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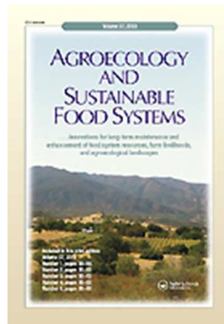

Enacting Food Sovereignty in New Zealand and Peru: revitalizing indigenous knowledge, food systems and ecological philosophies.

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Enacting Food Sovereignty in New Zealand and Peru: revitalizing indigenous knowledge, food systems and ecological philosophies.

Mariaelena Huambachano

This article reports on a cross-cultural study of two Indigenous knowledge and food security systems: Andean people of Peru and Māori of Aotearoa - New Zealand, and implications for food systems sustainability and traditional knowledge. This study takes a novel approach by using a Traditional Ecologic Knowledge (TEK) lens to examine respective 'good living principles' of Allin Kawsay/Buen Vivir in Peru and of Mauri Ora in Aotearoa and how they enable food security. In this study, I introduce the 'Khipu Model' as a source of knowledge production and sovereignty guiding the development of an Indigenous research-based framework. Drawing on over forty interviews, with elders, community leaders, and people engaged in sustainable food production in Peru and Aotearoa. I show that an Indigenous 'food security policy framework' underpinned by a set of cultural and environmental indicators of well-being resonates with conceptualizations of food sovereignty, whereas the dominant food security approaches do not. I argue that such a framework enacts practices of food sovereignty and represents a tool of Indigenous resurgence and social change in food politics for the revitalisation of indigenous food sovereignty as an alternative sustainable food system.

Keywords: Sustainable food systems, Food Sovereignty, Food Security, Indigenous peoples, Mauri Ora, Good living/Buen Vivir, TEK, Khipu Model.

INTRODUCTION

Food security is a global policy objective that has evolved, developed and diversified overtime, although its primary aim is: to provide sufficient food of a suitable kind at the right time and place to feed the world population (Devereux, 1988, Maxwell, 1996; Food and Agriculture Organisation (FAO), 2016; Paarlberg, 2013; Timmer, 2015). The widely accepted definition of food security derives from the World Food Summit Plan of Action held in Rome in 1996:

> 'Food security implies that food is available, accessible and affordable thereby food security exists when adequate food is available to all people on regular basis' (United Nations World Food Programme (UNWFP), 2007).

Complexity arises when food security as a global policy objective is put into contemporary socio-economic contexts in the absence of an in-depth understanding of how Indigenous communities define food security and their practices related to it. Presently, most efforts to improve food security remain focused on industrial and scientific agricultural approaches to feeding the world. Such approaches relegate Indigenous ways of knowing (epistemology) and being (ontology) to the background of the discourse of alternatives approaches to food security. Yet, problems of hunger, unhealthy ecosystems, health and nutrition concerns, and lack of accessibility to food persist (Bello, 2009; La Via Campesina, 2015; McMichael, 2009; FAO, 2011). Given the need to feed, by 2050, an estimated of 9.5 billion including 370 million Indigenous people worldwide who possess knowledge on the preservation of healthy ecosystems for their food sustenance, it is prudent to include Indigenous peoples' perspectives in the discourse of alternative approaches to global food security.

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The aim of this article is to outline perspectives of food security as seen through an Indigenous lens, and Indigenous peoples' potential contributions to the debate on alternative approaches to improving food security. The research takes a novel approach by using the Traditional Ecological Knowledge (TEK) theory that embodies Indigenous ways of knowing and being to understand Quechua's and Māori's TEKs enshrined in their good living philosophies. Good living philosophies refer to Indigenous peoples' collective, harmonious, and spiritual approach to the preservation of all life-forms residing in Indigenous territories (Lajo 2005; Dávalos, 2008; LaDuke, 1999; Nelson, 2008). Allin Kawsay and Mauri Ora are at the heart of the Quechua and Māori people and central to their survival as land-based peoples (Durie, 2003; Lajo, 2008, Huambachano, 2015). These philosophies deserve to be reviewed concerning food security.

With regard to my methodological framework, this study tunes in to Indigenous ways of acquiring knowledge. As a result, I have developed an original Indigenous-based research framework for investigation, which I call the 'Khipu Model'. The Khipu Model is an Indigenous knowledge production and knowledge sovereignty framework wherein the cosmovisions of Indigenous peoples and the impetus of working with and for Indigenous communities take precedence. Indigenous cosmovisions manifest an Indigenous holistic view of equilibrium and harmony with the cosmos and all their relations (humans and all non-living things) embedded in their knowledge systems and manifested in their cultural identity (Cajete, 2000, Deloria, 2005; Henderson, 2000, Lajo, 2005, Huambachano, 2015).

The structure of this study is as follows: the next section situates the debate over global food security. Then, a description of the TEK theory and the Khipu Model, are presented. Next, I examine indigeneity and food security within Māori and Quechua food security contexts, highlighting their commonalities rather than their contrasts. Then, the discussion section outlines Quechua and Māori understandings of food security and sovereignty by describing their essential characteristics guiding their food security approach rather than nuanced differences within each group, and the implications for contemporary policies of food security. The conclusion draws together the threads of the argument. Indigenous peoples' TEKs contribute to food security by providing an alternative food security framework that guarantees the preservation of biodiversity of food as well as maintaining healthy ecosystems.

