This is a repository copy of *A decolonial approach to innovation? Building paths towards Buen Vivir*.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/185327/

Version: Published Version

Article:

A Decolonial Approach to Innovation? Building Paths Towards Buen Vivir

Andrea Jimenez, Deborah Delgado, Roger Merino & Alejandro Argumedo

Published online: 02 Mar 2022.

Submit your article to this journal ↗

Article views: 1663

View related articles ↗

View Crossmark data ↗

Routledge
Taylor & Francis Group

Check for updates

A Decolonial Approach to Innovation? Building Paths Towards Buen Vivir

ANDREA JIMENEZ[*] , DEBORAH DELGADO[**] , ROGER MERINO[†]
AND ALEJANDRO ARGUMEDO[‡]

[*]Information School, University of Sheffield, Sheffield, UK; [**]Department of Sociology, Pontifical Catholic University of Peru, Lima, Peru; [†]School of Public Management, Universidad del Pacífico, Lima, Peru; [‡]Andes Asociation, Cuzco, Peru

Abstract   *Innovation has been central to development. Yet most assumptions around innovation stem from values derived by capitalist economies such as growth, individualism, and competition which prove to only widen inequalities and promote unsustainable environmental models of extraction and consumption. This paper explores what values and assumptions would underlie innovation in development if based on an alternative ontological and epistemological stance linked to the Andean cosmovision of Buen Vivir. We focus on the case of an Indigenous-led initiative in the Andes of Peru to highlight the underpinnings of its innovation processes. In doing so, we aim to contribute to both development studies literature and innovation studies by exposing the limitations to the accepted Western approach to innovation and exploring what decolonising innovation in development would look like.*

1. Introduction

Innovation, often understood as the introduction of modern technologies and/or the application of alternative methods, is a central tenet in the development sector (Krause, 2013). Many national policies are framed in terms of a quest for greater innovation capacity (Jimenez & Zheng, 2017; Krause, 2013; Pansera & Owen, 2018; Strand, Saltelli, Giampietro, Rommetveit, & Funtowicz, 2018). Underlying many of these policies, there is a pattern of assumptions that tends to naturalise the emergence of innovation within a logic that prioritises economic growth, encourages an individualistic approach to work and resource distribution, and ultimately reinforces a Western mode of thinking (Fagerberg, 2017; Fagerberg & Srholec, 2008; Jimenez & Roberts, 2019; Perry, 2020).

Alternative approaches to innovation have emerged since the 1990s. They emphasise viewing innovation through the lens of bottom-up innovation and using appropriate technologies that embrace community values (Kaplinsky, 2011). A plethora of concepts that seek to understand 'innovation from below' include grassroots innovation, inclusive innovation, frugal innovation,

and more (Pansera, 2013). In theory, these approaches represent an alternative to how Western—often capitalistic—societies view innovation. Yet, in practise, they exploit inclusion and diversity rhetoric as a disguise to further maintain Western-style market-oriented approaches (Pansera & Owen, 2018). Their motivation seems to be on empowering marginalised people through innovation by reinforcing and reproducing a neoliberal logic that places the responsibility on the individual.

Recently, there have been initial efforts to introduce alternative innovation models that are created, led, and informed by indigenous organisations (Berkes & Davidson-Hunt, 2010; Pansera, Arthur, Jimenez, & Pandey, 2020). This stems from the realisation that the majority of what we know about innovation is based on Western epistemologies and ontologies (Jimenez & Roberts, 2019). This paper contends that a decolonial approach to innovation is critical to reimagining innovation, ultimately building more sustainable and inclusive futures rather than focusing on short-term growth at any cost.

We begin by asking the following questions: Can innovation in development move from the Western-driven model of unsustainable growth and instead include alternative epistemological perspectives that are more sustainable? If so, what would the main underlying values of this approach be, as well as what obstacles to implementation may present?

This paper draw from the Andean concept of Buen Vivir to conceive a decolonial approach to innovation. The Buen Vivir paradigm advocates for renewing social and economic relations based on reciprocity, solidarity, and respect for non-humans as subjects of rights (Gudynas, 2011; Walsh, 2010). In this sense, it relates to concepts like social and solidarity economy, food sovereignty, and environmental rights. While some governments' constitutional and legal frameworks have resulted in contradictory politics and neo-developmentalist agendas (Anthias, 2018; Canessa, 2014; Delgado, 2019), Buen Vivir can instead be rooted in a resilient worldview that transcends state policies and is led and promoted by Indigenous Peoples.

We present a case study of a community-led innovation initiative to demonstrate the practical implementation of innovation when using the Buen Vivir approach to build a better way of life. The 'Parque de la Papa' (Potato Park) has been considered an example of a different innovation model (ANDES, 2015; Pansera et al., 2020). As part of a project implemented by the International Institute for Environment and Development (IIED) and Associacion Andes, the Park's actors shared their experiences and processes as related to innovation, which captured the relationship between culture and nature that several other Andean communities share. Existing reports have catalogued what takes place in the Park as 'biocultural innovations', defined as '[…] the practical use of new knowledge. These could be endogenous innovations, emerging from the interactions of elements of biocultural heritage—traditional knowledge, biodiversity, landscapes, cultural and spiritual values and customary laws—or collaborative innovations, emerging from the links between traditional knowledge and science' (ANDES, 2015, p. 5). We draw on these reports, fieldwork in the Park, and deep and continuous dialogue with its promotors to examine what are the underlying assumptions informing the innovation processes in the Park.

Findings include that the innovation in the Park is driven and sustained by reciprocal relationships between different epistemic communities and non-human nature. Innovation used in the Park employs collective deliberation processes while taking ecological limits into account. The paper examines the ways in which innovation may perpetuate the logic and ideals of colonialism, thus demanding decolonialised approaches. We then introduce Buen Vivir and related concepts to illustrate implementation of the approaches in practise. The paper then describes how the Park positions itself as an alternative innovation strategy informed by Buen Vivir.

2. Examining the coloniality of innovation

Since its inception, the international development sector has promoted various theories and approaches to understanding what development entails and how it can be achieved on a global scale (Kothari, 2005; Willis, 2005). From classical modernisation discourses

(Billet, 1993) to neoliberal free market approaches (Bay-Cheng, Fitz, Alizaga, & Zucker, 2015), all development perspectives advocate ideas on how to organise policies, economies, and societies. Key in these propositions is the role that innovation and technology should play as tools to support development efforts. Table 1 summarises the different development approaches and the role innovation plays in each framework. Common among all of them is that innovation is a critical factor in the pursuit of development because it drives and effectively promotes the generation of value and economic growth (Arocena & Sutz, 2000; Aubert, 2004).

The body of literature on innovation varies greatly across disciplines (Cozzens, 2008; Crossan & Apaydin, 2010; Nicolini, 2009) but a common assertion is that innovation is an important source of competitive advantage, representing a chance for growth and survival of both societies and private initiatives (Davila et al., 2013). When framed in development terms, innovation is often presented as the way to address global challenges and reduce poverty.

