and local control over the natural resources that make up a food system: the landscape, soil, water, animals, forests, etc. The concept will be applied when discussing the approaches towards food sovereignty and food security in the Park, and their approach towards food production and resource use. Therefore when discussing food sovereignty, after Iles and de Wit, I understand it as a mechanism of power, a platform for peoples to exercise their rights when it is contested by states and state alliances such as the UN or the EU (Iles, 2015). ANDES coined the term 'indigenous biocultural heritage territory' (IBHT), arguing that at the centre of the communities' land use is the conservation of ancestral food systems through the growing of native crops supported by community values (ANDES, 2016).

2.4 Pluriverse

One of the spaces where translation work can operate as a method is the *pluriverse*. In the seminal text 'Designs for Pluriverse' by Arturo Escobar (2017), partly inspired by the Mexican Zapatista peasant movement that imagines "*a world where many worlds fit*", the author argues that the capitalist world design is only one of the many imagined possible ways of living. The concept of the pluriverse stems from post-developmentalism because it challenges extractivist, patriarchal and colonial practices of 'world making', or in other words it challenges the hegemony of the modernist paradigm (ibid). Embedded in Escobar's approach is a transformative worldview. He invites the reader to "focus on design's ability to broaden the range of possible ways of being through our bodies, spaces, and materialities" (ibid: 18). Following shortly this publication came the 'Pluriverse: A Post-Developmentalist Dictionary', in which a small selection of theorists discuss development and its crises, a slightly larger group of writers showcase reformist concepts, and lastly, the greatest number of essays are grouped into the category 'A people's pluriverse: transformative initiatives' (Kothari, 2019). I understand the concept of pluriverse as a transformative, liberatory tool that encourages people to see the multiplicity of movements and ways-of-being. The pluriverse is also reflecting a dedication of bringing together many worlds and finding common threads, rather than displaying alternative movements as scattered and independent of each other. Therefore, the text 'Pluriverse' can be read as a collection of epistemological explorations answering the broader question 'what is ecological and social transformation?' and the 'Designs for Pluriverse' are the various historical and present methodologies of creating them. The concept of the pluriverse

guides this thesis in conceptualising the Park's ecological initiatives, community values and cosmology as being part of the many worlds on planet Earth, and therefore I aim to demonstrate that the Andean design has been successfully resisting the capitalistic design.

2.5 Critical agrarian studies (CAS)

CAS is relevant to this thesis to understand how power is exercised between peasant agrarian groups' and the nation state, and the scholars of the field being critical of the notion of the 'top-down' mechanisms of modernity tend to locate power at the agrarian peasant producers, bringing about social transformation from the 'bottom up', and analyse how such groups mobilise to exercise land rights, water rights, to gain fair wages, to protect their working and living environment (Akram-Lodhi et al, 2021). By the nature of the field it has a long history of Marxist thinkers, but in this study I position myself between CAS and decoloniality, and borrowing the analytical lens of the former, I will explore what is at stake in the collective-communal land use in the Park as opposed to the largely private land ownership of the hegemonic agricultural practice. In this study, I understand the collective and communal partly as an approach to sharing local natural resources equally such as seeds, water, planting plots, fertilisers, and partly as sharing community responsibilities of planning, breeding, production and sales of produce through collectives and electing members. As Akram-Lodhi writes, land is socially embedded and culturally contextual, therefore I will argue that in the Andean context land use is where the Park's transformative power is located. As explained in the background, Peruvian indigenous communities and marginalised peasant groups have been systematically disadvantaged by the colonial legacy of the hacienda system, and the six Quechua communities had been struggling for a long time to achieve the current status of the Park (Zimmerer, 1996). The communities' expand the concept of 'land use' and rather than limiting it to production of food and extraction of resources, their spirituality, kinship with potatoes, and the strive for intergenerational respect-based social equity are all that constitute counter-hegemonic, harmonious land use (ibid: 72). Through 'using' the potato both as a central organising force for their agroecological conservation and as spiritual organiser and guardian, the Park can be understood as an autonomous, alternative indigenous sustainability movement challenging the structures of modernism and state power.

2.6 Translation work

Translation work is relevant for this study because on the one hand it sets the ground for the researcher to create respectful dialogue and reciprocity with indigenous participants, and on the other hand it serves as a method to open up space for various counter-hegemonic ontological positions in the Andean cultural context and allow them to enter into dialogue with its Western counterparts.

'Knowledge translation' and 'translation work' have become two increasingly more popular decolonial theoretical concepts over the past four decades, and they are closely related in principle. The former relates to a combination of researcher ethic and method applied typically in North American health sciences: 'knowledge translation' refers to actively tailoring the research purpose and methodology with the values (ie. reciprocity, elders' respect, time commitment, etc.) of indigenous and marginalised communities (Graham et al. 2006; Tobias, 2016). Emerging at the same time in social sciences, amongst scholars from countries of the Global South, translation work refers to a branch of decoloniality-focused social sciences. Santos et al. discuss the concept of translation work, which is carried out between non-Western and Western epistemological and ontological studies, and argue that it enables social struggles to enter into dialogue (*decolonial relationality*) with each other without losing their local differences (2007:xxvi). The authors point out that one of the strengths of indigenous struggles of Latin America lies in the fact that they "forge alliances between different peoples and ethnic groups, other social movements, NGOs, and international solidarity movements. (ibid: xxviii)." Translation work therefore creates a theoretical space where indigenous and Western knowledges are both seen as socially constructed, situated, and non-hierarchical, and therefore such knowledges have the potential to eliminate group scale atrocities of political, economical, or social, such as colonialism, extractivism, or religious oppression.

Chapter 3: Methodology

3.1 Philosophy of science

Indigenous scholar Zoe Todd critiques how Western science has misunderstood and misused the ontological turn (understood as the opening up of the canon of knowledges towards indigenous science), and many Western scholars have been reproducing colonial power relations in academia (Todd, 2016). She argues that academics largely fail to acknowledge indigenous scholarship by not quoting indigenous thinkers "directly, unambiguously and generously", and instead appropriate arguments and local knowledge (ibid: 7). Todd's analysis of this phenomenon informs this study in a way that through the analysis of standpoints of the Park members, ANDES, CIP and the FAO, I understand that the findings of this study do not belong to a single, objective reality that can be obtained. Instead, a social constructivist position (as understood by Bryman) informed answering the research question through a working dialogue between the above participants who shared their experiences of collaboration through agricultural practice (2021: 350). In this study, after having engaged with both indigenous science and Western science I conclude that whilst there is a

tangible reality of nature (mountains, seeds, water sources, soil), peoples' understanding of them and their ascribed values are constructed through culturally embedded collective and individual experiences.

3.2 Researcher positionality and research ethics

The motivation for this study came from a human ecology internship with the Global Tapestry of Alternatives (GTA), where I had the chance to meet scholars involved in Latin American alternative movements and participate in webinars organised by the GTA. I come into the research field as an outsider because I am neither indigenous nor from Peru, therefore it was very important to me to treat the study as an act of reciprocity, inspired by the Quechua concept of *ayni*. Therefore, in accordance with our research agreement with ANDES, in a separate piece of work I will compile some useful material for the communities to showcase in their local library. This way, giving back to the interviewees from the Park and ANDES hopefully makes up for the power imbalance that is inherent when doing research with and about indigenous peoples (Bendix et al, 2020:74). The commitment of the researcher towards this study is to explore what the Potato park as an alternative can offer to agriculture and scientific knowledge production, and partly also to foreground primarily scholars, activists and other cultural theorists from the Global South to bolster my case (Todd, 2016). My role as an outsider to the community is helpful here as I attempt to bridge between the community and modern science, especially through my discussion of translation work. At the start of the project, a gatekeeper helped me gain access to the field: the director of ANDES agreed to an initial interview, and afterwards he connected me to both the coordinator of ANDES, as well as the focus group of *tecnicos* of the Park. The coordinator helped interpret the interview with the focus group from Spanish to English, which I will discuss in more detail in 'Limitations'. She also helped me create the appropriate consent form for the community members, and discussed several phases of this research with me in an open manner.

Working with indigenous community members who speak Quechua and Spanish, the focus interview was conducted with the help of an interpreter from ANDES, and for protection of identity and potential conflict emerging around the opportunity to participate in the research, the data was anonymised. I created a straightforward and short participant consent form in Spanish with the help of the coordinator at ANDES (Appendix 1). In order to protect the identities of the interviewees and the focus group, I anonymised their names: during the interviews they mentioned there were historical disagreements both internally within the Park, and around the seed repatriation agreement of 2004, so I deemed it appropriate to anonymise all who got involved in the study (ibid).

3.3 Methods and research design

The choice of a single case study was deemed appropriate in order to explore depth rather than breadth of the Andean indigenous socio-ecological alternative the Potato park has been working towards: the object of study is diffuse, analysed through a particular type of evidence (interviews), and is analysed comprehensively and holistically (Tight, 2021: 6). Primary data was gathered through both individual and focus group interviews of different actors related to the Potato park: *tecnicos locales* (community agronomists), two ANDES members who have been supporting the Park's work for years, and the projects coordinator of CIP, a scientific institution based in Lima.

For the purpose of analysis, I will primarily use thematic analysis as the overarching method of analysis. The themes emerged both during the interviews and after transcribing, and I deemed the recurring themes as the larger categories to be discussed as the focus of analysis (Bryman, 2021:541). As a secondary method, I will use document analysis to support my arguments and observations regarding the work and vision of CIP and FAO in order to complement the interviews I conducted with the representatives. Thirdly, in the last chapter of analysis, stemming from the theme of 'bridging indigenous knowledge and Western knowledge', I will expand on the concept of translation work and what it might offer as a practice for human ecology research.

3.4 Data collection

Both for gathering participants and secondary data, purposeful sampling was chosen for this case, since as Creswell argues, for qualitative studies the researcher actively selects participants or documents that help answer the research question best: they were selected after the literature review was completed (2013:239). For the interviews I chose a semi-structured approach with open-ended questions to guarantee an organic and emergent reflection for the interviewees, and to allow them to more freely express their worldviews (ibid). For sampling I chose theoretical sampling, which is emergent in nature through ongoing data collection, coding and analysis guided by the theory-in-the-making until saturation is reached (Bryman, 2021: 380). Initially, the choice of having three interviews (two interviews with ANDES and one focus group with members of the Park) with participants from *within the structure* of the Park was deemed appropriate, because saturation was reached due to the nature of the interviewees working close to each other in a relatively small space that is the communities, and ANDES that has been a long term supporter of them. Later on in the process I decided to interview the project coordinator at CIP, primarily in order to understand how the Peruvian agro-science institute sees the Park as an agrobiodiversity project. Lastly, just a few weeks before the presentation of this study, FAO agreed to the interview request, too.

Tuhiwai Smith argues that when indigenous communities and individuals participate in research often it is resource-intensive, and energy and time are invested in participation (2012:141).

Balancing this important point with the overall aim of this study to voice as many perspectives from the Park as possible, I chose a focus group approach for the tecnicos locales with the help of the ANDES coordinator. In this interview, the coordinator also acted as a gatekeeper, because she already has an established friendly relationship with the focus group, which made my entry to the field much smoother.

Table 1: Schedule of interviews

Interviewed	Date	Language
Director of Asociación ANDES	04/03/22	English
Tecnicos locales focus group	22/03/22	Translated to English from Spanish
Coordinator of Asociación ANDES	29/03/22	English
International Centre for Potato (CIP)	30/03/22	Translated to English from Spanish
UN's Food and Agriculture Organisation (FAO)	22/04/22	English

3.5 Thematic analysis

Both during and after the interviews various themes emerged, and their relevance to my study was affirmed by the initial literature review I conducted. To introduce them briefly, the most relevant themes were the following: the relationship of traditional knowledge and scientific knowledge; peoples' relationship to land and agricultural production; the relationship of indigenous food sovereignty and global food security. What supports the validity of these three overarching themes is the fact that all interviewees discussed them.

3.6 Limitations

The two greatest limitations to the study are language and the online nature of the completed field work (above interviews). I do not come from a Latin American background, and I only understand

Spanish at a basic level, therefore on two occasions I asked for an interpreter's help. The interpreter was the coordinator at ANDES with whom I had preparatory discussions to make sure the research can be carried out as planned. As preparation for this study, in order to get sufficient language skills, I took Spanish classes: in order to establish a friendly relation towards the tecnicos and the representatives of CIP I introduced myself, the study and the interview questions in Spanish. Because of the Covid-19 pandemic, time constraints and financial limitations I was not able to travel to Pisac to carry out field work, so the lack of first hand observations of how the communities work together is tangible. Instead of physically travelling, I engaged with the GTA's Resilience story webinar hosted with community representatives and the *Uyway* film produced during the communities' visit to the Svalbard Global Seed Vault (GTA, 2021; ANDES and Black Maria, 2016). Additionally, I watched the videos I found on Youtube where previous visitors recorded their experiences in the Park where they were introduced to hand-woven clothing, traditional potato cooking and small greeting ceremonies upon arrival - this helped me get a sense of the field and the wider cultural context.

Despite not having had the opportunity to travel to Peru, I chose interviews as the primary data collection method because it represents the views of the individuals and allows reflection on the history and context of their experiences (Creswell, 2013:241). For the purpose of the single-case study, the five interviews provided a variety of viewpoints and opinion, and a rich material with various themes to answer the three open sub-research questions. During the interviews, I took observation notes of how the views were expressed which helped me establish a relationality between the different interviewees: wordings expressed worldviews and attitudes which provided a metalevel of meaning for the analysis that hopefully make up for the lack of in-person field observations.