THE DEBATE ABOUT GLOBAL FOOD SECURITY

The debate about the best approaches to food security often focuses on the current industrial, agricultural model characterised by high-technology approaches with the objective of increasing productivity and efficiency. Although this approach has succeeded in producing large volumes of food, problems of hunger, degradation of land, unhealthy ecosystems, and lack of accessibility to food persist (Bernstein, 2010; Consultative Group for International Agricultural Research (CGIAR), 2016; GRAIN, 2014; International Fund for Agriculture Development (IFAD), 2011; Tombe, 2015; Whyte, 2015; Woodhouse, 2010). The latest report of the International Panel of Experts on Sustainable Food Systems (IPES-Food), led by Olivier De Schutter, a former United Nations Special Rapporteur on the right to food, summed up the state of the current global food system:

> "Today's food and farming systems have succeeded in supplying large volumes of foods to global markets, but they are generating negative

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> outcomes on multiple fronts: widespread degradation of land, water and ecosystems; high GHG emissions; biodiversity losses; persistent hunger and micro-nutrient deficiencies alongside the rapid rise of obesity and diet-related diseases; and livelihood stresses for farmers around the world" (IPES-Food, 2016, p.1).

Clearly the requirements to address food security are not being tackled properly and food security is a global major concern. As a result, the concept of 'food sovereignty' has taken centre stage over the past four decades (Altieri & Toledo, 2011; Bernstein, 2010; McMichael, 2009). La Vía Campesina, an international organisation of Indigenous farmers, peasants, small producers, and farm workers, initiated the food sovereignty movement in 1996.

According to the 2007 Declaration of Nyéléni, food sovereignty encompasses:

> The right of peoples, communities, and countries to define their own agricultural, labour, fishing, food and land policies which are ecologically, socially, economically and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and their societies. Food sovereignty means the primacy of people's and community's rights to food and food production, over trade concerns.

The food sovereignty movement advocates the 'right' of nations and peoples to control their food systems, food cultures and environment. The 'rights'-based discourse embedded in La Via Campesina calls for a fundamental shift towards the right of all peoples to healthy and culturally appropriate food and the right to define their own food and agricultural systems.

It is in this food security/sovereignty debate that this empirical research focuses: it investigates perspectives of food security of the Māori of Aotearoa - New Zealand and Quechua of Peru. This study adopts the TEK theory to gain greater insights into the knowledge systems of these to Indigenous groups, explained further below.

TRADITIONAL ECOLOGICAL THEORY (TEK)

My analysis of the empirical evidence is through the lens of the TEK theory, which studies Indigenous peoples' knowledge systems embedded in their cosmovisions (Berkes & Folke, 2002; Battiste, 2002; Cajete, 2000; Deloria, 2005; LaDuke, 1994; McGregor, 2009). Notably, there is no universally accepted definition of TEK in the literature (Battiste, 2011; Berkes, 2012; McGregor, 2004; Whyte, 2003).

On the one hand, the Indigenous perspective of TEK guides this investigation. Anishinaabe environmental activists Winona LaDuke, describes TEK as:

> "The culturally and spiritually based way in which Indigenous people relate to their ecosystems. This knowledge founded on spiritual-cultural instruction from time immemorial, and on generations of careful observation within an ecosystem"
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> (La Duke, 1994, p. 127).

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On the other hand, is the Western perspective of TEK defines it as an enduring 'backdrop body of knowledge' which has been acquired mostly through oral history from one generation to the other over thousands of years (Berkes, 2012; Davidson-Hunt & Berkes, 2003; Pierotti & Wildcat, 2000). Indigenous scholars disagree with the Western view of TEK to denote their knowledge systems. They argue that traditional knowledge is place-based and therefore it can't be confined to a particular source of knowledge (Battiste & Henderson, 2000; Cajete, 2000; McGregor, 2005). Indigenous scholar McGregor (2004) eloquently points out the reason for such disagreement, and argues that "to understand where TEK comes from one must start with Indigenous people and our own understanding of the world" (p. 386).

This study supports the Indigenous view of TEK, and argues that Quechua and Māori have their own TEKs that reflect their ways of knowing and being. Consequently, the comparative study of Quechua and Māori is examined through the TEK lens and adopts a Participatory Action Approach (PAR) and centered on working with and for the benefit of Indigenous communities. It also requires the implementation of an Indigenous research framework, hence the development of the Khipu Model.

The Khipu: An Indigenous research framework

The Khipu model is the innovative Indigenous research framework that I developed for my empirical research study to examine the Quechua and Māori cosmovisions and wellbeing philosophies, and how they enable food security through the TEK lens. The name of the 'Khipu Model' derives from the Andean indigenous knowledge keeping method, the Khipu (See Figure 1). The Andean Khipu is a complex and colourful knotted-string device mainly used by the Inca to record both statistical and narrative information (Salomon, 2004; Urton, 2003). Because of the features of this remarkable device, I adopt the Khipu Model as a source of knowledge production and sovereignty to 'hear, record and elucidate' Quechua and Māori's TEKs. The ultimate goal of the Khipu is to address the central research question, "How can Indigeneity contribute to improving food security?"

Figure 1: The Andean Khipu

The Khipu referred to as the *talking knots* is an Indigenous knowledge keeping system (Urton, 2003)

The philosophical position of the Khipu is rooted in the Quechua and Māori worldviews and draws from substantive literature review on the Kaupapa Māori research framework (Smith, 1999), the Andean Biocultural Research Protocol of the Potato Park (Argumedo, 2010) as well as from the body of scholarship addressing Indigenous research methods (see for example Bishop, 1999; Kovach, 2009; Royal, 2009; Smith, 1997, Wilson, 2008). Further, in resonance with the ways of acquiring knowledge, the Khipu adopts a (PAR) approach wherein a study community is a full partner in the research project, and which also incorporates the principle of working *with* and *for* the benefit of Indigenous peoples.