Scholars have long argued that innovation is never neutral but rather always situated and entwined with politics historically (Cruz, 2021; Pansera & Owen, 2018). Nonetheless, much of the mainstream literature often portrays innovation in the form of new technologies and products introduced and adopted into a context, posing both challenges and opportunities (de Saille & Medvecky, 2016). In promoting innovation as a universally positive aspect in society, the literature promotes a logic of coloniality, understood as the long-standing patterns of power that stem from colonialism characterised by rationality, modernity, and epistemic imposition (Quijano, 2007).

This manifests in several ways. For example, much of the literature promotes innovation by emphasising its role in economic growth and the pursuit of competitive advantages in a capitalist society. This reinforces an interpretation that asserts that developing countries face poverty challenges because of a lack of innovation, assuming that wealthy countries are wealthy due to their innovation capacity, and conversely, '[…] developing countries face genuine barriers to innovation, which is precisely why they remain underdeveloped' (Aubert, 2004, p. 6).

This approach results in efforts to explore how innovation can be promoted and implemented in the global South. Western-driven innovation concepts and models developed for far different contexts are then used to explore innovation—or lack thereof—in the South.

Table 1. Theories of development and innovation

Theory of development (period)	Framings of development	Role of innovation
Modernisation (1950–1960)	Development is the result of adopting and adapting values and strategies from industrialised, developed countries for economic growth.	Innovation is instrumental for industrialisation, adopting, and transferring international innovation trends in a process of catch-up.
Dependency (1960–1979)	Development involves a process of strengthening national sovereignty, decentring the power from industrialised, developed countries.	Domestic innovations increase productivity in strategic sectors for national economies.
Neoliberal (1980–onwards)	Development is achieved by liberating individual entrepreneurial freedoms within a framework characterised by strong private property rights, free markets, and free trade.	Entrepreneurs as key actors in the promotion of innovation to enhance market efficiency. Private sector as prominent actor in development. Innovation is key for people to lift themselves out of poverty on their own.

Authors argue that many of these concepts fail to explain innovation activity and inactivity in the global South (Kraemer-Mbula, International Development Research Centre (Canada), & Organisation for Economic Co-operation & Development, 2010). The promotion of 'National System of Innovation (NSI)' as an approach is an example of this trend (Fagerberg & Srholec, 2008; Freeman, 1995; Lundvall, 2007). NSI proposes that the global South could study the experiences of the United States, Western Europe, and, to a lesser extent, East Asian countries to 'catch-up' to them (Perry, 2020). NSI aims to strengthen the local innovation ecosystem by prioritising top-down policy initiatives that use policies applied by wealthier and more industrialised countries as blueprints. As a result, it hardly goes beyond idealistic agendas for policy imitation and adaptation, let alone implementation in practise. Furthermore, the strong reliance on certain institutional preconditions as necessary for innovation has resulted in only rhetorical attention being paid to political and historical conditions in the global South (Perry, 2020).

Even when innovation concepts are conceptualised with the global South context in mind, significant challenges remain. The appropriate technology movement, popularised by Friedrich Schumacher in the 1970s, argued that Western innovation was environmentally destructive and exacerbated disparities between richer and poorer countries. The movement proposed that low-income economies produce low-cost goods that are affordable to low-income consumers (Kaplinsky, 2011). As a result of this critique, a slew of new concepts about innovation emerged to describe the various characteristics and examples where innovation progressively becomes a loose label, shifting away from a purely technological perspective and toward a more social and inclusive one. These include, but are not limited to, inclusive innovation, pro-poor innovation, frugal innovation, grassroots innovation, and other alternative forms of innovation (Pansera, 2013; Papaioannou, 2014; Zeschky, Widenmayer, & Gassmann, 2011). Although it is beyond the scope of this paper to define each of these concepts, many have described how their characteristics fall under the paradigm that emphasises innovation resulting from deprivation and poverty while ignoring the structural social and economic conditions that contribute to this situation in the first place (Jimenez & Zheng, 2017; Pansera & Owen, 2018). There is an over-emphasis on narratives painting the very few successful innovators as heroes who overcame structural challenges, which further promotes an individualistic viewpoint (Christensen, Ojomo, & Dillon, 2019). This reinforces the belief that inefficiencies and resource scarcity are excellent opportunity for entrepreneurs to innovate (Yujuico, 2008).

Overall, these concepts describe innovation as a phenomenon that occurs to deal with problems of poverty, exclusion, and deprivation resulting from a lack of satisfactory institutional solutions (Chiappero-Martinetti, Houghton Budd, & Ziegler, 2017). Although proposed to challenge global paradigms of infinite growth, these concepts reproduce a logic of inclusion that fails to avoid the pitfalls of neoliberalism. These concepts also reinforce Western market-framed agendas, where values of individualism and competition are applauded and emphasised (Pansera & Owen, 2018).

When innovation is so closely entwined with a paradigm that presents Western contexts as ideal, colonial imaginaries of progress, individualism, and universalism are reinforced. Even though the notion of innovation was born in Western societies, decolonial theory explains how some categories might be reimagined through the knowledge and struggles of subaltern actors (Grosfoguel, 2000; Mignolo & Walsh, 2018). The following section introduces a decolonial approach that can be useful to reimagine innovation.

3. Buen Vivir in political discourse and practise

In this paper, Buen Vivir is defined as a concept and lived practise that aspires to collective well-being through reciprocity, complementarity, and relationality principles (Hidalgo-capitán, Cubillo-guevara, & Medina-carranco, 2019; Villalba-Eguiluz & Etxano, 2017). Inspired by

Andean Indigenous cosmologies—particularly from the Quechua and Aymara Indigenous Peoples of Bolivia, Ecuador, and Peru—it represents a decolonial approach because it questions the dominant theory and praxis of development, challenging problematic Western, liberal, and anthropocentric assumptions about power and socio-ecological systems.

In Ecuador and Bolivia, Buen Vivir transitioned from a critical political discourse of social and indigenous organisations against neoliberalism and extractivism to become the theoretical basis of constituent processes (Merino, 2016). In the Ecuadorian constitution of 2008, it is held to support social rights ('rights of Buen Vivir'), the rights of Indigenous nationalities, communitarian economies, and the rights of nature. In the Bolivian constitution, it promotes the plurinational framework that recognises Indigenous Peoples as nations with territorial rights. Both Ecuadorian and Bolivian Constitutions, under a framework of Buen Vivir, attempt to bridge the political agenda of different social movements, including Indigenous Peoples' organisations, environmental activists, left-wing organisations, and labour unions. In practise, however, this project is very contentious. In the same constitutional texts, the Buen Vivir framework coexists with classical developmentalist mechanisms that allow the extractive exploitation of Indigenous territories 'on behalf of the national interest'. This developmentalist perspective is further embedded in laws, plans, and policies that emphasises the need to promote natural resource mining and extraction while contradicting the rights of Indigenous Nations and protection of the Amazon (Radcliffe, 2018).