Chapter 4: Challenging modern science - Andean ontology and connection to land

4.1 Animism

To a large extent, the locals' relationship to the landscape is animistic, and as Graham Harvey understands it, it means the people learn how to be in good relationship with other humans and non-humans around them (Harvey, 2005:xi). The cultivators uphold respectful, reciprocal relationships with the soil, the mountains, and animals and believe that there are spirits associated with them. The concept of nurturing ('crianca' in Spanish, used both for humans and non-humans)

the land and its produce through rituals, songs, festivals and dances is fundamental to achieve harmony: they believe when they give to the land, it will provide in return. As the tecnicos explain:

“I’m talking about the allyus: one is community people, another one is the community of the sacred (like mountains) and lastly one is the biological indicator which comes from the wild plants (wilderness in general). These need to be maintained in balance. Ayni is balance, reciprocity. All of these maintain it and the potato forms this network” (Appendix 3).

While organisations like CIP and FAO consider seeds as genetic resources and material, the communities *relate* to them as extended family, and they nurture them, that is what the ayllu social system means (Appendix 4; Appendix 5; FAO, 2009). The tecnicos referred to the potato as an ‘opportunity’, a ‘child’ to be nurtured (‘crianza’ in Spanish), ‘a spirit’ (Tecnicos, 2022). They emphasised the ties between “the potatoes, the people who grow them, and the mountains” (Tecnicos, 2022: 1). The tecnicos added that part of their conservation work is not only maintaining existing, and creating new varieties of tubers, but also protecting the environment from harmful chemicals, and using natural fertilisers and paying attention to signs from the surrounding nature (ibid: 2). According to the ayllu social system, both physical beings and spirits belong to three different realms: the sacred or *auki*, the wild or *sallka* and Mother Earth or ‘Pacha Mama’ with nature *runa* in Quechua language (ibid). One of the pillars of the ayllu system is the notion of ‘ayni’ or balance, reciprocity in English (Tecnicos, 2022; Argumedo, 2022). Argumedo, the director of ANDES explained that the foundation of the Park and ANDES happened simultaneously in 2001-2002, and the success is attributed to the *charisma* of the potato which helped create balance amongst the communities, too (Appendix 1). As the director explains:

“The communities thought they could use the potato as a charismatic piece, that everybody had not just as a staple but as a strong cultural symbol. Any type of socio-cultural expression like baptism, marriages, and kinship relations all are done in a ceremonial way where the potato plays a role” (ibid).

Here the director is linking the demarcation with the potato and identifies it as a guardian or leader of founding the Potato park. Having found ancestral potato plantations at the territory of the Park, the plant helped the communities demarcate their territories and establish communal ownership over the conservation area by uniting the communities after years of conflict caused by guerilla fighting of the Shining Path in the Andean countryside (ibid).

4.2 Rituals and festivals

Taking the point of animism one step further, one of the ways in which the reciprocal relationship is enacted is through periodic rituals, customs and festivals. Underpinning all these spiritual activities is once again the social values of *ayni* and *chanincha*: the latter refers to solidarity and unity in the Andean life, and as Walsh and Argumedo explain, it “compels communities to strive for unity with

the natural and spiritual world, while ayllu focuses on the human social unit” (2016:168). Departing from the animism point above, from a radical ecological democracy (RED) perspective this spiritual approach to land invites these above entities such as seeds and mountains to participate in the broadly understood Andean society. Kothari et al explain that equity and participation in collective decision making are at the heart of harmonious democracies (2019). Therefore, as the focus group and Argumedo explain, rituals and songs play a crucial role of not only honouring the landscape and giving thanks for the yearly yield, but to also ask permission for harvest and other activities of human agency over land (Argumedo, Tecnicos, 2022). The tecnicos shared:

“When we plant the potatoes, we do it with a lot of affection – starting by offering coca leaves, dance and songs to the potato during the whole planting season. When this is done there will be lots of flowers and good production. (Appendix 2)”.

This image of offering recalls the concept of the ‘Honourable Harvest’: Robin Wall Kimmerer, Potawatomi indigenous botanist explains the main principles in the book *Braiding Sweetgrass*: asking for permission to take, never taking more than half of the harvestables, always giving some back to the land, and sharing the gifts of land amongst (2020:183). The underlying importance of this approach to harvesting views both the foraged wild plants and harvested agricultural produce in the Andes as gifts of the land, and that the practitioners of the approach strive for a holistic ecological balance between human and non-human life. I suggest that it also minimises the hierarchical and oppositional conceptualisation of the different living beings. As a consequence, by putting this conception of equal human and non-human life into practice, the interdependence of species and the importance of biodiversity for species survival is placed at the centre of agriculture.



Figure 3: Potato and medicinal herb gardens in the Park. Courtesy of ANDES.

I would add that beyond the abstract human-nature relationship of reciprocity and respectful harvest, rituals play an ecologically beneficial role, too: through sacrificing a portion of the harvest, the people give back to the land, and nourish the productive topsoil. In the Andean tradition, coca leaves are often burnt or placed in a pile with a portion of the fresh potato harvest with other medicinal herbs they grow in the Park (Figure 3). All of these have high nutritional value: coca leaves are extremely high in minerals and vitamins, so are native potatoes, and the medicinal herbs have various nutritious qualities (Biondich and Joslin, 2016; de Haan, 2019). When left on the ground, burnt or buried, these nutrients all return back to the soil in this form of rich humus. Altieri defined agroecological farms as relying on the principle of recycling organic matter as fertiliser without external input: therefore, the practice of rituals play a big role in contributing to enhancing fertility and agroecological production (Altieri, 2009). So far, the productivity perspective of agroecological farms have been the focus of a lot of research, and Altieri argues that in the Global South these farms can potentially yield enough to support the global population (ibid). But what has not been so extensively studied is the spiritual dimension of agroecology: a recent article by Toledo fills this gap by discussing the interdependent web of life, experienced as spirit, human, animal and plant all making up the system of agriculture and landscape.

To sum up, rituals are not only a social bond to nature dissolving the dichotomy of nature-culture, but they bring agriculture into balance through creating an equilibrium in what is produced and what is returned to land and teach communities to only take what is necessary. By abiding to these unwritten principles of indigenous harvesting, (sumak kawsay) harmonious life is reinforced through rituals.

4.3 Collectivism

Linking the Park's agroecological working strategy to the concept of RED, collectivism offers an alternative social organisation of agricultural processes, and challenges how globalised agricultural production has been managed. Collectivism in the Park is related to RED because it strives to share duties equally and to the best of everyone's abilities. The communities demonstrate that on the scale of a few thousand people, it is possible to guarantee access to local natural resources including locally saved seeds to every household within the area. This radical freedom to access and use seeds suggests that one of the foundations of collectivism is trust and respect.

In this sense, the rhizomatic structure and the potato cultivation methods imply a collectivist work organisation in the Park. Collectivism is a significant organisational strategy for the communities with respect to how they share the fruits of their labour (literally and abstractly), how they manage seeds, and what community activities revolve around collective agriculture. Another way this is expressed in Latin America is through the concept of *communalidad*, as Esteva explains: "In indigenous tradition, people are knots in nets of real relationships... this is *communalidad*, existence formed by the interlocking of networks of real relationships that make up each person" (Guardian, 2011). In the interview, the director explained that as part of the Latin American leftist turn, many Peruvians were inspired by the USSR's communist land policies (Appendix 1). The focus group shared that members of the Park have separate family allotments, and the *tecnicos* have set up specific plots that play the role of an open air laboratory for training local technicians, for researching, breeding, and testing varieties (Appendix 2). The *tecnicos* also shared about their communal use of seeds: "anyone in the communities can take seeds, as long as they mark down the variety by its identification label" (*ibid*). Naturally for them, that is aligned with the concept of *ayni*, striving for balance and equality with natural beings. Within seed conservation practices, the concept of seed commons has emerged in academic theory: de Wit conceptualises seed commons as a biocultural product of a peoples, and argues that seeds are reflective of biocultural reproduction of both labour and traditional knowledge (2019). In the Park's context, the seed use of the communities therefore contributes to the discourse of 'commoning' which is widely understood as the practice of making seeds freely available and non-patented to those participating in the commons agreement, supported by a moral framework (de Wit, 2019). What is unique about their seed commoning practice is that it is operating *internally*, under the framework of the *sumak kawsay* harmonious living principles. Generosity and giving back to one's community are foundational values as the coordinator explained, and therefore they fuel the autonomous internal operation of the Park (Appendix 3). Additionally, I would emphasise that at the time of writing this thesis, the commoning practice works exclusively internally within the communities to protect both the traditional knowledge and the labour invested into seed breeding.

Chapter 5: Linking food sovereignty to autonomy in the Potato Park

How does food sovereignty and autonomy relate to each other in the Park?

5.1 Tubers for autonomy

To answer the central question, how does the Park resist the industrial agricultural model, understanding their activities as partly a conservation of a way of life supported by the ongoing

conservation of food systems. Autonomy here is understood as one of the pillars of the food systems, since the communities are taking full ownership over their food production, independent of fundings and authorities like the state - their social organisation also stems from autonomy. This is originating from the *ayllu* system where in the three strata of *runa*, *sallka*, and *auki* exist the wild beings, the spirits of the Andean flora and fauna. By working within the values of the *ayllu* framework, and upholding an autonomous way of living, they are actively creating an alternative world within the pluriverse in which they can coexist with nature and within that, with all that contributes to food production. Departing from this point, I would argue that animism, mutuality and reciprocity are the core pillars on which food sovereignty rests that counter industrial agriculture's exploitation of genetic material (or seeds) and knowledge.

It is significant to the analysis that the potato is a crop that grows and spreads rhizomatically: it protects the tubers underground and allows them to bring strong yields even at high elevation, relatively dry mountain microclimates of the Peruvian Andes. J. C. Scott pointed out that because of the rhizomatic underground structure, historically several groups that produced tubers as primary crops were easily seen by the authorities as 'state evading' or escaping taxing powers like the church or rulers: simply, the final produce was difficult to harvest, therefore nearly impossible to tax the societies that produced them (Scott, 2017:108). It of course does not mean that the communities of the Park are tax evading per se, but rather Scott provides an understanding of how crops create certain livelihoods that catalyse group sovereignty and resistance to local authority. Therefore I would argue that the potato as a largely weather resistant crop actively supports the communities' strive for autonomy by its biological nature. Another aspect of the underground rhizomatic crop is that the CIP scientists found duplications of varieties across multiple family plots, as recounted by the CIP project lead (Appendix 4). He concluded that this shows a cultivator's preference for a variety, but given the rhizomatic structure of the tubers, I would add that duplications can also be understood as biological chance events caused by the nature of the communities' cultivation techniques (ibid). Precisely because of the notion of the *ayni*, the strive to balance the wilderness and the domesticated, the communities leave space for wild and domesticated varieties to meet across plots. Therefore, departing from Scott's theory, I suggest that the tubers move between categories of wild and domestic or controlled and emergent, and can evade the positivist-essentialist tradition of Western scientific practices such as rigid categorisation, identification and evaluation of produce.

Another dimension of the collective working is the social organisation of labour: many publications and a GTA webinar hosting representatives of the Park emphasise the collectives (*collectivos* in Spanish) of medicinal herbalists; the *Papas Arariwas*, or local agronomists often referred to as "guardians of biodiversity"; and those focussing on income generating crafts such as weaving

(GTA, 2021; FAO, 2009). The director explained that the Park is a non-monetised system, but the coordinator added that there are of course costs that come with running the Park:

“they do not receive any government funding. It’s definitely not ‘profitable’ either – it is a funny word to use here, but definitely profitability isn’t the goal here. That’s not how ANDES or the Park would frame it, but it does take money and input costs to run it” (Appendix 3).

Here, I suggest that the collective way of working involves ANDES for purposes of running external communication, research generation and knowledge organisation, and periodically running specific trainings for the communities such as accounting or mathematics (Appendix 3). This way the work division of ANDES and the Park is democratic, and arguably it is one of the things that make the Potato park as a whole a successful alternative: the ancestral agricultural work and the knowledge conservation is practices by members of the Park, and the knowledge generated and communicated about it, as well as the underlying costs needed for agricultural innovation come through the advocacy of ANDES. ANDES and the community members meet at least weekly, depending on how much free time the agricultural season allows for the members, and they involve each other in upcoming plans in order to maintain unity and synchronicity between them and the Park (Appendix 3). Arguably, this can become time consuming but a slower approach to progress and achieving visions is very much at the heart of the fellow Latin American solidarity movement, the Mexican indigenous Zapatismo, whose commonly known slogan is ‘lento, pero avanzo’ (‘slowly, we progress’). I would conclude that this model is productive of both agriculture and social harmony, and allows everyone to bring their specific knowledge to thrive for the communal goal of creating a harmonious life through this model based on ecological principles.