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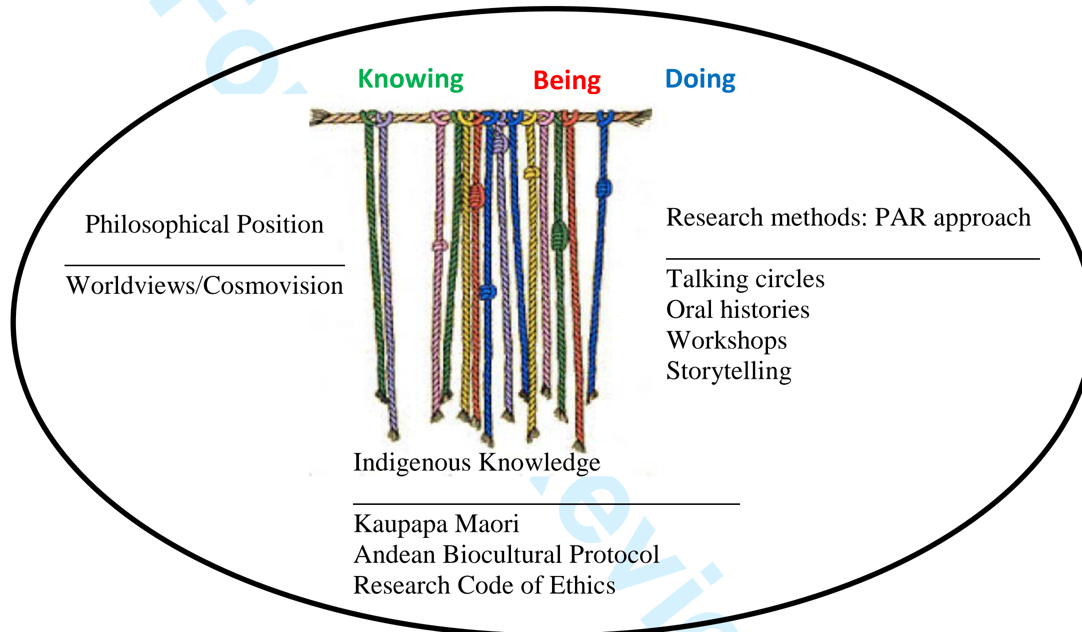
The operationalisation of the Khipu is based on three fundamental threads of knowledge: *knowing*, *being* and *doing* embody the epistemology, ontology and ethical principles of Quechua and Māori. The Khipu also operates as a knowledge sovereignty tool that gives 'voice' and represents Indigenous ways of knowing, being and doing at every stage of the empirical research (Figure 2). Thus, it represents a model wherein Quechua and Māori had full autonomy in the research process. These threads of knowledge were fundamental in guiding the selection of the research methods of this study, which are culturally sensitive while providing the rigour of research.

Figure 2: The Khipu: Three threads of knowledge



The Knowing Thread: This thread is one of the most important because it establishes the philosophical position adopted in the research and such philosophical orientation permeates throughout the Khipu framework.

The Being Thread: This thread relates to the cultural identity of Indigenous peoples recognising and respecting their ethical values and principles.

The Doing Thread: This thread connects the knowing and being thread to inform the research methods of this study. These research methods acknowledge the holistic and relationship-based worldview of Quechua and Māori peoples.

The Khipu may appear to have elements that are similar to the Western approach, for example, Western "focus groups" may be similar to Quechua "talking circles". However, in research sessions for Quechua and Māori communities, talking circles in the Khipu framework distinguish the rituals and protocols underpinning the ceremonial performance.

Study communities brief profile: Quechua and Māori

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Quechua people

The Quechua people are the Indigenous people of South America, and there are approximately 3.5 million Quechua people in Peru who predominantly live in the Andean region (Espinoza, 1987). For centuries Quechua peasants[1] have made use of their Indigenous agricultural heritage to develop varied and locally adapted farming systems (Altieri, 1995; Scott, 2011; Salas, 2013). This agricultural knowledge has enabled them to gain community food security and conserve agro-biodiversity (Altieri, 2016; Mayer, 2002; Rengifo, 1998).

Māori people

The Māori are the Indigenous peoples of Aotearoa New Zealand. According to oral histories the origins of Māori started with the arrival of ancestors from Hawaiki which is the mythical homeland of Pacific Island cultures who crossed the ocean of Kiwa in the 13th century (Best, 1973; Durie, 2003; Salmond, 1978). According to the 2013 census, there were 598,605 people of Māori ethnicity, representing 14.9 % of the country's population (Statistics New Zealand, 2016).

Research location and methods

The empirical research was carried out in Peru and New Zealand between July 2014 and September 2015. In Peru, the four Quechua communities that took part of my research were Sacaca, Pampallacta, Choquecancha and Rosaspata. These Quechua communities are nestled high in the southern Andes, and the primary form of subsistence in these Quechua communities is traditional agriculture. Similarly, the four Māori iwi (tribes) of Ngāti Hine, Ngāti Porou, Ngāti Tūwharetoa, Ngāti Ākarana in the North Island of the country took part of this investigation. In contrast to the situation in Peru, there are few subsistence farmers in New Zealand.

Data collection took a period of fifteen months, and was complemented with the 2011 preliminary ethnographic research in both countries that I conducted to gauge the research needs of the potential study communities. Also, in Peru and Aotearoa, before the start of the gathering of empirical data, I met with community leaders from the study communities to discuss and refine the research questions, and to subsequently translate them to Spanish, English and Māori when required. Interviews took place in a variety of settings but predominantly at research participants' chacras[2], households, and marae[3].

Further, at the beginning of workshops, talking circles and interviews, a detailed explanation of the study's aim and approach were presented to research participants. A total of forty five formal interviews with the primary informants was conducted. To amplify the richness of the gathering of data, a snowball and opportunistic sampling methods was used.