The different uses of Buen Vivir by ecologists, state officials, and indigenous movements (Guardiola & García-Quero, 2014; Hidalgo-capitán et al., 2019; Villalba-Eguiluz & Etxano, 2017) demonstrate the difficulties in reappropriating the term and how Western theories attempt to co-opt it into conventional development approaches (i.e. human development and sustainable development). Buen Vivir differs fundamentally from human development as it does not focus on individual human capabilities but on the co-existence between human and non-human entities that enable life (Albó, 2011). It also differs from sustainable development as expressed in the UN Sustainable Development Goals, which do not question fundamental contradictions of Westernised societies like anthropocentrism and capitalism (Hidalgo-capitán et al., 2019). In this context, Buen Vivir is a 'mobilising utopia' (Caria & Domínguez, 2016) that is concretised through social practises and struggles (Gonzales, 2015).

Buen Vivir can guide innovation if it supports the development of alternative economic and ecological notions that social movements articulate. To better understand how Buen Vivir can be conceptualised through Indigenous Peoples' lived experiences, we introduce three complementary notions: the Communitarian Economy informed by the Social and Solidarity Economy, food sovereignty, and the rights of nature.

3.1. *Buen Vivir and alternative economic systems*

The notion of Social and Solidarity Economy arose as a way to express different forms of economic activities that privilege people, autonomy, and democratic management over capital in decision-making and surplus redistribution (Calvo & Pachon, 2013). The notion of Solidarity Economy emerged from socio-economic traditions in Europe and Latin America that include a heterogeneous group of practises oriented to democratising the economy. It places emphasis on redistributive justice, self-management, liberating culture, equity, sustainability, cooperation, and not-for-profit commitment to local communities (Villalba-Eguiluz, Arcos-Alonso, Pérez de Mendiguren, & Urretabizkaia, 2020; Villalba-Eguiluz & Pérez-De-Mendiguren, 2019). These notions lead to economic strategies that complement Buen Vivir, such as the prioritisation of local and small productive activities, the resizing and re-localisation of economic circuits, the favouring of circular economy, appellations of origins ('*denominación de origen*'), among others (Villalba-Eguiluz & Pérez-De-Mendiguren, 2019).

Indigenous Peoples' organisations have advanced the notion of Communitarian Economy against Western notions and economic projects that often impact on their territories and the environment (Mun, 2015; Ytrehus, 2019). The political constitutions and development plans of Bolivia and Ecuador recognised Communitarian Economy as a central pillar to Buen Vivir (Ramírez-Cendrero et al., 2017). Communitarian Economy goes beyond simply respecting nature to emphasising the total embeddedness of human beings within the natural environment. This is a bio-centric perspective where economic activities are subordinate to the environmental (and social) balance (Ramírez-Cendrero et al., 2017; Ytrehus, 2019). Moreover, it pursues the overall wellbeing of the community, where even marginalised groups can benefit (Giovannini, 2012).

In the case of Ecuador's Sarayaku Amazonian Indigenous Nation, the use of land, forest, and water resources is oriented solely to the perpetuation of the community's life under the ontological principle that all living beings share the same essence and are transformed throughout successive existences (Ramírez-Cendrero et al., 2017). The priority is placed, not on maximum production or increased work efficiency, but instead on achieving collective wellbeing while avoiding harm to all living beings and nature. Activities such as hunting, fishing, and fruit collection, in addition to cultivated plots, are completely dependent on the environment in which the communities are located (Ramírez-Cendrero et al., 2017). The Communitarian Economy reconceptualises notions that in the Social and Solidarity Economy models relied upon in Western principles, such as labour, which is not only a right to work with dignity, but above all the expression of communitarian and socio-cultural linkages (Villalba-Eguiluz & Pérez-De-Mendiguren, 2019). In this way, the Communitarian Economy involves a process of solidarity and collaborations between people to maximise community benefit over profit.

The Communitarian Economy is primarily advanced in Indigenous Andean–Amazonian networked communities with very specific conditions: (a) low population density within expansive and rich areas with diverse natural resources; (b) diversified and traditional economic activities, with no complicated manufacturing (beyond simple processes) or large-scale services; and (c) strengthening social ties, with few social differentiations, so that the economic accumulation does not act as a barrier to social integration. Because of the uniqueness of these characteristics, it can be difficult to transfer these practises to other places, particularly more urban and densely populated areas with diverse economic activities and heterogeneous social structures (Ramirez-Cendrero et al., 2017). It does, however, present interesting ways to help reposition development's focus on growth alone to more collective ways of organising. Moreover, it helps us better understand decision-making processes that reinforce certain communitarian principles.

Food sovereignty is a concept related to unconventional economic systems and Buen Vivir (Guardiola & García-Quero, 2014). Fostered by the international peasant organisation 'Vía Campesina' since 1996, inspired by many social movements, including the Zapatistas' anti-NAFTA uprising in Mexico (Martínez-Torres & Rosset, 2010), food sovereignty is recognised in constitutional and legal provisions of different countries, including Bolivia and Ecuador. Stemming from a critique of neoliberal policies shared by social justice and environmental organisations, it highlights the unequal impact of international trade on national agricultural development and local ecologies. It also criticises the neoliberal and technocratic version of food security, which emphasises economic growth and free trade to finance social programs for alleviating poverty (Boyer, 2010). Food sovereignty offers a critique emphasising the right of 'each nation' to establish protective national policies vis-à-vis the international trade system, but currently it focuses on the local scale, as the right of peasant and Indigenous Peoples to define the agriculture they want to practise beyond productivist or extractivist agricultural paradigms (Calderón Farfán, Dussán Chaux, & Arias Torres, 2021). This entails local production-consumption cycles and farmer-to-farmer networks to promote agroecological innovations. Moreover, it allows us to examine how agricultural practises operate within the perceived environmental boundaries, which has relevant implications for innovation.

A final view derived from Buen Vivir that can inform decolonising innovation is the rights of nature. It was incorporated in the Ecuadorian constitution of 2008 and included in specific pieces of Bolivian legislation resulting from negotiations between indigenous organisations and environmentalists (Tanasescu, 2013). Rights of nature have become the basis for environmental legal and policy systems in both countries, whereas in other experiences, these rights have gained recognition through judicial decisions (India and Colombia) to protect specific natural entities, such as rivers or some animal species (Gordon, 2019). The rights of nature are founded on the non-anthropocentric premise that non-human entities deserve not only respect but also non-hierarchical treatment and legal rights. In making the case for nature as subjects of rights, non-human entities are entitled to rights too, and thus, cannot be treated as a commodity to be exploited or exploitation is only allowed in sustainable ways that ensure nature reproduction. Given its roots in organised Indigenous Peoples' movements, the rights to nature approach is inextricably linked to the indigenous experience (Tanasescu, 2013).