5.2 Implications of food sovereignty for countering biopiracy

Working towards food sovereignty has great implications for one of the recurring threats experienced by the communities, biopiracy (Appendix 2; Appendix 3; ANDES et al 2006). The tecnicos explain: “For us, when someone comes in from the outside, we don’t always know their intentions. Biopiracy is a threat, so it is a threat sometimes for people to come in” (Appendix 2). Currently, published, widely available precedents and success stories of repatriating seeds and traditional knowledge associated with them are practically nonexistent either in research, or in traditional media outlets. Unfortunately, interviewees both from the Park and ANDES have emphasised that visitors from scientific agricultural institutions have come to the Park often with the intention to collaborate, but ended up doing so without paying due respect towards indigenous biocultural heritage of seeds and crops (Appendix 2, Appendix 3). At the same time, seed researchers and storing genetic research institutions like CIP often frame their activities as an aim to create seeds for climate change adaptation (CIP, 2022). Reciprocity, the pillar of the Andean cultural-ecological life, plays a significant role in countering this phenomenon through the

community-initiated policy agreement that all visitors of the Park have to sign, as explained by the tecnicos: “*There’s a policy for people to enter, it’s an agreement everyone needs to agree to upon entering. There are policies that govern how the park works, like a constitution of the park, rules of how work is done here. People need to consent to it (Appendix 2).*”



Figure 4: Native potatoes in the Park’s seedbank

The Park’s strategy to counter biopiracy is twofold: on the one hand, the Park has worked collectively with the FAO’s International Treaty on Plant Genetic Resources (ITPGRFA) and the Convention of Biological Diversity (CBD). Both international agreements signed by the Peruvian government state that the protection of biodiversity is the primary objective, and add that the benefits arising from biodiversity and related genetic resources are to be equitably shared (FAO, 2009; CBD, 2021). The Park working together with ANDES has managed to lobby for repatriating their seeds by arguing that both the government’s agricultural research institute INIA and CIP have breached these binding treaties by collecting and analysing seeds without the communities’ consent and without providing direct benefit for the fruits of their knowledge (ANDES, 2006). In this sense, the communities’ story of repatriation and cultural appropriation demonstrates that there are tangible cultural clashes, and unless the notions of reciprocity and compensation of *ayni* are understood by visitors, these international treaties play a crucial role in ensuring that due respect is paid for agricultural innovation.

Interestingly, the UN’s CBD agreement writes that by 2050 the signatories want to fulfil the shared vision of living in harmony with nature, and they locate transformative action at the government

level of society, whilst including indigenous peoples, civil society and businesses in environmental changemaking (CBD, 2021: 3). Scholars have recognised that in order to realise transformation of agriculture, a paradigm shift is needed in the sense that within the confines and philosophy of a modernist, exploitative system, it is not possible to *transform* it, only perhaps *mitigate* its impact on climate change and loss of biodiversity (Giraldo and McCune, 2019; Shiva, 2016). In this next section, I will discuss this transformative power of agriculture and contributions to climate change through the concepts of food sovereignty and security.

5.3 Power: food sovereignty vs food security?

As mentioned in the theoretical framework, the concept of food sovereignty was defined by peasant activist NGO La Via Campesina. To paraphrase it, it is peoples' right to determine how to produce healthy, culturally appropriate foods through freely accessing local natural resources: the foods and the resources both being internal to their food system, and more broadly to biocultural sustainability. At the same time, FAO defines food security as "the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger" (FAO WFS, 1996). After Iles and Wit, I understand these two concepts as a quest for power, precisely a strive to *control* food systems from the two ends of the spectrum (Iles and de Wit, 2015). Although the two concepts are not contradictory, they present farmers of all scales with perplexing questions. Whose responsibility and resources are to tackle ending hunger? Who is feeding whom? Whose biocultural heritage is consumed, when agricultural innovation, resources and benefits are shared globally?

Looking closely at the Park's context, one of the first steps towards exercising food sovereignty was creating the repatriation agreement with the Lima based national gene bank, CIP in 2004 (ANDES, 2012:35; Appendix 1). Through the concept of IBHT, in the early 2000s ANDES started the process of regaining both the physical seeds and the ownership right for the communities of the Park to use them, as well as the traditional knowledge associated with their breeding innovation, cultivation process and access to the natural resources that allow the food production (the local food system) (ibid). The coordinator suggests that the implications of the repatriation agreement are partly that it demonstrates that it is possible for marginalised communities to regain their heritage can serve as a toolkit and a catalyst for other organisations to follow the Park's lead (Appendix 3). She explains: "The goal is to create a guide to really describe this process, create a step by step guide for communities: how do you repatriate your seeds, what are the steps to follow?" (ibid). The project manager of the FAO-Potato park collaboration emphasised that food security is instrumental to achieve the UN's proposed development goals concerning ending global poverty, hunger and ensuring environmental sustainability (Appendix 5). I suggest that here, whilst on the FAO project's part it seems to be a genuine attempt to help people out of hunger and malnutrition, and a genuine interest towards the unique conservation in the Andes, the concept of

food security arguably stems from the problematics of development and control over the nutritional and climate adaptive value of seeds. Development as a concept is loaded with the political legacy of colonialism, dominance and consumerism, and from the perspective of the economy it has contributed to globalised, deregulated markets dictated by private interests (Escobar, 1995). In this sense, FAO leaves room to wonder whose malnutrition and health are they concerned with? In my understanding, the scope and the global signatory list of ITPGRFA and the CBD answer: *global* health, rather than local.

5.4 Food security: seed deposit at Svalbard Global Seed Vault

In order to protect their heritage potato seeds from the impacts of climate change and potential weather extremes, the communities participated in a transfer of seeds to the Svalbard Global Seed Vault (Appendix 3; Appendix 2; Guardian, 2022). The spiritual and physical journey it involved is documented in the short film 'Uyway', or 'Seed' in Quechua (ANDES and Black Maria, 2016). Due to the limited scope of this thesis, it is worth at least mentioning that in the film (and in the focus group interview) the community members referred to the seeds as their children (ibid). Linking this back to internal seed commoning in the Park, even the concept of seed commoning transforms into an act of caring for extended family, and sharing and exchanging responsibilities of upbringing. It evokes the old saying: 'It takes a village to bring up a child'. What this means for agriculture is that animism fills the gap between the agricultural producer and the produce and extends the definition of family to every entity that affects their livelihoods: seeds, mountains, rivers, scarce rains. Instead of relating to land just as a means to provide, as a source of sustenance, I suggest that the way the communities work with the economy (oikos in Greek) is aligned with the concept's original meaning: the home. The prefix of oikos in English is eco, both for ecology and economy (McKenzie et al, 2009:14). What this suggests is that there are two forces at play when tending to the land, and I understand them as ecology being one where the cultivator relates to the land as both physical and metaphysical process, and economy as the process of providing and caring for others. In this sense, these expanded categories of ecology and economy offer something unique to understand the food security question in the Park.

As mentioned above, the short film Uyway recounts the story from the moment of the communities arriving in Norway with the seeds, preparing for the transfer at the Global Vault (ANDES and Black Maria, 2016). It opens by a community member writing a song for the release of the seeds, the children of the communities. This intimate portrayal of the transfer evokes the metaphor of releasing children from the home when they reach adulthood to fulfil their life purpose. When the tecnicos explain that it took three years to grow, multiply and disinfect the seeds for the communities, one can understand this conceptualisation of the seeds: "From 2012-2015 we worked, men, women and children to get those seeds. [...] We wrote the songs in order to commemorate this. Sadness, happiness were two emotions at the same time during the transfer"

(Appendix 2). The coordinator explains that generosity, respect for all beings are fundamental for the communities, and the tecnicos added that when it comes to helping those in need, they are happy to mobilise (Appendix 3). With the participation in the project, I would suggest that they did not only demonstrate these values of indigenous ecology principles as experienced by them, but extended the care for the family to a global scale. Robin Wall Kimmerer explains that for Potawatomi people, caring for the land, human and non-human beings is the same as caring for one's children: in this sense, food security and the intention of helping to eliminate hunger demonstrates an extended 'solidarity economy' as understood in the RED framework (2020). As a last point to food security, looking at the amount of energy, time, preparation and communal effort it takes to produce multiple sets of seeds, I argue that this can be seen as an act of offering: it can be seen as to this date, it is the largest offering of potatoes and within them, nutrients, medicine and knowledge for the betterment of humanity. The FAO interviewees and a recent Guardian article explain that in order to be admitted for international gene banks, the seeds need to be multiplied and stored in additional seed banks, one of them being the national one, in this case CIP in Peru (Appendix 5; Guardian, 2022). Now with these seeds in the Vault, their time, physical labour, community values are all sealed within the seeds.

Chapter 6: Contributions of indigenous ways-of-being to agriculture through translation work

Stepping back from the case itself, in this last section I am going to explore what translation work (TW) can offer for bridging traditional and Western knowledge whilst allowing for the differences of both ontologies to coexist. The Park has more than twenty years of experience working with various organisations associated with Western science (CIP, FAO, ANDES) and creating alliances and partnerships, such as the one with INMIP. Through experimenting with setting up a framework for TW with indigenous peoples, I will analyse its contributions both to Western and traditional science and draft some ethical considerations for researchers in relation to decoloniality.

In this last section I'm going to argue that TW is an important learning practice that can serve as a productive social science (including holistic human ecology) methodology to combine, contrast and evaluate the learnings between indigenous science and Western science. It is a research practice whereby scholars from usually Western educational backgrounds carry out research with indigenous communities through participatory methods, often in a manner accommodating to the pace of local narrative formation and decision making: throughout the process. Critical to the process is scholars maintaining self-reflexivity and an epistemological openness to what it means to be doing science and what is valid data (Tobias and Richmond, 2016). So far 'indigenous knowledge translation' has largely been employed in Canadian health sciences and wellbeing

studies, and its framework and ethical questions of working with indigenous groups have informed this thesis study (Smylie et al 2014; Cooper and Driedger, 2018; Tobias and Richmond, 2016). I will first explore its implications for reinforcing and exercising rights at an IBHT; secondly I will point out its potential contributions both to indigenous and Western scientific practice, and thirdly I will draft some potential ethical and practical guidelines and limitations to the methodology when put into practice in human ecology. The purpose of TW within this field is to facilitate the exchange of worldviews, perceptions of the problems and solutions to sustainability issues, specifically for developing studies responding to the challenges of climate change. It is now widely accepted that indigenous peoples are some of the most at-risk peoples of experiencing climate change, and it is no different in the Potato park: the representative at CIP explained that “the communities in the farms have been identifying the effects since 2002” (Appendix 4).

6.1 Multi-stakeholder approach

In the example of the Potato park, a multi-stakeholder approach has meant a collaboration with ANDES since the foundation of both the Park and the NGO. This approach brings together various parties and collaborations with national international organisations like CIP and FAO, both working towards ‘sustainable agriculture’. In this section I will elaborate on what sustainable agriculture means for these parties, and what can be learnt about it through TW. Breaking down the levels of knowledge production, in the Park there are communities living there, there are elected *tecnicos locales* arranging the agricultural conservation practices, and some collectives responsible for weaving or processing medicinal herbs. In terms of the work of ANDES, it has a relatively homogenous profile of work where the director Argumedo is responsible for communication, research output and representation, and staff members such as project coordinators like Madden, responsible for student research assistance and supporting the *tecnicos* (Appendix 3). On top of this, through ANDES’ logistical organising there is regular contact and collaboration with CIP, and in 2009 one of the first projects of the ITPGRFA’s BSF was the one with the Park (FAO, 2009). As a departure point for this discussion, I identify these as the four scales on which the Potato park has been operating and had major contributions to conserving their biocultural heritage, the combination of ancestral potato varieties and other crops like quinoa and kiwicha, the ecological knowledge through which they are produced.

6.2 Knowledge production in the Park

The ways in which knowledge is produced in the four scales of the Park, ANDES, CIP and FAO differ hugely. To begin with, based on my video interview observations, the five *tecnicos locales* used a personal storytelling narrative, and each time they spoke up they involved me, the researcher and as they recounted a new story or took turn in talking they referred to me as

'*compañera Vera*' or 'ally, friend' in English. Tobias and Richmond emphasise that in indigenous traditions, knowledge is often passed on orally, and as being transmitted, "seldom sought without an applied purpose" (2016: 231). In language translation studies Susam-Saraeva argues that when translating and conveying a spiritual experience (such as the Quechua ecology guided by *sumak kawsay*), the plain of the body is the starting point to understand these experiences strongly embedded in local conceptualisation of time (Andean cosmovision) and geographical location (2021: 85). In the Latin-American context, Zaragocin and Carretta proposed *cuero-territorio* (body-territoriality) as a feminist-decolonial alternative epistemological geography research method that aims to produce maps of the body's relationship to land and explore how the body relates to extraction and colonial oppression (2021:1503). To provide an extra context for Peru, *cuero-territorio* would be productive in various research fields under the framework of TW, because women from indigenous communities across Peru have suffered from sterilisation without consent under the recent Fujimori government, therefore mapping this brutal and direct form of oppression could help advance many of the silenced legal cases and shed a light on structural issues and government crimes (Stavig, 2022). This also fits well with the ways in which TW has been used already through participatory mapping of the health of indigenous communities: arguably, health and agriculture are tightly connected and the leap towards using TW in agricultural discipline is not too ambitious. To come back to the main point, I understand both agricultural and cultural knowledge of the Andean IBHT as located in the body of the community members knowledge is enacted through practising their heritage (or *praxis* in decoloniality studies). Traditional knowledge is expressed primarily in Quechua and when communicated for people outside the Park, in Spanish. I suggest what demonstrates the embodiment of the Andean land (and landscape) is for example the Quechua naming and categorisation of some of the potatoes. One example is the *yana piña* or the 'mother-in-law' or 'weeping bride' potato that is extremely difficult to peel, but if a bride wants to seal the marriage, she has to prove she can peel it without wasting much of the potato (Appendix 1). Whilst Western research institutions traditionally view each Andean variety through categorisation of its nutritional benefits or growing altitude, amongst the Andean communities their social or individual characteristics tend to describe the potatoes' embodied social and ritualistic role. Interestingly, an extensive CIP catalogue lists the native potatoes grown in the Park, and they include Quechua descriptions and the role it plays in the local community, therefore they display both traditional and Western scientific knowledge in their research (CIP, 2006:158).