INDIGENEITY AND FOOD SECURITY

To begin to understand the interactions of Quechua and Māori with the ecosystems for their food sustenance, an examination of their cosmovisions about food security was first

[1] Peasant is used in this study to mean a person who owns or rents a small piece of land and grows crops on it.
[2] Chacra in the Andean world is understood not only as a small plot of land, but as the sacred space of the nurturance and flourishing of all forms of life (Field research notes in the Andes, July 2014).
[3] Meeting place of Māori to connect and unify as Māori (Salmond, 1978).

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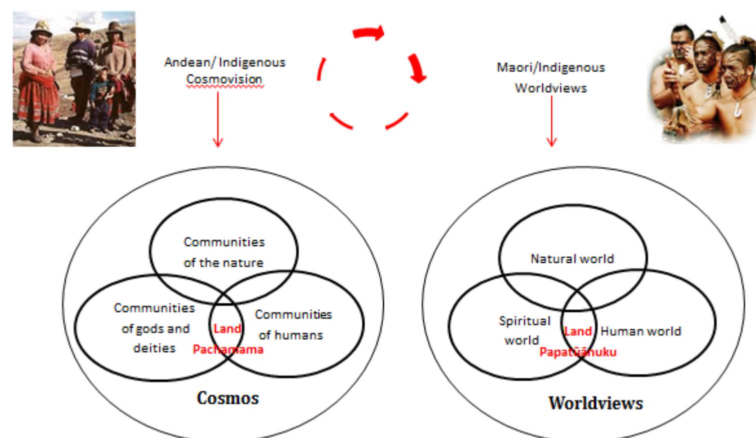
undertaken. The Andean cosmovision reflects a holistic condition of equilibrium and harmony between the cosmos, humans, and all their relations (all non-living beings) (Huanacuni, 2010; Gudynas, 2011; Lajo, 2005; Jaramillo, 2010). Three main worlds govern an Andean cosmovision as expressed in Quechua terms: *Janaq patsa:* Cosmos or upper world; *Kay patsa***:** real world, visible and understood as the community of humans; *Ja-wa patsa*: intangible world: darkness, invisible forces and interpreted as the community of gods and deities (Apffel-Marglin, 2012; Garcia, 2004; Lajo, 2005).

A Māori worldview embodies the holistic notion that the universe is a system consisting of a series of interconnected realms or worlds; natural, human, spiritual and sacred worlds (Best, 1982; 1986; Marsden, 2003; Wolfgramm, 2007; Reed, 1963). Māori Reverend Marsden (2003) describes the meaning of a Māori worldview:

> "Māori conceives of it (the universe) as a two-world system in which the material proceeds from the spiritual, and the spiritual which is of a higher order interpenetrates the material physical world of Te ao Marama…In some senses, I suspect the Māori had a three-world view, of potentiality being symbolised by Te Korekore, the world of becoming portrayed by Te Pō, and the world of being, Te Ao Mārama" (p. 20).

Based on the research analysis and crystalised by literature review and research participants, Figure 3 below shows the model that summarises the similarities between the Quechua and Maori cosmovisions. In this illustration, the interconnection between the spheres represents (a) reciprocal or dual relationship with nature, (b) connection with the spiritual world, and (c) human life framing their cosmovisions.

Figure 3: Similarities of Andean and Māori cosmovisions



Source: From research findings and literature review on Lajo (2011); Best (1986) and Smith (1999).

Research suggests that at the core of Quechua and Māori cosmovisions is the intrinsic relationship with the land – Mother Earth (Pachamama in Peru and Papatūānuku in New Zealand) and defines the Quechua and Māori interpretations of their ethos with regard to food practices. In effect, Indigenous peoples globally are asserting their self-determination efforts for the preservation of *land* - Mother Earth by revitalising localised food systems. The

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Quechua and Māori people are cases in point highlighting how through their good living philosophies they are enacting sovereignty over their food systems and overall well-being (La Vía Campesina, 2015; Patel, 2013).

QUECHUA PEOPLE AND ALLIN KAWSAY

In the Andean world, Allin Kawsay reflects the core conceptions of Andean cosmovision such as the concept of interconnectedness with the cosmos, human and non-human world leading to a stage of equilibrium with nature (Huanacuni, 2010; Gudynas, 2014; Lajo, 2005; Jaramillo, 2010). In this study, when research participants across the four Quechua communities when prompted with the question about the role of Allin Kawsay in food practices, unanimous answers were provided by all. As one study participant stated:

> *"Allin Kawsay is an ancestral principle and this principle has been practiced since many centuries ago. It is an ideology of sustainable living because if it was not for Allin Kawsay then there would have been no systems of governance and law in our community. For example, we have the ayllu (community), and ayni (reciprocity) principles that enable us to work well together''.*

Another research participant stated:

> *"All our actions and labour are connected with our rituals and nurturing attitude towards Pachamama. In my house, we all know that all things on earth are living spirits and deserve respect. I help my neighbour with minka and yananti when a widow needs help with her chacra. All those actions reflect my Andean cultural identity, my cosmovisions, and that leads me to Allin Kawsay"*

The narrative above about Allin Kawsay is supported by Peruvian Indigenous scholar Javier Lajo, who is one of the very few Peruvian scholars who has written about Allin Kawsay and who supports the narratives above. Regarding Allin Kawsay, Lajo explains:

> *It is a philosophy for the sustainable use of the natural resources available on Pachamama, and managed accordingly to Andean principles of reciprocity, duality, and solidarity for the overall state of equilibrium with Pachamama, human and all living beings.*
>
> *(Lajo, 2011; authors' translation).*

Further, empirical analysis brought to light a range of features among these, four that are particularly relevant to food security (see Figure 4): *Ayni*; reciprocity, *Ayllu*: collectiveness, *Yanantin and Masintin*: equilibrium, and *Chanincha*: solidarity, which I discuss them in more detail in the discussion section of this article.