Some innovative policy proposals such as the ban of open-pit mining in Costa Rica and El Salvador draw from Buen Vivir and the rights of nature even though they do not explicitly appeal to these concepts. In these cases, the contributions of scientific communities, as well as civil society (e.g. Indigenous Peoples, environmentalists, trade unions, etc), were key to protecting water sources from mining activities (Broad & Fischer-Mackey, 2017). The rights of nature can be combined with different bodies of knowledge to coexist with each other, rather than being subordinated by Western knowledge. In summary, the rights of nature not only view non-human and human as equal but also offers a platform for mutual learning between indigenous and other epistemic communities.

The Communitarian Economy, food sovereignty, and the rights of nature are concepts that complement one another and offer opportunities to rethink innovation assumptions. This is particularly relevant to rethink how innovations are decided collectively (Communitarian Economy), how innovations are designed with ecological boundaries in mind (food sovereignty), and how innovations are the result of knowledge sharing between epistemic communities and non-human nature (rights of nature).

Next, we discuss how indigenous communities develop Buen Vivir in practise and how these concepts manifest in the form of Potato Park in the Peruvian Andes, a community-led innovation initiative.

4. The Potato Park and indigenous innovations in the Andes

Colonial-driven marginalisation suffered by Indigenous Peoples continues today in many Andean communities (Merino & Gustafsson, 2021). This marginalisation is expressed in the lack of or limited access to basic public services, such as education, health, or sanitation. In response, Indigenous Peoples have set up grassroots organisations and engage in international alliances (Wright, 2014). The Potato Park, an example of this, was set up in 2000 with the support of Asociación ANDES. The Park comprises of five Indigenous communities of Quechua ethnicity surrounding the rural area of Pisaq, Cuzco (Peru). The five communities, (Chawaytire, Pampallaqta, Sacaca, Paru Paru, and Amaru) consulted with Asociación ANDES because they were disappointed by social, economic, and ecological impacts of external development interventions. They sought to use their own traditional knowledge to govern and manage the local agrobiodiversity and mountain ecosystem in more effective ways to ensure its conservation and sustainable use. The communities share 9200 hectares of communal land rising up to 4600 meters above sea level. A multitude of diverse cultivated and wild crops grow there, including 1400 varieties of native potatoes. Through promoting and supporting the intertwined cultural heritage and agrobiodiversity, the Park aims to contribute to sustainable livelihoods and food security for the indigenous communities (ANDES, 2015). Asociación ANDES collaborated with the Park communities to create an organisational structure in accordance

with its customary laws, to steward its potato diversity, food producing habitats, waters, and biocultural resources, and strengthen their traditional stewardship roles vis-à-vis Pacha Mama (Mother Earth), as conceived of by the Quechua indigenous ontology.

The authors of this article have a longstanding commitment with the Potato Park, dating back to its origins (Author references). In early 2019, the first two authors visited the Park and were invited by the leaders to walk through their landscape as they demonstrated their various initiatives and projects, sharing stories about the Park, its inhabitants, and its history. Encouraged to ask questions, take notes, and take pictures throughout the guided tour, a round-table discussion between Park researchers, leaders, and female textile entrepreneurs followed. The next section draws from the research diaries of the visit, the sustained dialogue that continued with the leaders of the Park afterward, as well as reports and documents that the organisation generously shared. Our inductive analysis involved highlighting relevant sections of our research diary and developing themes (e.g., 'community'; 'collaborating with scientists'). We then examined Buen Vivir concepts relating to Indigenous Peoples, as well as online resources about the Park, in order to examine our themes and redefine them in light of this examination. This assisted us in grouping our initial themes into three distinct characteristics that emerged as a result of the iterative process between our data and the literature, as detailed below.

We begin by discussing the way in which the Park operates under the Buen Vivir approach and what innovation means in this context. We conclude the section with three underlying principles informing innovation in the Park.

The Park leaders use the terminology of Sumak Kawsay to explain their governance and structure. For instance, the Park's leaders explained that their communities apply the principles of Ayni and the Ayllu, which are often integrated to the notion of Buen Vivir and express the cultural values of Andean indigenous communities (Ishizawa, 2006). Ayni refers to 'reciprocity through mutuality and compensation', whereas Ayllu refers to 'collectiveness through a social collective of kinfolk' (Walshe & Argumedo, 2016). The former implies that all living beings in the Park contribute to and benefit from it. This provides the foundation for decision-making processes, where all in the Park work collectively. The latter refers to a social unit that underpins social relations within communities (Walshe & Argumedo, 2016), which currently guides the Park's governance structure.

According to the Park leaders, to achieve Sumak Kawsay, harmony must be sought between three different ayllus: the runa ayllu (humans and domesticated species), sallka ayllu (wild and semi-domesticated species), and auki ayllu (the sacred and the ancestors). They seek harmony through practises of reciprocity and redistribution, given that all three ayllus depend on each other. Recognising that this balance is difficult to obtain in practise, the Park has attempted to institutionalise these guiding principles through an inter-community protocol that sets the rules for how all five communities contribute to and benefit from the Park. The protocol also helps to establish the mechanisms for conflict resolution and information sharing (Argumedo & Pimbert, 2010; Walshe & Argumedo, 2016). For instance, elected members from each of the communities choose members of an Elders' Circle, and they have rules for barter systems, which are proposed to ensure those in more marginalised conditions also have access to food security and nutrition (Walshe & Argumedo, 2016). The Park also has several economic collectives in the form of micro-enterprises, eco-tourism, and restaurants. They have set up a communal fund that gathers 10% of the earnings from all the income-generating activities that is redistributed to the communities at the end of the year for their contributions to the Park. The Park's benefit-sharing method works towards the conservation of agrobiodiversity and an Indigenous-led solidarity economy associated with traditional knowledge.

4.1. What innovation means in the Park

As part of a five-year project to address climate change implemented by the International Institute for Environment and Development (IIED) and Associacion Andes called 'Smallholder

Innovation for Resilience (SIFOR)', the Park has developed new organic products, developed new processes based off their agricultural practises, and created new eco-tourism offerings. These developments have been documented and disseminated by the communities in three categories of innovation:

1. Technological innovations (e.g., improved terrace technologies; new varieties of breeds and seeds; agricultural practises; soil and water management)
2. Market innovations (e.g., gastronomy, handicrafts, tourism, and natural products sold through micro-enterprises)
3. Institutional biocultural innovations (e.g., intercommunity benefit-sharing agreements; biocultural community protocols and repatriation agreement with the International Potato Centre - CIP, in its Spanish acronym)

We identify at least three principles for innovation advanced by the creation of Potato Park that we would like to focus on: 1) mutual reciprocity among human and non-human nature, 2) a collective deliberation process, and 3) ecological boundaries.