Through the embodied understanding of agriculture and culture, I conclude that the Quechua people offer an socially embedded, spiritual, and humble approach towards agriculture based on respect and reciprocity. Throughout *Braiding Sweetgrass* Wall Kimmerer argues that if people practised these above principles of understanding nature and ultimately tried to 'give back what was given to them' as she often puts it, we would be able to overcome the challenges of climate change and habitat and species loss (2020). What this thinking suggests is an individual

transformative approach to human-nature relationships, and to some extent dismisses the prevalent oppressive political structural challenges existing in capitalism: in Peru, it is still From an epistemological perspective, TW expands the understanding of what is science, who can produce science, and by seeing the Quechua as local agronomist scientists, they can offer innovation to challenges such as climate change. ANDES, CIP and FAO have all been discussing the Park's work as one countering climate change through agrobiodiversity conservation, so in the next section I will discuss the implications of that understanding of Andean knowledge.

6.3 Interaction between Andean knowledge and Western science

In practice, the local agronomists have collaborated on projects with CIP and FAO brought to the Park through the organising of ANDES (Appendix 1). As the coordinator explained, ANDES is responsible for both input and output of research, in the sense that they contract for conservation projects taking place *within* the Park, and they produce research studies *about and with* the Park, often with Master's and PhD students. As discussed in previous chapters, the Park has signed an agreement with CIP to repatriate native potato varieties that have been collected from the Park's area since the 1970s. According to the director, this has shaped the ways in which the collaborations of the two parties have taken place over the decades, resulting in a mutually professional and respectful cooperation with consent to secure the communities' seeds (Appendix 1).

Learning from the case of the repatriation agreement, for human right and intellectual property rights and worldviews to be respected, a consent based framework can help mediate the ethics of research in TW. Similarly to how the Park set up a policy to agree to for visitors, I propose that a similar agreement could be born between researchers and participants to give back to the communities for their time and efforts. Although a written agreement per se was not signed, I will compile the summary of my research and create some graphical representations of my findings for the communities to keep. Although the final thesis piece or any other research produced exist both in physical and digital versions in the world, if the researchers align with the participants' worldviews, I would argue they should understand their borrowed time through the *ayni* reciprocity framework and contribute back what was received. Historically research with South American indigenous communities (often anthropological or ethnobotanist) has been conducted in a one-sided manner, where the Western academic went 'into the field', and produced research about the communities through observational and interview methods, and researchers of the past century like Schultes, Narby, Spruce and Plowman have documented the process in more popular scientific books, too (1979, 1998, 1850, 1996). In order to counter romanticising the Quechua, as Madden shared it is an issue across Peru and more globally), setting up appropriate and mutually respectful agreements facilitate the conjunction of different knowledges (Appendix 3).

From the perspective of collaborating institutions like CIP and FAO, the terms of collaboration are more of a contract resembling agreement of partnering, like the one with the BSF project (FAO, 2009). Argumedo explained that once the project began they received some funding and research was produced together with the *tecnicos* and the staff at ANDES.

6.4 Contribution of translation work to the Andean science

From an epistemological perspective, translation work allows indigenous knowledge to be represented as *science*, worthy of acknowledgement, voiced and represented at international policymaking platforms. I would argue that by categorically acknowledging traditional knowledge as *science*, the dominant position of academia and other research bodies will cease to hold, and the empirical observations of people actually, physically connected to nature can voice their concerns and solution proposals. The reason for that is relatively simple: as mentioned above, if indigenous livelihoods are some of the most impacted by climate change, their knowledge on both effective adaptation and potential countering are of utmost importance to policymakers (ILO, 2017:1). One example for fruitful collaboration is the one the Park carries out with CIP: although in the early 2000s the repatriation agreement needed to be settled, on the long run the two parties have been exchanging study visits and equipment with each other, and facilitated putting traditional knowledge on potato varieties into writing in the form of catalogues (CIP, 2006).

The purpose here once again is to convey an image of Andean indigenous life as one that is resilient against colonial exploitation and extraction and is actively creating solutions towards countering climate change. In the interviews the *tecnicos* shared they protested mining concessions of Huallata and rallied to claim Cuzco a GMO-free region. Their narrative in the framework of TW can greatly empower indigenous groups who previously were depicted as marginalised, poor and oppressed. The 2017 International Labour Office (ILO) report argues that marginalisation and poverty can be tackled by granting rights to indigenous people (ILO, 2017:31-33). The interviewees of FAO also enthusiastically referenced the articles on Farmers' rights of the ITPGRFA: unfortunately out of 35 articles only one of them discussing the points of farmers' rights to their genetic resource (ITPGRFA, 2009:12). How would the narrative change if it wasn't termed as merely a genetic resource in policy, but for example as their biocultural heritage? I suggest it would put pressure on policy making and force decision makers to take an intersectionality perspective on local customary law, national/international heritage law, and environmental law.

By acknowledging traditional knowledge as *science*, I suggest indigenous groups have far better chances of being the recipients of research grants and equipment in order to scale up their solutions to the locally experienced impacts of climate change. Having a 'sister organisation' like ANDES, the Park has long standing logistical support from the NGO in terms of applying for grants

and research equipment for the communities' conservation work. In order to keep community members involved and sustain a reciprocity of knowledge, ANDES hosts periodic training for "capacity building for community based accounting and mathematical skills" as the coordinator explained (Appendix 3). She adds that in order to further facilitate knowledge translation and skill exchange, the communities (again, with the logistical help of ANDES) host field schools, "identifying what skills, tools, resources needed to formalise and develop these food neighbourhood territories" amongst member organisations of INMIP (ibid). One of these exchanges has been documented in a short film and shared on Youtube, where participants from Bhutan and China arrived for the study visit to share their learnings on coping with climate change (ANDES, 2014). Recently, on top of the intensifying effects of climate change, the world had to face the challenges of the Covid-19 pandemic. Given the scope of this thesis, I would briefly add that the communities at the Park have shown great resilience towards the challenges experienced globally: food shortages and health at risk. During the GTA Resilience Stories interview series, the Park has shared that they have asked for the protection of their ancestors and even managed to help people outside Pisac: the communities brought food to those in need in the city of Cusco, the region's capital (GTA, 2021). Whilst solidarity during lockdowns cropped up everywhere, it is nevertheless interesting to draw a comparison between the communities' solidarity support during the pandemic and the news that circulated in Western media, discussing weeks of shortages of essentials like food and toiletries caused by 'panic hoarding' in supermarkets (Guardian, 2021). As the GTA put it, in the communities' view, this was only possible through demonstrating solidarity and working together to tackle a crisis (ibid).

To sum up, TW has the potential to change the narrative of the Andean indigenous peoples from one that is associated with poverty and marginalisation with Peru, to one where they are recognised internationally for their efforts to protect potato biodiversity, whilst exchanging their knowledge through alliances. Practising solidarity and expanding their sense of community towards other indigenous and non-indigenous groups have shown the strength and resilience of the Park lies in unity (the community value of *chanincha*), and it demonstrates another example of unity.

6.5 Potential risks and research ethics considerations

Some of the potential risks of bridging different knowledges stem from the positionality and relations of power of Western researchers and indigenous peoples: firstly, when working with indigenous groups, decoloniality in theory and praxis as discussed in the Theoretical framework is crucial (Mignolo and Walsh, 2018). Secondly, questions of ownership of knowledge arise when a researcher enters the field: what happens when they go 'back to academia' to complete writing the study, and where does the produced knowledge end up? And lastly, how is the produced new knowledge integrated in the pluriverse: how is it contributing to making sense of alternatives, and what are the learnings from the research process through TW?

An example to embody decoloniality through TW is comprehensively summed up by Tobias and Richmond (2016). When researching community health practices in Canada's Lake district, they respected the local customs and routines in their participatory methods, through intergenerational approach (help of youngsters and Elders) they used both local languages and English for presenting all procedures of the research phases, and respectfully integrated the communities' appropriate rituals in the schedule of the research (ibid: 232). In a sense, from the researchers' perspective by not disrupting the rhythms of community and *giving* appropriate time and space for each element of local life, they were received into the field smoothly and left not only with rich research material, but with rich experience (ibid). As they put it: "in such investigations, the academic research can become the researched" (ibid:241). To sum up this point, in this sense decoloniality in praxis can include a great degree of flexibility and adaptability of the researcher, openness and dedicated time for multiple languages to operate in the field, respecting local rituals and rhythms of community: from my personal experience, I would add flexibility to learn the basics of the language of those I study, and an eagerness to try to give back what I received from the community.

When thinking about the ownership of knowledge produced through academic research, the Park has a creative way to host the publications: as the coordinator at ANDES shared, "we have a community library and document storage in the Potato park: the community members really like having these works written about them and with them close" (Appendix 3). This physical and personal relationship to the publications allow community members to always have the opportunity to read the publications and to perhaps produce new knowledge through them. I understand this local library as a clear statement on intellectual property, much like the case the Park had with the repatriation of their seeds: the seeds of knowledge belong to those who produce them and nurtured them generation after generation, and the communities therefore have the right to house the publications as their co-authors of knowledge embedded within them. Traditionally in academia, this thesis study is also limited by the formalities of single authorship and anonymity of interviewees, but in TW, when appropriate, anyone who passed on knowledge could become part of the authorship of a research case. The autobiographical novel *Cosmic Serpent*, set in the Peruvian Amazon is an interesting example of who is studied, and who studies: Narby narrates the book in a style that is telling of reciprocal studying where he ends up being the one who was taught and exposed to preexisting traditional knowledge, not the one who produced an entirely new study himself Narby (1998). By blurring the boundaries of who is *studied* and who *produces new knowledge*, TW could attribute more recognition towards indigenous knowledge holders which can protect intellectual property better.

Combining these above two points, TW clearly contributes to the pluriverse as an epistemological opening towards indigenous knowledge being science, and therefore that science having the ability to learn about and produce new knowledge about alternatives to hegemonic agriculture and the

capitalistic world design. I see one of the pillars of the pluriverse being a reduction of hierarchy of these parallel worlds of alternatives and hegemonic models, which ultimately serve the sustainability studies and countering climate change. When studying these fields, many young people discuss a feeling of 'climate anxiety' which has become a buzzword (similar to 'sustainable development'): climate anxiety refers to a feeling stemming from the "imminent threat of climate change" (Sinatra, 2022:147). I suggest that the underlying psychological experience amongst many young people is a feeling like the hegemonic agroindustry is too huge to be changed or taken down. However, when we think about these alternatives existing within the pluriverse, and that these worlds can be designed by communities across the globe, the pluriverse can feel empowering and can help reduce climate anxiety and apathy. Additionally, through TW in sustainability studies, one can be part of a transformative experience of research and knowledge exchange that can also be spiritually enriching, as Toledo links agroecology with spirituality for example (Toledo, 2022).

Chapter 7: Conclusion

The intensifying industrial agriculture has caused damage to the planet at an unprecedented global scale: it has contributed to climate change and put indigenous and peasant livelihoods at risk of losing regional biodiversity and traditional knowledge. This thesis uncovered the ways in which *El Parque de la Papa* is an example of resistance to such damages through their relationship and understanding of landscape; through their conservation efforts of native potato seeds, establishing food sovereignty and security; and through their contribution to what we can consider science, bridging Western and indigenous practice. Their way-of-living and conservation work can serve as both an inspiration that alternative worlds can indeed be created opposing oppression of capitalism, colonial legacy or vulnerability to the state, and the communities and their affiliated organisations can offer a lot of learnings for groups around the world which they shared during the interviews.

Through the interviews various themes emerged that can expand our understanding of *land*, which I discussed in Chapter 4: the communities' animistic relationship to landscape, their collective way of thinking and working in solidarity, their use of ritual. By relating to the land and its produce as one of their kin, as an *extension of community*, it invites caring and nurturing for the land as opposed to extracting it or treating it merely as a resource. *Ritual* plays a role in this extension of family, because a spiritual relation to landscape is important for the Quechua people: offerings are made under the *ayni* reciprocity pillar, with the intention to give back to the land some of what was

provided for the communities. This reciprocal nurturing unites the community, and actively nurtures land with highly nutritious plants as fertilisers. They demonstrate that respect is the primary currency of their agriculture, and therefore challenge the Western scientific approach to food production. The *collectivist* way of caring for the landscape challenges individual ownership and the private property system of industrial agriculture: by distributing work according to skill and grouping people into democratically run collectives their work can be understood as an example of a radical ecological democracy (RED).

In Chapter 5, I discussed the debate between food sovereignty and food security. From the interview discussions it emerged that whilst food sovereignty is of utmost importance to keep the Park functioning according to their local customary law of the *ayllu*, global and local Peruvian food security are important considerations of the Quechua. Through their seed repatriation agreement with CIP, they managed to establish ownership over their ancestral food system, set up a scientific collaboration and work towards conserving climate adaptable, highly nutritious potato seeds. At the same time through their work both with FAO in 2009 and with the Svalbard Global Seed Vault they secured traditional knowledge and native potato seeds for global food security, facing the risk of losing crops due to climate change.