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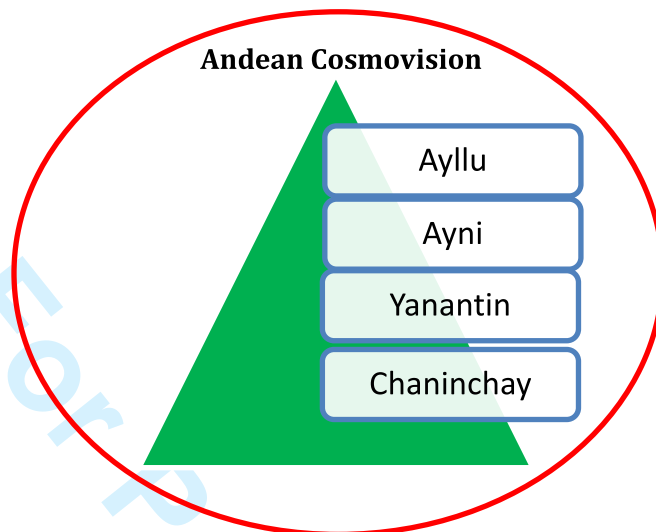
Figure 4: Andean fundamental values in food security



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MAORI PEOPLE AND MAURI ORA

Mauri Ora, the good life approach of Māori people is rooted in a Māori worldview as described above. At the centre of this worldview of life, lie the Mauri Ora philosophy that encapsulates Māori ethical values toward humanity, the natural world and unconditional love for Papatūānuku (Earth Mother) (Durie, 2003; Morgan, 2006). Moreover, Māori scholars (for example Barlow, 1993; Durie, 2003, Hēnare, 2011) argue that a Māori worldview shapes Māori perspectives and practices towards Papatūānuku, the universe, humanity, and ultimately the quest for a sustainable Māori life - Mauri Ora.

In contrast to the Allin Kawsay philosophy in Peru, there is no consensus in academic Māori literature about an established good living philosophy. For the purpose of understanding Mauri Ora as a well-being philosophy, this section draws on discursive definitions of this concept and its complementation within mātauranga Māori. Morgan (2006) describes "Mauri" as the "binding force between the physical and spiritual" (p. 3), while in Maori "Ora" means energy (Pohatu, 2010). Mauri is the spiritual essence, life force, spark of life and is therefore understood to flow through all living things (Henare, 2003; Hikuroa, Slade & Gravley, 2011; Marsden, 2003; Morgan, 2006; Pohatu, 2010). Mauri Ora can be defined as the life-supporting capacity of the air, water and soil. Also, physical and mystical life aspects are a central idea in a Māori understanding of Mauri Ora. Mauri Ora is thus a dynamic process that is a part of wellbeing (Morgan, 2006; Spiller & Stockdale, 2012).

In a similar approach to the Allin Kawsay, this study highlights in Figure 5, four fundamental values underpinning Māori food security: Koha (reciprocity), Tikanga (ethical values), kaitiakitanga, (guardianship) and Wairuatanga (spiritualty) discussed in detailed in the next section.

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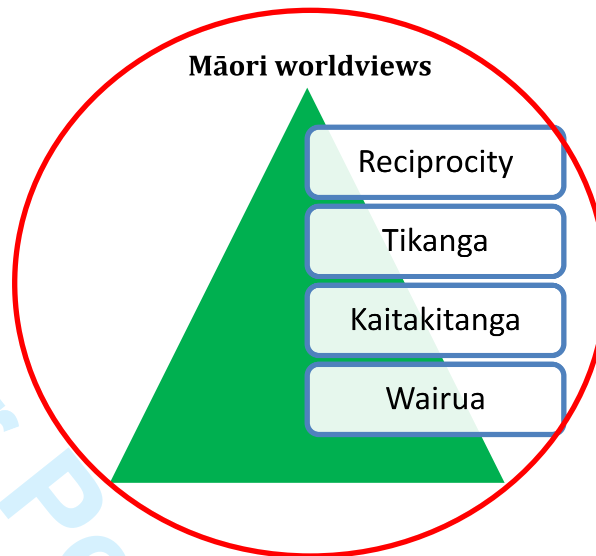
Figure 5: Māori key values in food security



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DISCUSSION

In this study, Quechua and Māori peoples' understandings about food security contests the dominant industrial approach. Above all, the predominance of their cosmovisions defines a distinctive way of knowing and being framing a theoretically-informed approach to food security. At the core of Quechua and Māori cosmovisions are the Indigenous views of land that highlights differences between the Indigenous versus the contemporary global food security approach.

Indigenous cosmovisions reflect a kinship system between humans, nature and deities that embodies a harmonious relationship for the love of, respect for, and gratitude towards the *land* – Mother Earth (Cajete; 1994; Deloria, 2005; LaDuke, 1994; 1999; Henderson, 2000).

Indigenous botanist Robin Kimmerer eloquently describes the view of land from an Indigenous perspective:

> "In the Indigenous worldview, a healthy landscape is understood to be whole and generous enough to be able to sustain its partners. It engages land not as a machine but as community of respected non-human persons to whom we humans have a responsibility…reconnecting people and the landscape is as essential as re-establishing proper hydrology or cleaning up contaminants. It is medicine for the earth (Kimmerer, 2013, p. 338)".