4.1.1. Innovation as the result of mutual reciprocity between epistemic communities and non-human nature:. The notion of Ayni seeks to contribute to the harmony of the world through reciprocity, not only among humans but also with non-human beings (Bélair, Ichikawa, Wong, & Mulongoy, 2010; Walshe & Argumedo, 2016). Non-human communities refers to all living organisms of the Park, including the mountains that surround it, the animals (such as llamas and alpacas), and the wild and cultivated plants and herbs, all of which are indispensable for the Park's survival and success. Communities surrounding Potato Park describe a collective of interactions and knowledge flows between human (runa), non-humans (sallka), and spiritual (auki) entities (Stephenson, 2012).

The notion of Ayni clearly relates to the rights of nature as a key category of Buen Vivir. Application of Western science can reinforce these rights as well, as mentioned in section two. In the Park, Ayni also refers to knowledge interaction and exchange with external actors (government bodies, researchers, NGOs), who bring their expertise and knowledge to contrast and compare with what the Park communities are doing. This has been of particular importance given the temperature rise that has affected the Andean highlands and has led to a decrease of biodiversity, including potatoes. For instance, 10 years ago, it was possible to grow an average of 1500 types of potatoes within the Potato Park. Climate change has pushed potato cultivation up 200 m in the last 25 years in the Potato Park, decreasing the diversity in potatoes. Facing this challenge, the Potato Park has been collaborating with Western scientists doing research on how to preserve the biodiversity of their land.

Several innovations emerging from the Park are the result of collaborations between the Park's communities and non-indigenous epistemic communities, including scientists from the CIP, the IIED, local, national, and international universities, and more. The foundation of these global collaborations is a collective decision-making process where all entities involved are considered. Collaborative experiments can be found in various locations of the Park, involving the exchange of several types of knowledge, complementing each other rather than being replaced by each other. As the rights of nature suggest, the indigenous experience is key in this process (Tanasescu, 2013). Indigenous and local knowledge is valued not as a result of outsider technical and scientific knowledge but as relevant and equivalent to other modes of knowledge (Ishizawa, 2006). Rather than imputing 'human-like' qualities to non-humans, indigenous approaches assert that non-humans possess agentive qualities appropriate to their existence (some of which may be in common with humans) and endeavour to understand non-human agency on its own terms (ojalehto mays et al., 2020).

As such, the knowledge system of the Potato Park is rooted with the rights of nature approach to create innovations. This approach redefines the relationship between different epistemic communities and gives weight to nature (Tanasescu, 2013). It differs from the exclusive focus on humans that dominates Western innovation discourses (Ludwig & Macnaghten, 2020). Simultaneously, it explicitly places Indigenous knowledge, practises, and people at the centre, with Western and scientific knowledge as complements.

This approach to knowledge-sharing between Indigenous members and scientists represents a way to shift power imbalances but challenges remain. Indigenous leaders are aware of how hierarchy and domination can affect their exchanges with agriculture and conservation actors, and they have developed innovative mechanisms to counteract these through implementing community-based protocols of collaboration with external actors such as international organisations, academics, and others (Argumedo, 2013). These protocols, described as institutional innovations, constitute a response to unequal political positions and helps ensure the projects remain aligned with their priorities. These community protocols, therefore, constitute a novel way to perform their self-determination while engaging productively with other actors in more equitable ways.

The Agreement on the Repatriation, Restoration, and Monitoring of Agrobiodiversity of Native Potatoes and Associated Community Knowledge Systems signed by the Potato Park and the CIP in 2005 is an example of this collaboration (Suri, 2005). The agreement has given local farmers access to more potato varieties as they adapt to rising temperatures and increased pests and diseases that make growing potatoes difficult. This rapid change is pushing farmers to the top of the mountain, where there is no more land. Farmers can always eat because diversity protects them from crop failure.

The CIP agreement brought back lost potato varieties collected from communities in the 1960s. The five Potato Park communities actively manage the landscape-based genetic bank. The agreement provides a critical source of climate-resilient crops for adaptation and allows scientists and farmers to increase their understanding of how climate change is affecting potato diversity and agroecosystems. As a condition of collaboration, the Park required CIP to return seeds they had taken and agree to never repeat this practise without the Park's consent, resulting in the seeds being returned and restoration of the Park's relationship with CIP.

The above approaches to innovation centres Indigenous knowledge, which considers the interaction between human and non-human entities. While scientific Western knowledge informs how the Park adapts to climate change, indigenous knowledge and people remains at the centre, allowing them to recognise power imbalances and developing novel ways to ensure more equality. This presents an alternative way of thinking about innovation, where scientific Western knowledge is complementary and where non-humans take a significant role.

4.1.2. Innovation as a collective deliberation process. The governance structure of the Potato Park is characterised by a collective process of deliberation, where representatives from the five communities make decisions concerning the Park, its governance, and relationships with other institutions. This also involves benefit-sharing mechanisms where every community directs a percentage the earnings to a collective pot that is redistributed to the most disadvantaged in the Park. This resembles the traditional values of reciprocity and redistribution that characterised the Communitarian Economy of pre-colonial societies and now a key part of what Buen Vivir represents in practise (Ramirez-Cendrero et al., 2017).

Most of the Park's innovations are a result of this collective decision-making process that underpins Communitarian Economy principles. One example is their collective trademarks efforts, which seek to challenge the existing intellectual property rights system that protects individual rather than collective rights. Instead, the Park has been working to promote a collective trademark system that can protect their intellectual property which emerges as part of collective, traditional knowledge (Argumedo, 2013). This illustrates their view of innovation as

a result of collective efforts rather than the outcome of individual entrepreneurs. Seeking to reduce marginalisation in the community is also characteristic of the Communitarian Economy (Giovannini, 2012).

This approach is different from mainstream approaches that tend to frame innovation as the result of top-down decision making without much involvement from Indigenous People. This is the case in Peru with the Peruvian National System on Science, Technology and Technological Innovation (Ley Marco de Ciencia, Tecnología e Innovación Tecnológica, 2004). This legislation groups several organisations and institutions, including the National Fund for the Development of Science, Technology and Technological Innovation, instances of regional and local governments, public universities, and the private sector. The law does not mention Indigenous Peoples but it does mention the importance of their culture and knowledge. It states, 'spaces for the preservation and dissemination of traditional, cultural and folkloric knowledge of the country' (Art.7). The lack of representation of native communities, peasants, or Indigenous Peoples on the Board of Directors also indicates that they are seen as part of the system but not of its governance.

The Park has also developed inter-community agreements that establish rules on how individual efforts can contribute to maintaining the overarching goal of collective wellbeing. What this institutional arrangement demonstrates is an intriguing space for exploring existing tensions in Communitarian Economies—between the individual and the collective—as well as innovative ways to seek and reduce these tensions.