In Chapter 6, I stepped out of the case study focus slightly, and considered *translation work* as a potential framework to carry out research with indigenous groups for sustainability and climate science in order to bridge indigenous science and Western science. By adopting a multistakeholder approach, the Park demonstrates that with the logistical support of an NGO it is possible to create international alliances in order to share existing, and develop new knowledge for sustainability science. By adopting a decolonial, reciprocity based approach, Western scientists can meaningfully and respectfully collaborate with indigenous communities, challenging academic rigidity of authorship, and ownership of knowledge. In return, indigenous peoples will get to *speak for themselves*, and get to be represented as active subjects in academia and as resilient to challenges, rather than marginalised or oppressed as historical literature portrays them. By being able to communicate their rich science to Western practice, it challenges the representations of poverty associated with a lot of indigenous peasant groups. As a guideline for researchers, a *set of ethics* can facilitate translation work: reciprocity, respect towards integrating ritual in research methods, and a willingness to adopt basic language skills of the communities one is working with.

As concluding remarks, I would like to point out that further research in the area of food systems and translation work would benefit the field of human ecology by documenting. Part of academia's role and contribution to the world is documenting existing toolkits to the challenges of past and present, and indigenous peoples play a key role in presenting solutions that do not only mitigate climate change, but have the potential to reverse it. Future academic studies on translation work

connecting indigenous epistemologies and ontologies with Western ones can display indigenous knowledge as *science*, and from a climate policy perspective legitimise it and apply its principles, similar to how Ecuador applies the framework of *sumak kawsay* and rights of Mother Earth in the constitution (Vargas and Quinchuela, 2018). Movements and ways-of-living like *sumak kawsay*, *buen vivir*, ecological *swaraj* and *Zapatismo* all showcase solutions alternative to the capitalist growth paradigm, therefore I would argue such movements can offer a fresh perspective to intersectional research and contribute to reversing the effects of climate change.

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Appendices

Appendix 1: Interview with the director of ANDES

Date: 04/03/22

Researcher: Over the course of the past 20 years since the Park was established, what were the main challenges the communities faced (ex. threatening identity, their way of doing agriculture, spatial threats) that sparked resistance?

Director: Let's put the question in a context of how the communities have evolved within the nation state that also has deep political changes and macro-challenges. Over the last 50-70 years, there have been two benchmarks that need to be notes to understand the challenges. One is the transition from a semi-feudal state of Peru into a more dynamic type of country during the military dictatorship. They were the ones who implemented an agrarian reform. The configuration of being landowners was challenged, land ownership, land tenure became more dispersed. Land was given back to indigenous peoples, peasants in the form of cooperatives in different forms of ownership agreement. It was given back to landless people. The type of land ownership did not take into account the ancestral way of how the communities organised this space, how they managed the habitats. In the 1970s you had a global East-West divide. They tried to copy the cooperative type of arrangement that was prevailing in the Soviet Union, so a lot of cooperatives came out of this agrarian reform.

There was another counter coup, but they couldn't roll back the agrarian reform, they simply just provided no help to the cooperatives, so they collapsed, and land came into dispute. From 1970-2000s was basically an internal civil war, 'Time of Terror' with the Shining path and armed groups that came into power that depopulated the rural areas. All these cooperatives crumbled, and communities wanted to establish their ancestral boundaries. There was no authority of state, the communities wanted to reclaim what in their historical memory belonged to them. There was conflict of communities in the Potato park, too, mainly about boundaries amongst communities. Even people were killed. The memory of violent confrontations was fresh.

The communities thought they could use the potato as a charismatic piece, that everybody had not just as a staple but as a strong cultural symbol. Any type of socio-cultural expression like baptism, marriages, and kinship relations all are done in a ceremonial way where the potato plays a role. It is not only a food source but a cultural symbol that connects people with another epistemic understanding of the world, another knowledge system in which the other species have a place. It

defines the understanding of landscapes, local taxonomies, spatial arrangements of allyu farming are defined by that worldview. Potatos play a role in the plot, in the field where they are planted. Certain species are put around the perimeter of the plot as guards. People believe potatoes can talk to people, they are thought of as part of the family. Concept of reciprocity, 'ayni' in Quechua, is very strong: you nurture plants, the plants nurture you. You do not dominate them, they are seen as a species you have to take care of, because they take care of you. So the interspecies relationship recognises that potatoes have rights, have social organisation, they think, they feel, they communicate – they are another type of community. I say all this because to make a point that when we chose the potato to be at the focus of how you could manage an area, using this world view which believes that humans and everything that lives with them domesticated, and all the wild species that people have no control over like wild life, animals, plants, stones, water. There's a difference between what people live with and those that are wild. Stones you use in buildings are close to people. Water you channel for irrigation is close to people, because they are working together. Rain and wild rivers are wild, you cannot control them. Things that live with you are called 'criançal' – something that you nurture, because it nurtures you. Even the wild things you have to nurture it. This idea of continuous nurturing is important, even the wild things you have to nurture them, and they will nurture you. It's a kind of forecasting, people that specialise in forecasting working with plants, the sky, they have a specific role. People read the constellations very well, el Niño is indicated through them for example.

The main challenge was conflicts of communities and the influence of political union, a type of organising that since the 1970s more farmers were involved in. You had to be a peasant – that was the Marxist way of thinking at the time, aiming for a peasants and proletariat revolution. When we started to work, we wanted to work from our own heritage and identity from the beginning, finding solutions for things we identified. We were thinking, if you want to start a protected area, what are those indicators that make the Park a good candidate to be a protected area? People, friends we talked to said the richness of the species. We have hundreds of types of potatoes so that was good. Then they said the uniqueness of the landscape: we have that, too. Let's start the conservation community, conservation of landscape focussing on food. Potato is a charismatic species, so let's look at how to organise it: looking at allyu so the people, the land, the animals, the sacred working together, so that together we achieve what all the communities talk about: buen vivir, sumak kawsay. It goes beyond the human realm, the sacred and the wild, work with them, and achieve balance. Balance is only achieved if you work together with all the actors, the sky, the sacred. Then we achieve sumak kawsay. For that we needed to bring the communities together, with the help of the potato. That's what we did, we went to the International Potato Centre and knocked on the doors and asked back for our potatoes. They collected many during the 1970s, so we wanted them back. We knew the international treaties very well, CBD, FAO and Climate

Change Treaty was signed, so we used these to our benefit, and we got CIP to sign our agreement. We didn't want any gift, we wanted our potatoes back. There was a lot of excitement in communities to collaborate so they can share that: this is what healed the conflicts. The reintroduction of the old potatoes and the involvement of the elders who remembered, and the rituals and festivals. Those initial challenges in many cases seemed impossible, but those were solved! The potato is a weaver of feelings and emotions, but at the same time of knowledge, especially women who have such an extensive knowledge of the use of them.

Researcher: What's the relationship of the communities in the Park to the government, INIA, FAO/UNESCO, ANDES and International Centre of Potato (ICP), Svalbard Seed Vault (Crop Trust)?

Director: From the beginning of this experience we were aware that this was not just an exercise of creating a conservation area within the context of land based approaches to conservation, crops, seeds. This was beyond that. We also looked at the struggles of indigenous peoples and the sovereign that belongs to the community, like seeds, food systems, the governance of the landscapes that can create alternatives while also challenging the state's bourgeois policies, looking at the structure of traditional systems. The neoliberal agricultural systems were pushed by the state. We were creating autonomy as a response to those issues. First things first, we didn't want to collaborate with the state, because they would take credit for your work, turn it into a political tool, then when statesmen change, the policies change, you know general issues with corruption – it never works. We shouldn't receive any funds from government or government agencies. Let's try to do something from the bottom up. We were seeking autonomy, but not an island, but we looked at issues of self-determination from an agricultural perspective, linking it to human rights, and all the debates going on with international treaties and come back and show the government that they have already signed those agreements. We can then protect the communities from violation of rights and mistreatment (because the gov was going against their commitments). Managing affairs internationally. We are recognised by non-national institutions: CBD, Svalbard, etc and they understand that the Potato park operates autonomously. Being recognised for what you do is strengthening communities against governments. CIP agreement of repatriation where we used ITPGR, FAO, CBD and human rights declaration, we used human rights and International 169 Treaty as a way of pushing CIP that the rights of potato was still community. They couldn't say no. So we linked up with all these international human and environmental rights groups, we created these tools to protect the communities from these pervasive policies the government wants to implement. Because the government was going against all these commitments.

That's how we created this idea of making a small sovereign territory here. Certain types of autonomy and managing your affairs internationally: CBD, Svalbard, CIP – which are not national

institutions, but they are coming from these international spaces, and they see that the potato park is operating independently. And then the independence comes from the recognition of these institutions, they recognise what you do in community, they recognise what the government is doing to you.

In the beginning, ANDES and Potato park had a strong relationship because ANDES has experience in navigating all these international platforms and processes, all the mechanisms and the complexity of navigating it. But also in the process we trained community members. The first of those approaches was the CIP agreement of repatriation where we used the International Treaty of Plant Genetic Resources of the FAO, the CBD, the UN's declaration which was still in debate at the time. We used international environmental law and human rights law, 169 treaty to push CIP to acknowledge that the right of the seeds belongs to the community.

They couldn't say no, and we created legal rights to the community. The government tried to limit our action, derive the initiative, until we found that some government officials have a more smart approach to what we do, and a recognition of civil society, and work together. Our relationship with the state and its agencies recognised what we were doing, something to be supportive of. Money from the state came on very very limited occasions, basically almost never. We are now promoting a non-monetised system, the maintenance and strengthening of the relationships that are crucial to keep culture alive. The moment you monetise those, you have to move into a market oriented type of knowledge, and you lose traditional knowledge.

It became very critical when covid came and the country was in lockdown, people in the cities lost jobs and migrated to the rural areas. Up to now, the best place economically and in terms of food security is localised food systems. Access to food and good water in the Park gave resilience to the people, and I don't think there was a single death due to covid-19. In this time of continuous crisis I don't see in the next few years coming out and having no problems. There might be wars as we go into the future, because of climate change – we need to accept our reality. The only way we can respond to it is by strengthening different approaches to sustainability, creating new world approaches to so-called development where growth is on top of the agenda. It is more about living and finding harmony. We do ayllu, we do community, all the sacred elements. That is what is going to help in the future in times of extreme, permanent crisis. In environments like the Andes we have El Niño, and because of the Nasca plains there's a lot of chaos and earthquakes. With climate change hitting, especially ancient Peruvians know all these big changes, so if we create a system using that wisdom, we have a better chance to adapt to these changes. But moving into market oriented uses and all of that is not good, and is contributing to what is happening today.

Researcher: This is what I read on the *Global Tapestry of Alternatives* website where members of the Park shared their thoughts on GMOs: “So what we have done is work with the regional government to defend this diversity and we have worked towards declaring Cusco and the regional government of Cusco as a GMO free region and we were the first region in the world to declare themselves a GMO free region and this effort came from the potato park.”

Director: The GMO issue in Peru is different from other countries of the region because of its mountain ecology. It is a very rugged geography, so Peru has little ‘primary agricultural land’, understood as per USDA terminology. There’s only small pieces of flat land that can be irrigated where you can do this type of agriculture. Certain areas have rolling lands where they plant potatoes. Most Peruvians have small mountain plots (location and altitudinal gradient dependent) the cropping system changes thematically. At the lower part you have fruits, cassava, oily fruits and vegetables. In the middle part in the Quechua zone you have grains, maize, root crops, potatoes, beans all in this ecological zone. In the upper part you have potatoes, tubers, livestock. In Peru, Amazon deforestation is one area of concern, the coastal area is a desert but they use all the water from the mountains, irrigation projects: it is a growing agroindustry there. The government is investing a lot of money to support the small elite of producers in the coastal area. The high yielding crops there are primarily for export reasons.

The problem with GMOs is the gene contamination: if a GMO comes in, what’s gonna happen to the rich diversity of crops? We marched opposing it. Monsanto was going to open up an office in Peru, but the communities went to Lima and the news was also picked up by the press. Peru was the centre of origin, and we saw the case of Mexico and we didn’t want that. We then marched and claimed Cuzco as a GMO free region, and the Potato park too. This came from the communities and had a resonance with them.

Similarly it was this continuous different types of actions, with the national government, with INIA (Institute for National Agricultural Research) and they decided that when the communities were acting as independent entities, they tried to claim that these national institutions own the potatoes because it is a national treasure. So it was worse than any dictatorship I can imagine, they just decided that it all belongs to the state and INIA. We thought that they were just taking away the rights from the communities, using the law, and in the end they had to withdraw their applications on those varieties as INIA. It was such a mess, they were supposed to regulate all this conflict of interest, but they didn’t. So this was a good action that the communities took.

Researcher: I've read that the Potato park has recently formed an alliance with communities in Uganda and Rwanda where CIP is working to develop a GMO potato. What is your way of working together with CIP?

Director: With CIP the relationship has always been strategic. Many times they presented the Park as a 'project'. Many times we sent letters to them because they breached agreements and claimed seeds. One time they put up a poster at Lima airport saying they are the 'Light of potato' – of course barely mentioning the communities at all. They breached their signed agreement whereby they didn't consult the Park before the press release, and the Park was going to take them to court. Of course they got really scared. CIP never transferred funds to the communities, they provided support in terms of staff, but no investment was made. They provide scientific expertise and knowledge in promotion and other affiliation with other organisations etc. They are like governments: easily appropriate and focus on what's theirs. Fruitful relationship with scientists, tools for managing resources, but in general it is a cooperative relationship I would say.