The land, which in this study refers to as Pachamama (Mother Earth in Quechua) and Papatūānuku (Mother Earth in Māori) transcends beyond understandings of the land as an agricultural space. Pachamama and Papatūānuku are regarded as a sacred space where all of the forms of life flourish in a nurturing environment, and ultimately promote the well-being and sustenance of the human world. Forms of life in this study refer to the distinctions

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of each one of the living beings that inhabit Pachamama and Papatūānuku. Therefore, a kūmara, corn or human each has unique ways of being, attributes, and life cycles which highlight a form of life. An example of the importance of land for Indigenous peoples in relation to food is explained by Reverend Māori Marsden (2003) below:

> "Whenua was the term for the Natural Earth. It was also the term for 'after-birth'–placenta. This use of the term 'whenua' served as a constant reminder that we are born out of the womb of the primeval mother." (p. 45).

Whenua (placenta) has several meanings, but for the purpose of this section, I will consider its significance in relation to land use. Concerning land, whenua refers to the body of Papatūānuku, the source of nourishment and sustenance to humanity (King, 1992; Puckey, 2011). Papatūānuku gives many blessings to her children such as Māori traditional foods, for instance such as taro, kōmata (cabbage tree), pūha (a green vegetable), pikopiko (fern shoots), and karaka berries. Also, some kaimoana (seafood) such as īnanga (whitebait), karengo (seaweed), and koura (crayfish), as well as Taewa riwai (Māori potatoes) are some of the most deeply treasured Māori foods available today. However, by the 1950s a decline of Māori traditional agriculture practices was evident in the North Island with the spread of the capitalist ideology whereby land was acquired for commercial products such as tobacco and kauri gum (Durie, 2003; Orange, 1987; Puckey, 2011; Kawharu, 2010.

In fact, it is to the interface between capitalist and Indigenous food practices that I now turn, to better understand food security from an Indigenous perspective. The works of Karl Polanyi (1957), and Fernand Braudel (1979), among others, on the historical development of agriculture and capitalism, inform us that capitalism has its own ideology, motives and goals. In relation to industrial agriculture, the capitalist concept that the nature of a business is simply to maximize profits has led to the search for cheap food and ultimately monopoly control over food systems (Holt-Gimenez, 2014; McMichael, 2009). Clear examples are the present capitalist model of food production based on a neoliberal economic model, and state deregulations in favour of inexpensive food imports introduced throughout the 1980s and early 1990s (La Via Campesina, 2015; McMichael, 2009; Patel, 2013).

This is a concern that has increased over the past few decades since the means of food production is largely owned by multinational corporations. Power and control of assets specifically of land use for agricultural purposes around the world have shifted massively from governments to the private sector (Borras, Saturnino, Edelman, and Kay, 2008). McMichael's (2011) concept of "globalizing food regime" (p. 805) makes reference to the intensification and expansion across borders of the industrial model of agriculture favouring large scale production, often oriented towards export markets. Agri-food business[4] predominantly from Europe and North America has taken the lead in the ongoing transformation of agriculture and food production. For example, the majority of farmers in industrialised countries have adopted a Green Revolution approach to mass-produce cheap food which tends to be bought in supermarkets (Araghi, 2009; Baiphethi & Jacobs, 2009; United Nations Department of Economic and Social Affairs (UNDESA), 2015).

Such paradigms and practices undermine local food systems and people's capacity for autonomy and self-determination. It is at this crossroads of ideologies that this study

[4] Businesses in the agricultural and food industries (Prakash & Singh, 2011).

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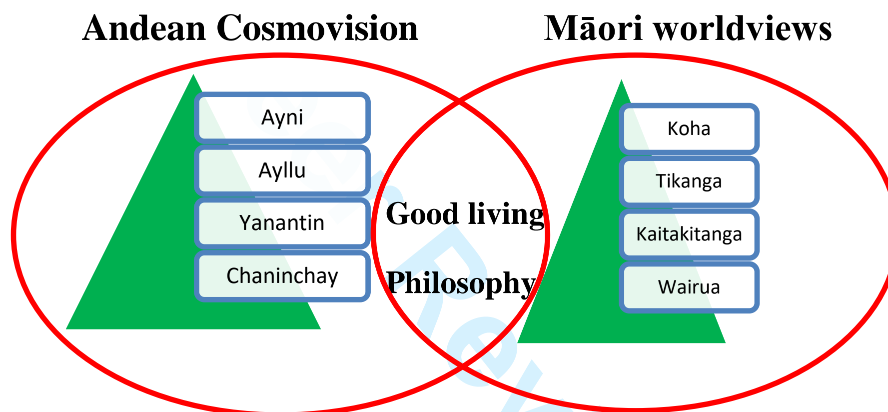
highlights that, these two Indigenous groups have vibrant and distinctive cosmovisions and TEKs. Wherein knowledge and attitudes towards Mother Earth arises from certain kinds of interrelationships and actions between particular beings, be they humans and non-living beings such as stones, stars, the sun and the moon. It is in the uniqueness of their TEKs that, this research outlines Quechua and Māori fundamental values that describe the epistemological and ontological nuances of two Indigenous understandings of food security.

For the Quechua people: *Ayni* (reciprocity), *ayllu*: (collectiveness), *yanantin*: (equilibrium), and *chanincha* (solidarity). For Māori people: *Kaitakitanga* (guardianship), *koha* (reciprocity), *tikanga (*ethics), and *wairuatanga (*spirituality). Figure 6 depicts these fundamental cultural values working seamlessly together, infusing and revitalising Quechua and Māori traditional food systems*.*

Figure 6: Māori and Andean fundamental values and ecological practices



For Quechua and Māori people, the notion of food security is much more than agricultural practice to feed the world. More importantly, food security for them upholds a series of ecological practices and cultural values embedded in their cosmovisions and enacted in their good living philosophies, which warrants recognition in the discourse of contemporary food security (Borras et al. 2008a; Desmarais, 2007, Gliessman, 2015; La Via Campesina, 2015).