The governance of the Potato Park is based on a process of collective deliberation. Collective processes are not necessarily a new feature in innovation thinking; examples such as Linux and open-source movements, as well as peer production found in 3D-printing, demonstrate how there are several innovation initiatives characterised by decentralised processes. This shows that profit-maximising innovation initiatives can also be implemented through democratic processes (von Hippel, 2009). What distinguishes these activities is that they are being conducted by Indigenous Peoples in accordance with their worldviews, with representatives from five different communities aiming not for profit maximisation but for what they consider to be a 'good life' collectively. In practise, this does not mean that they lack business models. Rather, it means that the business model ensures that distribution and sharing of earnings collectively.

Practises of collective deliberation and benefit-sharing can be difficult to sustain, as whenever humans are involved, disagreements can arise that can lead to problems between the communities. Tatliadim (2015) describes that the practise of Communitarian Economy works in a delicate balance that sometimes breaks when external actors intervene and impose neoliberal practises, creating issues between the communities. The Park's inter-community agreements are attempts to overcome these historical experiences, designed to ensure that nobody remains in an imbalanced arrangement for long by employing various channels to express concerns and the freedom to leave arrangements that are no longer working.

4.1.3. Innovation as a venture that acknowledges and operates within ecological boundaries. The innovations produced within the Potato Park operate within ecological boundaries. Communities have rejected the use of industrial farming techniques and chemicals in favour of maintaining traditional practises that are more aligned with natural social and ecological cycles. This resembles the notion of food sovereignty as a local, non-extractivist, and ecological mode of agriculture. For instance, in the Park, crop rotation occurs every three to nine years (Walshe & Argumedo, 2016). After this period, they would stop cultivating in the mountain and move to a different one, allowing for natural soil regeneration. Cultivation practises are also closely linked with the behaviour of wild animals in the area as the Indigenous Communities described looking to animals for indications of weather-related effects. For instance, a specific bird song would imply that rain is coming or a fox getting closer to their fields means a drought may

come. Considering these ecological dynamics, farmers thank these animals by sharing the crops harvested with them.

Given changing environmental conditions due to the climate crisis, the Potato Park is also a place of experimentation and exploration, in search of sustainable ways to work with the land and grow potato varieties that could be useful in several climate conditions beyond the Pisac Valley. The communities in the Park adopt the practise of 'Musok Ruway', which can be translated from the Quechua language as 'creating something new'. This also includes 'Musok Raij', which can be translated as 'adopt from outside'. These two practises involve knowledge exchange with different epistemic communities to overcome the challenges around their landscape. In this way, innovation takes place when responses to stressors nurture a non-obvious combination of old or existent elements of the biocultural systems into a something new (e.g., ideas, methods, process, tools) that improves current practises and future responses to the stressors.

During fieldwork conducted at the Park, we were introduced to a series of sustainable services and products conceived as market innovations, a result of several micro-enterprises mostly led by women. They produce and sell ecological shampoo, conditioner, creams, teas, and other products made from the native and diverse resources and plants of the Park. Promotion of the collective production of textiles using experimentation with different pigments and local materials has made the Potato Park well known in Cuzco. These micro-enterprises illustrate the Social and Solidary Economy in practise by focusing on the wellbeing of community members rather than on profit maximisation. More crucially, it resembles the Communitarian Economy under the Buen Vivir cosmovision by operating in open contradiction to Western-centric logic of accumulation at the expense of the environment. For instance, they follow natural production and reproduction cycles (Ramirez-Cendrero et al., 2017) to sell their products in stores or hotel shops, even though there may be an increasing demand for their products year-round. The Potato Park's approach to protecting the biodiversity, which is informed by the notion of Buen Vivir in itself, implies that they do not design their enterprises to scale at any cost but to ensure self-sufficiency through the responsible use of natural resources. These innovations—in the form of shampoos, soaps, creams, and other products developed from cultivated and wild plants—result from the bio-centric approach that operates within ecological boundaries.

This represents a distinct approach to product innovation, where one considers the environment an external resource to be transformed, adapted, or destroyed (Strand et al., 2018). Instead, the creation and sale of innovation products maintain biodiversity in sustainable ways. In this sense, innovation does not operate under the logic of competitive advantage always looking to consistently scale and expand but is rather strongly tied to Indigenous self-determination and environmental sustainability.

Table 2 summarises the logic that guides innovation processes in the Park.

5. Discussion and concluding observations

This section explores how the communities involved with the Park engage with innovation discourses and practises. As part of a collaborative process with international NGOs, innovation in the Park relies on new methods, process, and tools resulting from Indigenous knowledge and illustrating Buen Vivir principles. The process usually involves complex interactions and knowledge flows between Ancestral knowledge ('Mauka Ruway'), external knowledge (Science-'Misti Ruway'), and the knowledge of Mother Earth ('Pacha Mama Ruway'). Practises of Communitarian Economy, food sovereignty, and rights to nature can be found and are applied towards the sustainability of the Park in a context of climate change.

Through our analysis of the governance and innovation processes occurring on the Park, we identify three underlying logics and assumptions that can inform their innovation activity, as well as their decision-making processes relevant to innovation. Through this, we make some

Table 2. Logic that guides innovation processes in the Park

Three principles for innovation	Main theoretical contents or defining concepts from Buen Vivir	Expression in the Potato Park
Innovation as the result of mutual reciprocity between epistemic communities and non-human nature (decentring the Western cannon)	Rights to nature (Broad & Fischer-Mackey, 2017; Gordon, 2019)	Community protocols for knowledge-sharing with external actors; organic farming practises; discourses of Pachamama
Innovation as a collective deliberation process (bottom-up governance and reciprocity)	Communitarian Economy (Ramírez-Cendrero et al., 2017, Giovannini, 2012; Villalba-Eguiluz et al., 2020; Villalba-Eguiluz & Pérez-De-Mendiguren, 2019)	Inter-community protocols; Collective trademarks for innovations
Innovation as a venture that acknowledges and operates within ecological boundaries (non-scaling, sustainable)	Food sovereignty (Calderón Farfán et al., 2021; Guardiola & García-Quero, 2014).	Micro-enterprises; product innovations; use of non-industrial products

inferences about characteristics innovation would adopt under a decolonial approach. This approach seeks to explore other ways of theorising beyond Western thought which has informed most of innovation thinking (Jimenez & Roberts, 2019).

Following three defining Buen Vivir's constructs, we suggest three underlying logics of a decolonial approach to innovation summarised in Table 2. The rights of nature emphasise that innovation should be based on reciprocity and respect between human epistemic communities but also between these communities and natural beings. It departs from duality where the economy acts as an independent realm of practise and places humans above everything else (Escobar, 2016) and instead embraces relational ontological views that foment practises of reciprocity and solidarity (Argumedo & Pimbert, 2010). This differs from existing perspectives on innovation which promote anthropocentric approaches.