Appendix 2: Focus group interview with the local agronomists (*tecnicos locales* in Spanish)

Date: 22/03/22

Researcher: *¿Cómo impacta en tu vida ser parte del Parque de la Papa? How does it affect your life being part of the Potato Park?*

Tecnico 1: I have worked 4 years here in the Park. My focus is cultivating native potatoes in and for the communities. I have always worked in the communities, and it is because of this interest that I wanted to start working. In my field there's 35 varieties. I only use organic fertilisers which came from my animals (llamas, chickens). This idea of living by the potato is very beautiful and important for me. During the work in the Potato Park, as a group of tecnicos we combine traditional knowledge and scientific knowledge, which moves the work forward. Through my work with the Park I learnt about pollination, fertilisers, animals. It motivated me in my personal work and in community work, too. Before, the people in the Potato Park have been connected to other people, and we inspired each other.

Tecnico 2: I've been working with the Park for 20 years. The formation of the Park unified the communities. The governance of the Park has been important in order to have an impact. Through

my work in the Park and with potatoes, I've had the opportunity to travel and learn in other countries and share our own experiences with other countries.

Researcher: Yo vi la película “Uyway” sobre la transferencia de semillas del Parque a Svalbard, y para mi era bien inspirante e interesante. Por eso, entiendo que los rituales y canciones son importantes para sus vidas diarias. ¿Cuál es el rol de los rituales en la agricultura? *I watched the film ‘Uyway’, and I found it really inspiring and interesting. I understand that rituals and songs are important for your day to day lives. What is the role of ritual within the agricultural, ecological practice?*

Tecnico 3: The Park is a community association focussing on conservation. 1300 varieties of potatoes are grown here. All of these varieties come from our ancestors, from 8-9000 years ago, and we've been cultivating them since then. We know that the potato globally is an important product, but in our daily lives we eat it three times a meal, every meal. There's a strong relationship between humans and the potatoes. It isn't just the cultivation that is growing, there's an important relationship that exists between the people who grow them, the potatoes, and the mountains. We get some signs that exist in nature. I'm talking about the allyus: one is community people, another one is the community of the sacred (like mountains) and lastly one is the biological indicator which comes from the wild plants (wilderness in general). These need to be maintained in balance. *Ayni* is balance, reciprocity. All of these maintain it and the potato forms this network. Music, dance, songs, rituals are part of the conservation, not just the growing, but the work that happens in the field, the natural environment that exists around them. When we plant the potatoes, we do it with a lot of affection – starting by offering coca leaves, dance and songs to the potato during the whole planting season. When this is done there will be lots of flowers and good production. The video you watched represents this transfer. The potato seeds are like children: we had to work for three years to get those seeds. From 2012-15 we worked, men, women and children to get those seeds. There was an agreement between the International Centre for Potato (CIP) and the Park, and the agreement allowed the community members to travel. We wrote the songs in order to commemorate this. Sadness, happiness were two emotions at the same time during the transfer. The happiness came from knowing that anything could happen – this was a work not only for ourselves, for Peru, but for the whole world. The seeds are safe for the benefit of the world – this is happiness. The sadness comes from the fact that these seeds were coming from where we are from – the members had to leave the communities and the seeds, too. To finish the story, in order to send the seeds we went with the permission of the Pachamama [Mother Earth]. When we left, we did a ritual to leave – this was a demonstration that ritual is important for agriculture. In terms of what went [to Svalbard], it was 750 varieties, half of what is in the Park already at the moment.

Researcher: *¿Cómo impacta a las comunidades el hecho de que semillas de sus chakras ha llegado a Svalbard y siguen siendo guardado allá? What was it like to bring some of your seeds to Svalbard? How does it affect the community, knowing that they have some of the seeds?*

Tecnico 2: There are some people in the community who feel negatively about the project – there's jealousy in the community around who participated and who didn't. There's always people who think negatively and who think positively. Now, the negative ones feel like there was a lot of sacrifice and they didn't get anything. The seeds that we cleaned were 100% clean, but before they went to Svalbard, they spent a month in Lima at CIP, because they were not all deemed clean enough to be sent for global collection. At the vault, only the community has the key to open the storage boxes where these seeds are in Svalbard. How and under what circumstances we would get the seeds back is a question that came up recently. We want to find out more about it soon.

Researcher: **How did you decide who went to Svalbard?**

This was a whole project through ANDES and the key part was being able to travel. There was confidence of what happened to the seeds on the part of those who did travel. The agriculturalists [who cultivated them] went, so they'll know where they are stored. Those who didn't go have less faith – they are far far away, they don't oversee them.

Researcher: *Leí que hace años el Parque de la Papa creó un banco de semillas. ¿Cómo y por qué crearon el banco de semillas? A few years ago the Potato Park created a seed bank. How and why did you create it?*

Tecnico 4: The Potato Park always travels to other locations and people from other places always arrive here. We collect ideas this way. We travelled to Lima and saw a similar project, a seed bank. We think of the bank the same way as a money bank works: money needs to be real and proper to be accepted – we only accept clean seeds. In order for the seed tubers to be in the bank (which could come from open air cultivation and greenhouse tunnels), all tubers need an ID number and to be disinfected. The construction of the bank is rustic, typical design, and there's water to prevent everything from drying out. Only good quality seeds are admitted. Anyone [from the communities] can take seeds out as long as they report it, and label its ID number, anyone can cultivate those seeds from the communities in their fields. We never run out of seeds – there's always some to share. In the past agricultural season 9000 kg of potato grew out of seeds from the bank, which we were able to share with our families and people outside the Park. Every family saves seeds themselves, selecting them for their own use, too. Our current project is to form a community seed enterprise in order to sell seeds outside the Park. The division is quite large. The park doesn't

receive any support from the government, there's a real need for financing for this project. They would sell and export. The goal is to export seeds and support the population.

Interpreter's follow up question: What would be the benefit for this for the potato park? What else is the objective?

Tecnico 4: On the market there is not enough variety, it's genetically modified, cross-bred and not native. Colourful native potatoes are high in antioxidants. People at the market think it's spoiled, but the cultivators would like to share this knowledge with the world.

Researcher: *En eso de Svalbard, el Parque ha trabajado con la Organización de la Naciones Unidas para la Alimentación y Agricultura (FAO)*--¿Cómo era esa experiencia? In the case of Svalbard, the Park has worked with FAO. How was that experience for you?

Tecnico 5: When there's the opportunity to work with these organisations [Western organisations], it is good to take advantage and combine scientific and traditional knowledge in order to achieve a specific objective. The seed of the potato is very important, we've been able to experience a lot of the world and travel, all because of the potato. We've had relationships with other indigenous people, other scientists because of it.

Researcher: How would you describe the working relationship with the scientists?

Tecnico 1: For us, when someone comes in from the outside, we don't always know their intentions. Biopiracy is a threat, so it is a threat sometimes for people to come in. There's a policy for people to enter, it's an agreement everyone needs to agree to upon entering. There are policies that govern how the park works, like a constitution of the park, rules of how work is done here. People need to consent to it. When there's an education exchange, for example when other agro economists come from other communities – there is an immediate recognition of the work done here. There is less trust with people from outside communities, because advantage has been taken. There is also less trust built up with institutions from outside, too.

Researcher: *¿Qué significa Sumaq Kawsay para ustedes? ¿Qué les gustaría que otros aprendan de ese concepto?* What does Sumak Kawsay mean to you? What would you like other people to understand about this concept?

Tecnico 1: Sumak kawsay is based on the three ayllus: runa ayllu, sallka allyu, auki ayllu. There's contact with three ayllus, they live in the communities. They have to have mutual respect. The sacred (auki) and wild animal and plants allyu (sallka), mother earth and nature (runa). Within the runa ayllu, we have Quechua language, conservation, rituals, agriculture, local governance – all part of runa. Our typical dresses and weaving belong in the runa, too. Pachamama gives us everything, we breathe from the Earth. Because of this we are careful with nature, we take care of it, otherwise it'll hurt us. The domestic animals are in the runa ayllu ['human' ayllu – *translator's comment*]. Chickens have a close relationship with this because they're digging the ground. The sallka ayllu is the wild landscape, wind, water, forest, nature. Alki ayllu is sacred mountains. How we relate to sumak kawsay is the reciprocity between all of these dimensions.

Tecnico 2: To add to what Tecnico 1 was saying, I think that to live with the natural world, to live in a balance with it, conservation work is also the ability to live with nature. He thinks that this is a really important model and example to people, especially people in power – the planet isn't just about humans, the importance of nature is very strong. Scientists (Western world) think living well is to have a house, money, but to think about living with nature in balance is much richer. National level, the Peruvian government does not recognise this way of living, doesn't value it, but they see the value of living with nature this way, they see value in living with nature. Their work is to conserve this way of life, to conserve nature, making sure that this world continues to exist for future generations. This is part of the reason why they always communicate what the three ayllus are. There's always an element of the wild in any work they do – it's very important for it to always be present. Because of this they're against mining, GMOs [*genetically modified organisms*], extraction, rather than balancing. Thanks to the organisation of Potato park, they learnt how to defend themselves and the other way of life.

Tecnico 3: To make sure it stays like this for future generations. Preserving their customs, textiles, traditional knowledge and culture needs to stay in trade and produced, practised, and recorded.

Researcher: How do you defend your land against mining, GMOs – anything else to add? How do you defend their heritage?

Interpreter clarifies: The specific example Tecnico 1 was bringing was mining, defending land against minings. One example for them when they had to defend against a threat is GMOs. The government is more interested in transgenic seeds rather than transnational interactions. There's no support for agriculturalists. There's a sense that they [government] want to kill agriculture. We fought against biopiracy, GMO seeds. What we need to fight against is the idea of modernity, modernism: technology is pushed as a good agenda, but now young people do not want to speak Quechua, but they have a role to play to protect their own way of living, their culture and heritage.

Appendix 3: Interview with the coordinator at ANDES

Date: 29/03/22

Researcher: How would you describe the work of ANDES, in relation to the Park?

Coordinator: We describe it as a supporting role. The Potato park was forming really nearly at the same time as ANDES. In 1995 ANDES was formalised as an NGO, the Park was formalised in 2001. The way the story goes is that Alejandro, the director, is from a Quechua region in Peru, but not in Cuzco. He left Peru in the violence in the 1970s, went to Canada and then came back from Canada to set up a project focusing on social good, biodiversity: this intersection of indigenous culture and biodiversity conservation. The potato catalysed the vision for ANDES as well as for the Potato park – the projects were the one and the same. As the years went on, the Park became of course as its own entity, and ANDES served in a logistics and support capacity.

The Park has a relatively thriving tourism enterprise, self-organised and pretty much coordinated by the communities. Again, if ever needed ANDES could help with some logistics, but it is really the community members who are doing it and running it as a whole.

We also don't have much to do with the day-to-day agricultural activities, right, we are not overseeing anyone, what people are planting, selling, storing, eating: that is all very independent, and ANDES doesn't take part in that.

ANDES' roles are essentially two things: one is financing. The people in the Park almost always mention this in conversations and interviews from outside the Park: they do not receive any government funding. It's definitely not 'profitable' either – it is a funny word to use here, but definitely profitability isn't the goal here. That's not how ANDES or the Park would frame it, but it does take money and input costs to run it. ANDES runs multiple fundraising and grant applications, and there's multiple reasons for it. Philanthropy and development in general have been experiencing a shift recently. Now there's a focus on the community taking charge of it, applying and taking the initiative. However, there are some very tangible challenges to that: the need to be able to read and write in highly technical English, sometimes in the language of law and finance. That is not accessible in rural communities. This is where we take initiative, and during the process always try to involve the community members as much as possible, but there's always a lot to prepare.

Some of the work I've been involved in has been capacity building for community based accounting and mathematical skills. It is not necessarily a given that everyone is on the same level,

but I can definitely say that every group I work with has members who have a decent mathematical foundation. We also have to recognise that like anywhere, people thrive in different activities and different organisational areas. But this capacity building is not necessarily through the field schools, but it's a similar structure where we have these established groups in which we provide training.

The other thing that ANDES does is supporting researchers, in particular, students. It's a way of helping to produce knowledge from the projects. Oftentimes it's a blend: knowledge management and knowledge organisation. Sometimes it is producing entirely new things, sometimes it is registering existing knowledge in ways that makes the work of the Park and ANDES accessible. And also to analyse this work to produce something new. Research also helps ANDES write funding proposals since these tend to include a relatively large research component.

Researcher: In your opinion, what can people learn from the communities' culture (could be culture per se, organisational culture, agri-culture)?

Coordinator: When individual visitors come and see the park, often the biggest values are having first hand interactions with indigenous peoples. They are romanticised and misunderstood – othering. It is particularly strong in Cusco, in particular for foreigners. New age, picking and choosing cultural elements – strong romanticisation. Some of it is genuine, lovely, but it can just feel as though indigenous people aren't considered people. It is easy to imagine that they aren't people – motivated by the same things as anyone: health, love, children, safety, etc. Empathy and understanding then builds up – then people think I can do this too, same human values. Living in harmony with their landscape and world. Sumak kawsay could translate to harmonious living. second thing, the cultural learning – ability to see a system that can function in an alternative way. Globally food systems or climate change systems: hard to find someone who would fully whole-heartedly defend it. The systems are big and overwhelming. The real value of the demonstration of a viable alternative.

Researcher: Under your work description on the ANDES website it says: “the goal of creating scalable models for biocultural conservation based on the Potato Park and the Parque Chalakuy”. Could you explain to me what are scalable conservation models in your view?