In effect, this study reveals that Quechua communities adopt a series of food policies to prevent them from facing food hardship. One of them prioritizes local agricultural production by producing food first for their own family and community consumption. Then any surplus is exchanged through a bartering system with other ayllus.

Further, this study reveals that the food security framework of Quechua and Māori resonates with conceptions of food sovereignty. Food sovereignty focuses on the human right-based[5] approach to respect and protect people who produce food and the right of individuals to have access to healthy and affordable food (Holt-Gimenez, 2014; Wittman et al. 2010). In resonance with the concept of food sovereignty is the vibrant set of cultural and ecological values of Quechua and Māori that ensures that both the rights of individuals and the human right to food are achieved without compromising the sustainability of the ecosystems. To illustrate this argument, Quechua people exercise their right to define their

[5] For the purpose of this thesis the right based approach refers to application of human rights principles to food security (De Schutter, 2010).

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agricultural and food policy through their ancestral self-governance system known as *ayllu*. This tradition includes a sector of land that is operated communally alongside chacras or small plots allotted to individual families, and there is an ayllu leader chosen by all ayllu members. Quechua farmers use the ayllu to decide collectively what they want to produce and consume and has prevented them from experiencing issues in their food systems. Thus, good living principles such as the ayllu plays a key role in the communal governance of Andean people to ensure that all members of the ayllu have access to sufficient and nutritious food (Esteva, 2002; Earls, 1998; Gonzales, 2015).

With regard to the role of the *Ayni* principle in food security, Peruvian historical accounts suggest that the Ayni played a spiritual and essential role in guiding the Andean people's ethical principles and beliefs when working in the Tahuantisuyo[6] for their food sustenance (Argumedo & Wong, 2010; Espinoza, 1987; Estermann, 2007; Lajo, 2005; 2011). For example, the Andean people would 'reciprocate' the gifts given by their gods – sea (fish), earth (food crops) and sea (water), not only by conducting offerings and rituals before the beginning and at the end of their harvest festival season, but also by applying this Indigenous philosophy in their daily lives (Lajo, 2011). This study supports such argument and extends knowledge by providing evidence that the ayni complements the functioning of the ayllu system, and thus ensures the availability of food for agricultural production.

Research analysis shows that both *yanantin* and *mansitin* complement one another and embody the principle of 'duality'. An example, of these principles is in the transmission of knowledge relating to agricultural practices, where the roles of women and men complement each other. In an attempt by research participants to explain me about yanantin and mansitin, they referred to my experience of observing them cultivating food together. Indeed, I observed that both man and women carefully selected both male and female seeds for pollination. Then the man ploughed the land and together men and women planted the seeds. They added that this process ends in the culmination of the 'harmonious' experience of complementary. Thus, it is understood that yanantin and mansitin are principles that are intertwined.

Chaninchay, it is an act of solidarity: for example, as one research participant *stated ''we do community work and go and help the elderly. We go and assist the elderly by gathering food on their behalf and they have a sense of community support".* Other research participants described Chaninchay as *"to talk truthfully and with clarity, it is about being kind and having integrity".* Chaninchay is used in the agricultural management systems, which are based on principles of ecological, productive, and social solidarity. At the core of this principle is a profound respect for Pachamama and reverence for the power and fragility of the environment for the attainment of Allin Kawsay – good living (Estermann, 2007, Lajo, 2011).

In the Māori context, the right to control their land and natural resources is acknowledged in the Treaty of Waitangi (Te Tiriti o Waitangi). This treaty was signed in 1840 by 504 Māori chiefs, and representatives of the British Crown. The Treaty of Waitangi plays a vital role in the defence of Māori sovereignty rights as Tangata Whenua (people of the land) and rights to environmental self-determination (Orange, 1987; Walker, 1991). It is a strong

[6] Tahuantisuyo: The Inca Empire in Peru was the largest and most influential Andean culture since it expanded the Andean world views to what now represents the countries of Bolivia, Ecuador, Argentina, Chile, and South of Colombia – this Inca territory is referred as 'Tahuantisuyo' (Inca Empire) (Espinoza, 2011).

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Māori relationship with whenua that influences their sovereignty rights and subsequently acts as a vehicle for them to reinforce the principle of kaitakitanga or guardianship of the land (Kawharu, 2010; Land Care Research, 2016).

The Māori principle of kaitakitanga enacts an ancestral environmental practice for the preservation of Mother Earth: specifically, the ethical principle of rāhui (restriction) as this investigation reports. Rāhui is a restriction of the use of natural resources that might compromise the well-being of Mother Earth (Kawharu, 2010; Moko Mead, 2003). Kawharu (2010) argues that, the custom of rahui plays a significant role in Māori governance of natural resources.

In addition, research participants acknowledged *tikanga* as a guiding principle in Māori food security affairs because from a Māori perspective tikanga influences the moral judgement of Māori about appropriate ways of behaving and acting in relation to food practices. The following narrative by a Māori elder highlights the importance of tikanga as a core principle for Māori connections with the land and subsequently in food production:

> *"When I go to harvest things, I talk to the plants before I cut them and I announce to them that I am going to sacrifice them. So even if people are growing food to sell, there still needs to be a process of respect in place. And you only take enough for you, and leave the rest – you are not greedy, and this is what I grew up with hard tikanga rules".*

The principle of tikanga plays an important role in the food ethics of Māori people. For example, research participant kamātua Eruera explained that *''the reason for the blessing of the food is, because food comes from Papatūānuku, and it is medicine to your body".* He further added that, food of any kind has a wairua (spirituality) including negative wairua, and therefore some food can make you feel unwell. That is why he performs a karakia to bless the food and to kill the negative wairua in it. The final two decades of the twentieth century have been significant for Māori people in asserting their cultural customs and traditions. An example is the principle of tikanga, which is now recognised as one of the main pieces of legislation asserting Māori customary practices. Also, other pieces of legislation such as the Education Act 1989 and the Land Act 1991 have incorporated tikanga principles and values in it (Charters, 2007; Jackson, 2000; Gibbs, 2005; Māori Language Commission, 1995).