Innovation from this perspective implies adopting ways of sharing knowledge not subject to the power imbalances and other inequities that result from underlying colonial principles. To do this successfully entails the incorporation of plural forms of knowledge and practises in a collective decision-making process. For instance, even though indigenous communities constantly interact with external and market actors, they remain highly linked to their own worldviews (Gonzales, 2015).

Benefit-sharing in a communitarian context requires innovation processes independent from rational agents led by resource mobilisation developed by collective deliberation processes. The inclusion and development of new practises and activities implies collective decisions aimed at reproducing socio-cultural patterns and ecological conditions. In centring plural interconnected and interdependent epistemic communities, innovation is not the result of an individual effort but the outcome of linkages amongst cosmological and non-human perspectives, which are at the centre of their knowledge exchange.

Since innovation is the process of developing new goods, products, processes, and services for the collective good, the collective needs to be involved in the decision-making process. It involves seeking collective deliberation and agreement rather than opting for individual and competitive approaches, even if this entails bigger challenges and associated delays. This approach involves participatory, bottom-up strategies which incorporate mechanisms where the most marginalised can actively participate, seeking to reduce potential oversights in processes of inclusion. While not a smooth, straightforward process, it can be successfully managed through co-produced agreements. This approach differs from existing national innovation systems where the strategy is often implemented and planned by the government while innovation

is considered the realm of the private sector or research and development (R&D). Instead, innovation is a collective process with shared concerns—and benefits.

Food sovereignty invites us to think about innovation through ecological boundaries. This entails rejecting a productivist paradigm in agriculture that requires constant expansion of the agricultural frontier and the intense use of agricultural commodities such as pesticides and transgenic crops. Rather, it advocates for local restorative and sustainable agroecological activities. The underlying principles of innovation operate within perceived ecological boundaries. It involves a constant reflective process motivated by climate change adaptation instead of competitiveness or economic growth. It does not consider the environment as an external factor or as a market failure. Instead, any innovation (product or process) that does not consider environmental boundaries would not be taken up in the first place. This is evident in the strategy taken by the Park's market innovations where the women-led micro-enterprises produce and sell to the market in sustainable quantities. Thus, the capitalist economy principles of letting the market determine supply and demand and competitive advantages are considered but does not drive or determine their decision-making.

Given our findings, we propose that the existing shortcomings in mainstream innovation thinking, as centred on logic that increasing accumulation and growth is always the goal and focusing on individualistic values that lead to unsustainable environments and unequal societies can be reconceptualised and decolonised. Buen Vivir, when informed by indigenous communities rather than driven by top-down, governmental regulation, situates innovation in a collective of humans and non-humans providing solutions to challenges imposed by our current global crisis (Jackson, 2017).

There are several limitations of this approach. The first one is that the experiences of the Park stem from a delicate balance between territory, climate, and people. A challenge remains as to whether these underlying logics of innovation hold space in other contexts or could get lost if at scale (Druijff & Kaika, 2021). Moreover, the idea of incorporating this approach into National Innovations System is met with great resistance from decision-makers and institutional structures. National elites still conceive indigenous thinking as 'traditional', and 'folkloric', only valuable as a mark of cultural specificity and heritage. It is often considered as a way of thinking that must be tolerated as a sign of respect for the past but not valued as a knowledge system that might truly contribute to address current and future humankind challenges.

Another limitation is that collective processes do not exist without tensions especially when embedded in broader neoliberal spaces. As Tatliadim (2015) shows, various tensions arise when external actors disrupt the delicate balance created by the Ayni. Further research should explore how these tensions may be present in innovation processes, when interacting with other actors, and what steps should be taken to overcome these. Finally, although the focus is on environmental concern, what remains unclear is how these practises can be adopted by innovation organisations or international development organisations without excluding Indigenous People in the process.

In this paper, we have explored a decolonial approach to innovation, yet we do not believe this to be the only possibility. Moreover, we do not proclaim that these principles are always generalisable. What we do argue is that these principles should be included as part of a growing decolonial approach to innovation. As such, further research should explore more in-depth ways to decentre the Western cannon in innovation thinking as this is crucial for the challenges brought by the Anthropocene. We hope this opens conversations about paths of innovation that can be better aligned with environmental and social concerns rather than with an unfitted econo-centric approach.

Acknowledgements

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Andrea Jimenez ⬤ http://orcid.org/0000-0002-2166-8574
Deborah Delgado ⬤ http://orcid.org/0000-0002-5595-0359
Roger Merino ⬤ http://orcid.org/0000-0002-0648-6203

References

Albó, X. (2011). Suma qamaña = convivir bien. ¿Cómo medirlo? In I. Farah & L. Vasapollo (Eds.), *Vivir Bien: ¿paradigma no capitalista?* Roma: CIDES-UMSA: Sapienza, Università di Roma: Oxfam.

ANDES. (2015). *Biocultural Heritage innovations in the Potato Park - SIFOR qualitative baseline study, Peru* (Issue March). Retrieved from https://pubs.iied.org/g03917

Anthias, P. (2018). *Limits to decolonization: Indigeneity, territory, and hydrocarbon politics in the bolivian chaco*. Ithaca, NY: Cornell University Press.

Argumedo, A. (2013). *Collective trademarks and Biocultural heritage: Towards new indications of distinction for Indigenous peoples in the Potato Park, Peru*. London: International Institute for Environment and Development All.

Argumedo, A., & Pimbert, M. (2010). Bypassing globalization: Barter markets as a new indigenous economy in Peru. *Development*, *53*(3), 343–349.

Arocena, R., & Sutz, J. (2000). Looking At National Systems of Innovation from the South. *Industry & Innovation*, *7*(1), 55–75.

Aubert, J. E. (2004). Promoting innovation in developing countries: A conceptual framework. In *Innovation* (Issue July). Washington, DC: World Bank Institute.

Bay-Cheng, L. Y., Fitz, C. C., Alizaga, N. M., & Zucker, A. N. (2015). Tracking Homo oeconomicus: Development of the neoliberal beliefs inventory. *Journal of Social and Political Psychology*, *3*(1), 71–88.

Bélair, C., Ichikawa, K., Wong, B. Y., & Mulongoy, J. (2010). *Sustainable use of biological diversity in socio-ecological production landscapes: Background to the 'Satoyama Initiative for the benefit of biodiversity and human well-being'*. *Technical Series no. 52* (p. 184). Montreal: Secretariat of the Convention on Biological Diversity.

Berkes, F., & Davidson-Hunt, I. J. (2010). Innovating through commons use community-based enterprises. *International Journal of the Commons*, 4(1), 1.

Billet, B.L. (1993). Modernization theory and economic development: Discontent in the developing world. Westport, CT: Praeger.