Coordinator: That description is a little out of date (we are updating the website currently), but it refers to a project that was partly started by Alejandro, and partly carried out as my Master's thesis. For the thesis I created a spatial predictive model that, after feeding in the data, can identify if this site is a good fit to become what we call a food neighbourhood.

Food neighbourhoods are the expansion of what we call an indigenous biocultural heritage territory (BHT) unit. The biocultural heritage territory is both a vocabulary and a unit, a theory developed by Alejandro working with a couple of different partners. The main one is IIED, an NGO based in the UK. They took this on as a full time project, it's fully funded as a project. The biocultural heritage territory model is what galvanised INMIP, the International Network of Mountain Indigenous Peoples. The idea was that each country is creating biocultural heritage territory which would be based on the Potato park. My thesis research at one point concluded that this unit for analysis was not specific enough, it wasn't fully describing what had become the goals. One thing that the IBHT does not necessarily include is food systems. It depends: the potato park is a good example where the heritage goes hand in hand with food systems. Some other IBHTs focus on culture, natural conservation, but not necessarily on food systems. For INMIP, the organising mutual point was to focus on the food systems, too. With Alejandro I worked towards conceptualising a food neighbourhood, which is essentially an area of biocultural heritage territory plus the relevant food system within the area. The heritage being directly related to the food system.

Within the INMIP food neighbourhoods, the Potato park is definitely the most developed. The level of organisation and governance, and the unity is what creates a very unified territory. The goal with INMIP is largely training: identifying what skills, tools, resources needed to formalise and develop these food neighbourhood territories. Really INMIP is Alejandro's project, my role is much more of a coordinator. INMIP is interesting because essentially it's all run by the directors of projects, often coming from the more academic ends. The projects look like the Potato park, so largely community conservation projects. There's often a disconnect in terms of what the directors talk about (academic language) and what the communities experience, but it provides a rich dialogue. This is where I see the most value of the Potato park, this different way of thinking about organising people, land, food. The Potato park is of course very culturally grounded, we recognise that, but I think it is part of its success. There's lessons that can be pulled, and the goal would be that other communities could see this kind of project. We're working on producing a toolkit that helps to codify this. People hopefully from around the world could read about the successes, challenges and the stories of where we achieved something, that will be great.

Could the park be replicated? How would we evaluate if another project has been successful? Even within the Potato park it is a struggle for us. The evaluation tradition itself is very embedded in Western, colonial practice, but there is something to be said at a base level 'I know this, because I experienced this'. When looking at large scale, community driven projects it is likely to be organic, emerging from within. But then how do you know that 'you made it'? How do you know it's 'successful'? The Park has been around for twenty years now, and it's constantly changing, evolving, it's a process. The challenge and the interesting thing for me is how we get it out of this academic conversation, put it on the ground and make it into an actionable plan that around the world any group could follow?

With evaluation, it is difficult, it is not as though any group is interchangeable for another, it is often a fine line. You don't want to overgeneralise by saying that we take for granted that any indigenous group has X characteristics: you might be including groups that wouldn't include themselves, and you might be excluding others who think they should be included. I think INMIP has been successful in terms of communicating to the world these topics: it's a relatively small reach, but it is an impactful reach. Precisely because these are the directors of their organisations, they are able to communicate with their local communities and the organisations they're running, and at the same time they are able to speak in front of a UN assembly, so they are able to traverse these boundaries, communicate to all. When someone from the outside comes to visit the Park, the community members are very good at explaining what they do and how they live, it's all very clear. But when somebody's not there and just one person from the Park goes somewhere, it is more of a struggle to capture what they do. They just don't have the same background, that type of education that teaches us to group things together, categorise, that's not necessarily the way they've been raised to think, so that's not necessarily the type of presentation they excel in. The value for INMIP is that these directors can communicate at such occasions. It is one of those complications, when you can't communicate about your project at such larger settings, it makes you question what role you have other than in relation to your family or to your neighbours. If your aim is to have a larger impact, communication becomes this really clear aspect. People who aren't as close to the projects sometimes end up being the communicators about the project. Sometimes it enables you to communicate more clearly, sometimes it leaves things out – what I'm trying to do is never communicate *on behalf of* someone, rather share experiences and project learnings.

Researcher: Absolutely, and I think these different knowledges and how they get presented are really interesting and telling. This week I'll be speaking to CIP, and I am looking forward to hearing their perspective on the repatriation agreement as well as their general view on what it's like to be working with the Potato park.

Coordinator: We have another student coming soon working with ANDES whose project is going to look at the repatriation agreement with CIP. Alejandro might have mentioned it to you, it's an ongoing climate change project which started with CIP, and it's looking at pests, what potatoes yield from each variety, what pests and diseases you find, what environmental results come from these. We've never seen any results from these plots, CIP theoretically has data. We're not sure what's going on with this at the moment. This new student could make interviews, talk to different participants of the project and figure out the impact of it, analyse it. I suspect he is going to find interesting data from all sides. There is no one objective truth about how the world works: at ANDES we see it one way, at CIP they see it another. The goal is to create a guide to really describe this process, create a step by step guide for communities: how do you repatriate your

seeds, what are the steps to follow? It's a 'shame' that you do not hear about other communities repatriating their seeds: I'm sure if you ask the Global Seed Bank, they would tell you the same, this is not a common story. This is not some sort of radical perspective from ANDES: anyone who is involved in community agriculture would agree, it is a shame that you don't hear more of repatriations. The key part missing I think is just information. A lot of it with CIP was knowing the right people, doing it at the right time. One of our goals for this year is to create this process document.

In terms of these publications, we have a community library and document storage in the Potato park. The community members really like having these works written about them and with them close. Visitors also love reading them, you know a lot of researchers come to the Park and the scholarly works and literature are available for them, it's nice that they can browse through them. From the community's perspective, they like having these publications near them. This idea around intellectual property is overly complicated: as the years have gone on, it's become more and more convoluted. The idea is to protect people, but it has become more and more impenetrable for communities, it is highly technical and is for people with a Western education, connections and money. But at the same time it has become more and more of a focus of communities, there's more awareness of it, this kind of extraction, extracting resources can also be taking your ideas, taking your seeds. Also in general the spirit is that communities are open to sharing and want to collaborate: it is a very engraved cultural value here. You take care of people. There's a sense that people are generally good, they're human beings, we should be kind. So they are very generous with their time and knowledge. But there's been an increasing awareness that sometimes the community members don't see that what they're sharing can be benefitted from for outsiders, and that has made them aware of this issue. They want to have these objects or pieces of knowledge right there with them which they can turn to in case of needing them.

Another thing you always run into is this issue of translation. That's another reason why they like having these hard copies there. Having these hard copies might make them feel like the communication barriers that would happen with outsider visitors is less, they can have them there and return back to them, even if they are in foreign languages. It's quite nice to have these there, and they would be interested to see your final product there at the end, too.

Researcher: What would you say, what can people learn from the communities culture – culture per se, organisational culture, agriculture, however you see it?

Coordinator: When we receive individual visitors, when they experience the Park and see it, oftentimes I see people having the biggest value in having first hand interactions with indigenous people, indigenous cultures. Indigenous peoples are often very romanticised, very poorly understood. There's a strong sense of othering. This is particularly strong in Peru. In Cuzco, in the Sacred Valley there's a wave of foreigners and also some Peruvians who participate in this. This

very new age choosing from cultural elements of doing yoga, doing ayahuasca ceremonies, saying you're praying to the Pachamama, and so on. This is a very strong romanticisation of indigenous culture. And some of it is lovely and is done with good intentions. But it creates this impression that they don't consider indigenous people as people. That they're so Other, that when you haven't had interactions with them yourself, it is easy to imagine for many that they aren't like 'regular' people. There's this sense that it is a whole other world we cannot possibly understand. So there's a lot of empathy that comes from these interactions, people realise that we are all motivated by pretty much the same things: indigenous people also love their families, they love their children, want to have good lives, be safe, want to be healthy. All of these things that you could ask from anyone around the world and people would identify as important to them. I see visitors come and have these 'aha!' moments, seeing people existing in cultures very different to Western cultures, but these are people with the same complex motivations and problems as anywhere else. Once you understand that empathy exists, you see that actually we are different, but not so different – not as exotic as I thought it was. These are communities with human values, in harmony with their environment that makes their work impactful. Having a set of values which foregrounds this harmonious living (sumak kawsay). The real value of the Potato park is this living demonstration of a viable alternative. It is interesting that when you and I first talked, you said this park is a large initiative, that it feels big to you: at ANDES we often say that this is a relatively small scale project. The impact and the value is the ability to demonstrate a culture or way of life that is truly sustainable. Not to mean they don't have problems, this is not some sort of utopia. But their system doesn't generate the same type of existential crisis as the global system does, their system is, were it not for these outside systems creating these problems, they would not have them. This is a viable forever system that they have. What's interesting is that the Park is much more well known internationally than nationally, in Peru almost no one knows about it. And we know that one Potato park is not enough, we would love to see a hundred or a thousand, enough to start making tangible difference and pushback on the monolith system that the world is facing right now.

Appendix 4: Interview with project lead (PL) of International Centre for Potato (CIP)

Date: 30/03/22

Researcher: Please describe the work of CIP briefly.

PL: I am an agronomic engineer specialised in soil. I have experience in genetic resources and related matters. I am the curator of the potato germplasm conservation at CIP. I've been working here for 34 years. The links with the Potato park started with a project that started in 2002 when we

had the leader Dr Willy Rocca within the context of the project of repatriation of potatoes. This was the way of approaching the Potato park and ANDES.

Interpreter from CIP: I have been a genebank curator from 2002, and have been working with Dr Willy Rocca. Previously I worked in another gene bank. My major is in-vitro conservation of genetic resources of potatoes.

Researcher: What does the Potato park mean to you? What is the importance of such an initiative?

PL: Currently CIP is making available a strategy of linking *in situ* and *ex situ* conservation. I know about the diversity in the dynamic conservation applied by farmers. A lot of diversity. The farmers have the point of view of maintaining this diversity. With this philosophy at CIP, I approached them trying to reinforce this thinking of *in situ* and *ex situ* conservation that CIP is interested in. We can consider that the first step of dynamic conservation is the 1997 project. Repatriation of genetic material only works after cleaning the potatoes thoroughly. The original potatoes weren't fully clean from viruses. The objective was to increase the productivity in the farming [at the Potato park].

The objective was only to give back the clean materials to farmers. It was identified that the need of funding banks in the community's gene banks was very much there. In 1999 the official project took the name of 'Repatriation', including the creation of banks. The objective was to give back the clean material and to create gene banks in the communities. Even in 1997 the objective of gene banks was included, but the name of the Repatriation project started in 1999.

It was identified that in gene banks the local community could conserve local varieties, clean it, repatriate it, and the similar varieties of the same name that come from other locations. How can one know the place where the material came from? The PL found the data to use should be the passport data, so an ID number for the potatoes collected when the material is collected. In this data it is possible to recognise administratively the location, altitude, longitude of the material. But the data of which farmer provided the material was absent. It was not possible to have this. Also the CBD agreement limited the amount and frequency of collection.

The total number of accessions was more than 17000. But after studies and classifications, they found duplications. There's a lot of duplications, now 4000 varieties are recognised. It was possible to identify migrations. Sometimes one variety from one place was moved by a farmer to another place. It might mean it is preferred by the farmers. Some varieties are more used and cultivated than others.

For example 'kompis' is an Andean potato very highly used. They use it in the north of Argentina under the name 'papa rosada', and is also used in Bolivia under the name 'puka rojo'. In Quechua it means rounded shape related to the Andean woman's shape. Going up from Cusco there's Cordovina, Luya San Martin. I understand that it is a very distributed potato in several geographical areas. It has been moved between different altitudes, latitudes and longitudes, too. It was originated in the Potato park. It is understood that it belongs to an environment or a region, but not specifically a geographical point of origin. Only a few potatoes have this similar behaviour like kompis. I estimate that 1/3 of the potatoes have a similar distribution. Most potatoes are endemic and are cultivated in a specific area, and it doesn't have very good yields in other areas. On the other hand, an example of endemic material is chakillo variety. The translation means that the potato is like a stick.

We are dealing with climate change. The farmers in the Park in 2002 identified the effects. In 2010 it became even more evident. The need was identified to protect some sensitive varieties. The endemic accessions need to be protected. They are more sensitive to climate change. Most accessions resist climate change, but the endemics that are in the Park needed a strategy.

And to talk about the impacts of the gene banks. One of the steps facing climate change was to reinforce the gene banks. Repatriating the material was conserved in the community as a source of potato seeds. One good gene bank had the capability to distribute clean material to other communities. This material was observed that the clean material has the capacity to restore the plant health of the communities. It has the potential to recover varieties that were lost because of viruses. We are talking about maintaining the security of potatoes for the future generations.

Researcher: How would you describe your role in relation to the work of the Potato park (and ANDES)?

PL: The links with Potato park, CIP and ANDES are there. Starting from the repatriation we've made rolling agreements for every five years. We've been working together for 18 years. There have been several researchers with other institutions like Wisconsin University. Including the Aymara community there's been collaborations too and propagating and maintaining ex situ conservations. Wisconsin University made a screening in response to calcium. Tolerance to drought and frost, studies like measuring tolerance to global warming with Transecto were carried out. 20-25 varieties were planted in one level, 100 metres altitude distance from each other. It proved this variety needs a higher climate. 230 metres over the original level was optimal.