According to the Te Aka Māori-English, English-Māori Dictionary[7] the English translation of koha is gift, present, offering, donation, and contribution - especially one maintaining social relationships and has connotations of reciprocity. However, all Māori informants expressed that the meaning of koha goes beyond the one captured in the English translation. They explained that in traditional Māori society the presentation of koha often took the form of food given to an elder or relative among the hosts of a tangihanga[8]. In Māori views, reciprocal relationships and responsibilities between humans and ecosystems are imperative for the harmonious relationship between human beings and resource management ecosystems inherited and handed down through generations (Kawharu, 2002; King, 1992; Hēnare, 2011).

[7] http://maoridictionary.co.nz/

[8] Tangihanga (funeral)

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This study shows that food security models currently in place do not give adequate attention to the cultural dimensions which underlie the food security frameworks of Indigenous peoples. This investigation affirms that Quechua and Māori interpretations of food security are based on self-governance, revitalisation of traditional food systems and practices, control and accessibility of natural resources for their food sustenance, and which are consonant with the notion of food sovereignty.

CONCLUSIONS

The dominant food security model is at odds with the Indigenous understandings of food security because it relegates Indigenous ways of knowing or TEKs. Also, the spiritual, cultural and physical relationships-based approach that Indigenous people have with the land and all their living relations for their food sustenance. Food security from an Indigenous perspective goes beyond the legal and human 'rights' based approach; it emphasises a unique Indigenous food security policy framework. The discussion above points to key insights on the Quechua and Māori food security/sovereignty models that encapsulates Indigenous peoples' intimate, long-term relationship with traditional territories, and ultimately foodscapes. Thus, food is considered sacred for Indigenous people because it is regarded as a gift from Mother Earth. However, industrial settler predominance exemplified by the concentration of food production by agri-business corporations predominantly from the Global North, and widespread use of GMOs are threatening Indigenous peoples' intrinsic cultural-land/resource relationships. Further, such an approach undermines Indigenous peoples' sovereign control of productive resources for example, land, water, seeds, and ultimately suppressing the rights to food.

I argue that the Quechua and Māori food security policy framework represents an 'Indigenous food sovereignty' approach that enacts both food security as a legal and human right and food sovereignty as the right to food of Indigenous peoples. As revealed in this study, Quechua and Maori peoples' unique social, cultural, and governance systems are often distinct from the dominant societies they are surrounded by. Specific examples, of such distinction, are the good living philosophies of Allin Kawsay in Peru and Mauri Ora in Aotearoa that encapsulate the subtleties within each Indigenous group when they interpret, implement and enact food security.

The Khipu Model contributes to the small but growing body of knowledge production that seeks more efficient and innovative methodologies to produce and validate knowledge between Indigenous knowledge and scientific knowledge systems. The Khipu model represents a new Indigenous research-based approach of Indigenous research and knowledge sovereignty, and that in itself is novel.

This study also used the TEK lens to understand respective Quechua and Māori's 'good living principles' and how they enable food security. Much of the literature on TEK deals with similarities and differences between Western science and traditional knowledge (see Berkes, 2012; McGregor, 2004). By contrast, little has been written about the collaborative approach of TEK to understand local knowledge of the land and food security. An exception is the writings of Anishiinabe scholar Kyle Whyte (see Whyte, 2013; 2015). As Whyte (2013) argues "TEK should be understood as a collaborative concept" (p.1).

Extending Whyte's reasoning, this study shows that, it is the collaborative nature of TEK that facilitates the analysis of Quechua and Māori ways of knowing and being with the environment for safeguarding food security. This contrasts with the general understanding

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of food security derived from modern views. In this regard, TEK as a collaborative concept has the potential to serve as a conduit to advance studies of the TEKs of other Indigenous peoples. This would shed further light on the best integrative approaches to managing ecosystems for pro-environmental, social, and economic purposes.

The interpretations of contemporary food security as a legal and human rights issue and food sovereignty as a political issue as discussed in this article extends knowledge in the field of food security. Collectively, the findings of this investigation demonstrate the importance of the TEKs of Indigenous peoples, and reflect their struggles to be part of current global responses to the food security problem. The findings encourage a paradigm shift in food security implementation policies. A change that entails moving away from a myopic Western approach of food security towards the conceptualisation of a holistic view of safeguarding food security that integrates Indigenous peoples' knowledge, innovation and sustainable food production practices to find common ground pathways to tackle other pressing issues affecting food security and humanity such as climate change.

To conclude, this study provides research-based evidence of an Indigenous 'Food security policy framework' underpinning both the Quechua and Māori sets of vibrant cultural and ecological values discussed above. Such frameworks construct a theoretically-informed approach that highlights the reciprocal responsibilities and relationships that govern, and guide Quechua and Māori traditional food systems. It is Quechua and Māori collectivistic capabilities and knowledge embedded in their good-living philosophies that provides them with the basis to claim their rights to land and resources contained therein, and that these rights are held by the community's customary law, values, and customs. The revitalisation of their food systems is a critical tool in revitalising their culture, well-being, and thereby their rights to food security.

In effect, Indigenous peoples globally are asserting their self-determination efforts for the preservation of *land* - Mother Earth by revitalising localised food systems. I argue it is a tool of indigenous resurgence and social change in food politics to exercise their right to Indigenous food sovereignty. The Quechua and Māori people are cases in point highlighting how through their good living philosophies they are enacting sovereignty over their food systems and overall well-being.

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