There's limitations because of climate change. If the plants keep on needing to go up the mountain, there will be less and less yield coming, smaller plots. It will be impossible to continue to farm this way in the Andes mountain range. The representatives of the Potato park, the most

intelligent people are called 'papa Arariwas ', so basically knowledge holders of potatoes. They strongly requested genes from old potato varieties that could help produce new varieties, but whilst still keeping the resistance. Continuing farming with resistance is the point – shape and colour doesn't matter. CIP support and help would perhaps come for this. Yet there are no agreements about this so far. Traditional breeding programme might take 10 years, but with CIP's help it could take 5 years to develop some resistant varieties.

Researcher: Do you have future plans for collaborations with the Potato park? If so, please tell me about them.

PL: I am thankful for the Papa Arariwas who have worked with me with huge knowledge on potatoes. There's a very interesting project, for example, focused on expanding the centres, improving biodiversity, 'Ruta Condor'. From your own culture, your own experiences you see each community in each country has different cultures, experiences. Within this experience one of the things I appreciate most is merging knowledge: traditional and modern knowledge. This has been the base of improving the management and conserving both ex situ and in situ, but globally, too. It is a strategy continuing to help the communities. I have a huge hope to get the facilities and opportunities to contribute to food for communities. The original varieties with granted access to breeding could help feed people. After the pandemic several communities came back to farming again – the need for food is higher than before. I don't like the limitations of the pandemic.

Appendix 5: Interview with two representatives of FAO's International Treaty on Plant Genetic Resources for Agriculture

Date: 22/04/22

List of abbreviations:

Rep: Representative from FAO

BSF: Benefit Sharing Fund

ITPGRFA or 'Treaty': International Treaty on Plant Genetic Resources for Agriculture

Researcher: Once again, thank you both for joining this conversation today. Let's start by introducing ourselves, then.

Rep 1: I've been working with the Secretariat of the Treaty, mainly on management of operations, monitoring the projects funded under the Benefit Sharing Fund (BSF). I've been involved in policy, dialogue, and the development of monitoring tools. The Parque de la Papa project was also funded through the BSF mechanism of the treaty.

Rep 2: I've been working with FAO for more than 20 years. Before information management, research and technology transfer. On the Right to Food unit, and different elements of food security and food sovereignty. I've worked with the Access and Benefit Sharing of the Treaty.

Researcher: In FAO's perspective, what role does the potato play in global food production?

Rep 1: First thing we have to take into account is the reality that potato is one of the basic staple crops. In terms of production volume, it is the fourth most important, only after maize, wheat and rice according to FAO statistics (FAOStat). Production and consumption are both measured, so one might want to take those different aspects into consideration when describing the potato's importance. So FAO has several divisions that deal with the technical aspects related to the production of potato. The potato tubers, seeds – there's a division of. There's the International Treaty that deals with genetic resources at the basis of crop production. There are many others that deal with social aspects related to the production of the potato and support countries to produce potatoes. We recognise that potato is not only at the global level one of the most important crops, but at regional level it forms the basis of food security. In this sense, many other countries in the world are dependent on this genetic resource that originates in South America. Those elements were taken into account when the fathers and the mothers of the International Treaty negotiated this instrument. They took into account the importance of that crop, and this is why the potato is included in the Annex 1 of the IT. It is one of the privileged crops that have a multilateral system for genetic resources at the global level. The multilateral system facilitates hassle-free access to genetic resources that are mainly in public collections of contracting parties, so state and government collections. This is facilitated through the use of one instrument called the Standard Material Transfer Agreement. There are 64 food and crops and forages and they were all selected because of their importance for food security, but also for the inter-dependency that countries presented at the time. We have also supported and funded the production of all the documents with fresh data, and one of the results of that study is that if we should negotiate the multilateral system, probably other crops that were left outside this multilateral gene pool would need to be added. We know in the particular case of the Park that potato is the basic daily food. We've seen people taking some kind of potato for breakfast, some for lunch, and more and

different potatoes for later and dinner, soap made of potato, etc. Potato is used beyond food, it is also part of the culture of many communities, local indigenous farmer communities.

(Interviewer) Follow up question: How do you think the Treaty protects the cultural context of these crops protected under it? How is culture taken into consideration in the Treaty?

The IT makes several references to the not only to the conservation of the plant genetic resources but also to sustainable use. We are talking about articles 5-6 of the IT. It's generally for all plant genetics. We have not talked about specific food and agriculture, but it is the reason for the assistance of this IT. In a certain way it is a reaction against the regulation that was agreed in 1992 at the CBD. The Treaty actually recognised the importance of those crops like potato, and established a facilitated mechanism, special rules for that crop. That facilitated a change in itself. So it is not only about conservation and sustainable use – that also translates into other recognition. For example the importance of documenting the material and the knowledge associated with the material for example. In the project that we are funded through the BSF, there's all these components related to the agronomic practices, all the kinds of knowledge associated with the material. In the case of the first project that the BSF funded in the Park, one of the outputs of it was a database of traditional knowledge. We were not only interested in supporting those farmers, but the 1300 or so varieties of potatoes, but also the traditional knowledge associated. We also prepared a video, The Seed. You could see that one of their custodians actually was elaborating on traditional knowledge, when we actually plant potatoes on this side of the mountains, "we do it when this plant flowers, because it is telling of optimal conditions" as they said in the video. There are many ways in which this can be supported. We've been paying more and more attention to the documentation of traditional knowledge and practice, because the idea is that through the Treaty we can facilitate a chain of experiences. Many of the experiences cannot be simply reproduced because of environmental and physical conditions, the crop there actually imposes limitations, etc, but we think that there's a lot of knowledge of high value that should not be lost.

Interviewer follow up question: Rep 2, would you like to say a little bit about knowledge preservation, as Rep 1 mentioned earlier you worked with that more? How is it related to FAO's vision on sustainability?

Rep 2: Let me tell you a bit about the BSF of the Treaty. It is a mechanism that adopts these bottom up, participatory approaches to increase the diversity in farmers' fields, repatriate lost

agrobiodiversity from regional or international banks. We work with local communities and vulnerable ones, especially in areas of high biodiversity. The documenting of the traditional knowledge of the communities that conserve and manage the agrobiodiversity are the underlying characteristics of our projects. We've dealt with the development of strategic action plans that have policy and decision making components, establishing a framework for preserving agrobiodiversity, and some research projects were more focused on knowledge to be used in breeding programmes. But the majority of our projects work with local communities because they are the ones that conserve the knowledge related to agrobiodiversity in their fields. We also work with translations from local dialects to English so all this knowledge is available more widely – because you can imagine most farmers in South America don't speak English, sometimes not even Spanish amongst themselves. We also document practices of what is the value of the use of agrobiodiversity in terms of food, ceremonies, beliefs, the knowledge of using parts of the diversity that is conserved for developing local shampoos, soaps, the broad concept of the use of agrobiodiversity, not just for consumption but to extract the value that is intrinsic in the diversity.

To go back to the BSF, it is one of the main components of the strategy, it is the mechanism available in the Treaty – it was established in 2009, and since then we've invested more than 26 million USD in 8 projects targeting 67 developing countries and as Rep 1 mentioned the BSF is linked to the multilateral system of access and benefit sharing, and it enables the access and facilitates the use of the ITPGRFA that facilitates access in the multilateral system. So all of our projects we work with our partners through FAO contracts, and there are two clauses that our partners accept and engage by the end of the project to make available in the Treaty the material that they've been managing through the projects, any new material developed, any new material selected, for participatory approaches with farmers. We work with breeders, farmers, and reflect on what the specific needs are of the targeted communities. The information and data related to this work is made available world-wide for the global information system, and the material is made available for the multilateral system. Some of the underlying activities we've been supporting were in situ and on farm management of PGRFA. We have supported small scale farmers and scientists, breeders in developing countries to use the genetic material that are available in the multilateral system for research and development of new crop varieties. We support the characterisation of genetic material for resistance to climate change, for agronomic characteristics, for nutritional value, and support the selection and breeding of the varieties, and select varieties that meet the needs of local communities. We had four projects supported in Peru since 2009, and we've worked with Asociación ANDES for the project in the Park, with Solaris Peru, with CIP and the Sociedad Peruana de Derecho Ambiental. Most of them were local NGOs, and to give you a flavour of what we have been supporting or the main objectives of our work with the Potato park, they were conservation of local diversity in order to address or to contain the disappearance of potato varieties from the local fields so that we could help farmers to have more options when called to deal with the impacts of climate change and food security.

I saw that you looked into the factsheet of the Park's project: there we enabled the introduction of lost varieties in farmers fields from national gene banks, from collection missions, also varieties that have been accessed through the multilateral sharing of the Treaty. Based on the survey and assessment of what are the local conditions and effects of climate change and management and production of local varieties of potatoes, our partners selected and accessed the varieties that presented the traits needed for these specific conditions and made it available for farmers for further conservation in community seed banks.

Seed banks were established as part of the project implemented in the potato park to enable sustainable management. It means not only to make material that is needed to face the challenges of climate change and make sure there's security available on a constant and sustainable basis. So to have this virtuous cycle of accessing, using, managing, multiplying material in community seed banks and make this cycle of access and use available for all. We aimed to increase availability and access of seeds of native potatoes, and the implementation of ecological techniques for conservation of soil and water sources. The component of recognising and documenting the traditional knowledge was an underlying component of the potato park, and it was supported in Peru.

I don't know if you're familiar with the Svalbard Global Seed Vault, in 2017 we participated and supported the deposit of seeds there. Quite a few samples were managed through the BSF.

Rep 1: Vera, have you seen the video? We not only supported the deposit but helped with the support of a Mexican film director, to produce a video on the journey of the potatoes to Svalbard, it's called Uyway. It represents the spiritual connection to the potatoes where the producers consider the seeds as their children, relatives. The IT tries to connect the local production of crops and food and the ex situ collection, as Rodica mentioned, there was a collaboration with the national gene bank of Peru and the International Potato Center. They repatriated material from their fields, and they adapted to the new conditions, they sent certain material to us. They said some varieties that used to be in the valley had to move up the mountain because the temperature, moisture all these conditions have been changing. Most of the conservation is still done in the field by farmers, not in gene banks. We are facilitating the exchange of material, and unfortunately only 64 crops were included in that list, but I would love to see other crops being included so they can actually be accessed. Particularly material that comes from the centre of origin like in the case of the Potato park. So far we've facilitated the exchange of 2.8 million material. But it is clear that they are coming from somewhere else. You've selected one of the examples for your thesis that best represents the nature of the Treaty, because they actually work with NGOs. Many of the local communities and local gene banks do not have the access to sanitation of samples and they do partnerships with all the collections, like National Research Institution, National Gene Bank, and

they benefit from the collaboration because they are able to do regeneration projects. We know that some crops like potato are a clonal crop, it is challenging to conserve.

Researcher follow up question: To jump back to the point you made about Svalbard, if the communities were to ask back for their deposits, what are the conditions under which they can get them back?

Rep 1: Well Svalbard is not a gene bank so they do not distribute. They are like a safe deposit vault so yes the problem we have seen is that no matter how well the conservation is planned, whether in situ or gene bank collection, even if the building is good, there are external factors such as unexpected catastrophes that could happen, beyond our control. Svalbard is safe because it is in the permafrost. One of the conditions of accepting material at Svalbard is to have two more copies of the material elsewhere, either in gene banks on a farm or regional or national level gene banks. And we have this additional deposit in Svalbard in case anything happens, the material will be repatriated, moved such as it happened in the one in the Middle East. Additionally, we know that all governments are considering similar initiatives, such as the government of India is considering something like this for Indian Asian crops. In the Middle East they're thinking about a backup option, too. Genetic resources do not stop at the border, they are political units. There is a human link in there, it is fundamental in every work, in every study that we do there are human-made interventions, they would not be where they are today without them. There is a difference between the material that is conserved and used and maintained in gene banks – the ones hosted in situ still continue to evolve. Material in a cold chamber does not actually evolve.

Researcher: Could you explain what the concepts of 'food sovereignty' and 'food security' mean in relation to the International Treaty on Plant Genetic Resources of the FAO?

I see an overlap of them, no opposition. We actually know the definition of food security, defined by FAO and it has been agreed. All people, all the time, have physical, social and economic access to food which has to be sufficient, safe, nutritious and that meets the dietary needs and food preferences of an active and healthy life. Each word could be made into a study, every detail. FAO is made by states, it's a place where governments meet. Food sovereignty is more holistic and wider, it doesn't stop there. People that produce food need to have control over some of the resources they use. In the case of IT, farmers do need to get access to land, water and also seeds. First we need to recognise food security as important. On the other hand, you also have the recognition of farmers rights, IT article 9 secures that. Local and indigenous farmers and all regions of the world make a contribution to the world. According to the national legislation, they agree to take measures to do these things: protect and promote farmers rights. What do we understand

about farmers rights? There's still long discussions in IT on this, there's a committee, the government body decided to put one together, and it has been facilitating all the measures of the contracting parties. They also have to benefit from the sharing. In IT the genetic resources generate less economic added value in terms of commercial aspects, than other material. The Treaty recognises rights that have to be protected. What you find now, is the Farmers Rights' Inventory.

Food sovereignty emphasises the need for producers to get access to the resources that they need to produce their own food, and the Treaty helps the recognition of farmers and the role that they have in relation to it. On top of that in the government body meeting and also the other committee on farmers, and the working group of farmers representing organisations and from the seed industry, and they meet and discuss these issues together. In the speeches, both the use of food security and food sovereignty are recurring themes. La Via Campesina also worked on this before.