Boyer, J. (2010). Food security, food sovereignty, and local challenges for transnational agrarian movements: The Honduras case. *Journal of Peasant Studies*. 37(2), 319–351. doi:10.1080/03066151003594997

Broad, R., & Fischer-Mackey, J. (2017). From extractivism towards Buen Vivir: Mining policy as an indicator of a new development paradigm prioritising the environment. *Third World Quarterly*, *38*(6), 1327–1349.

Calderón Farfán, J. C., Dussán Chaux, J. D., & Arias Torres, D. (2021). Food autonomy: decolonial perspectives for indigenous health and Buen Vivir. *Global Health Promotion*, *28*(3), 1–9.

Calvo, S., & Pachon, A. M. (2013). *The social and solidarity economy in ecuador: Opportunities and challenges (issue July)*. Ecuador: MINCA.

Canessa, A. (2014). Conflict, claim and contradiction in the new 'indigenous' state of Bolivia. *Critique of Anthropology*, *34*(2), 153–173. doi:10.1177/0308275X13519275

Caria, S., & Domínguez, R. (2016). Ecuador's *Buen vivir*. *Latin American Perspectives*, *43*(1), 18–33.

Chiappero-Martinetti, E., Houghton Budd, C., & Ziegler, R. (2017). Social innovation and the capability approach—introduction to the special issue. *Journal of Human Development and Capabilities*, *18*(2), 141–147.

Christensen, C., Ojomo, E., & Dillon, K. (2019). *The prosperity paradox: How innovation can lift nations out of poverty (first)*. New York, NY: Harper Business.

Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies*, *47*(6), 1154–1191.

Cruz, C. C. (2021). Decolonizing philosophy of technology: Learning from bottom-up and top-down approaches to decolonial technical design. *Philosophy & Technology*, *34*, 0123456789.

Davila, Tony, Marc Epstein, and Robert Shelton. 2013. *Making innovation work: How to manage it, measure it, and profit from it*. Upper Saddle River, NJ: FT Press.

de Saille, S., & Medvecky, F. (2016). Innovation for a steady state: A case for responsible stagnation. *Economy and Society*, *45*(1), 1–23.

Delgado, D. (2019). A toxic development: Pollution and change in an Amazonian oil frontier. In S. Joseph (Ed.), *Commodity frontiers and global capitalist expansion. Palgrave Studies in Economic History* (pp. 255–277). Cham: Palgrave Macmillan. doi: 10.1007/978-3-030-15322-9_9

Druijff, A., & Kaika, M. (2021). Upscaling without innovation: taking the edge off grassroot initiatives with scaling-up in Amsterdam's Anthropocene forest. *European Planning Studies*, *29*(12), 1–25.

Escobar, A. (2016). Thinking-feeling with the earth: Territorial struggles and the ontological dimension of the epistemologies of the south. *AIBR Revista de Antropologia Iberoamericana*, *11*(1), 11–32. doi:10.11156/aibr.110102e

Fagerberg, J. (2017). Innovation policy: Rationales, lessons and challenges. *Journal of Economic Surveys*, *31*(2), 497–512. doi:10.1111/joes.12164

Fagerberg, J., & Srholec, M. (2008). National innovation systems, capabilities, and economic development. *Research Policy*, *37*(9), 1417–1435.

Freeman, C. (1995). The "National System of Innovation" in historical perspective Introduction: The National System of Friedrich List. *Cambridge Journal of Economics*, *19*, 5–24.

Giovannini, M. (2012). Social enterprises for development as buen vivir. *Journal of Enterprising Communities*, *6*(3), 284–299. doi:10.1108/17506201211258432

Gonzales, T. (2015). An Indigenous autonomous community-based model for knowledge production in the Peruvian Andes. *Latin American and Caribbean Ethnic Studies*, *10*(1), 107–133. doi:10.1080/17442222.2015.1034433

Gordon, G. J. (2019). Environmental personhood. *Columbia Journal of Environmental Law*, *43*(1), 49.

Grosfoguel, R. (2000). Developmentalism, modernity, and dependency theory in Latin America. *Nepantla: Views from the South*, *1*(2), 347–374.

Guardiola, J., & García-Quero, F. (2014). Buen Vivir (living well) in Ecuador: Community and environmental satisfaction without household material prosperity? *Ecological Economics*, *107*, 177–184.

Gudynas, E. (2011). Buen Vivir: Today's tomorrow. *Development*, *54*(4), 441–447. doi:10.1057/dev.2011.86

Hidalgo-capitán, A. L., Cubillo-guevara, A. P., Medina-carranco, N. (2019). Los Objetivos del Buen Vivir Una propuesta alternativa a los Objetivos de Desarrollo Sostenible Good Living Goals An alternative proposal to the Sustainable Development Goals Los Objetivos del Buen Vivir Una propuesta alternativa a los Objetivos de Desarr. *Ibe-Roamerican Journal of Development Studies*, *8*(1), 6–57.

Ishizawa, J. (2006). Cosmovisions and environmental governance. *Bridging Scales and Knowledge Systems: Concepts and Applications in Ecosystem Assessment*, *4*, 207–224.

Jackson, T. (2017). *Prosperity without growth*. New York, NY: Routledge.

Jimenez, A., & Roberts, T. (2019). Decolonising neo-liberal innovation: Using the andean philosophy of 'Buen Vivir' to reimagine innovation hubs. In: P. Nielsen, & H. Kimaro (Eds.), *Information and communication technologies for development. strengthening southern-driven cooperation as a catalyst for ICT4D. ICT4D 2019. IFIP Advances in Information and Communication Technology* (vol. 552). Springer, Cham. doi:10.1007/978-3-030-19115-3_15

Jimenez, A., & Zheng, Y. (2017). Tech hubs, innovation, and development. *Information Technology for Development*, *1102*(January), 1–24.

Kaplinsky, R. (2011). Schumacher meets Schumpeter: Appropriate technology below the radar. *Research Policy*, *40*(2), 193–203. doi:10.1016/j.respol.2010.10.003

Kothari, U. (2005). *A radical history of development studies: Individuals, institutions and ideologies, Kothari*. London: Zed Books.

Kraemer-Mbula, E., Wamae, W., International Development Research Centre (Canada), & Organisation for Economic Co-operation and Development. (2010). *Innovation and the development agenda*. Paris: OECD.

Krause, U. (2013). Innovation: The new Big Push or the Post-Development alternative? *Development*, *56*(2), 223–226. doi:10.1057/dev.2013.29

Ley marco de Ciencia, Tecnología e Innovación Tecnológica N° 28303. (2004). Retrieved from https://www2.congreso.gob.pe/sicr/cendocbib/con4_uibd.nsf/6A4A8870DD76CFEF05257A76005953CB/$FILE/1_LEY_28303_LEY_MARCO_CIENCIA_TEGNOLOG%C3%8DA_INNOVACI%C3%93N_TECNOL%C3%93GICA.pdf

Ludwig, D., & Macnaghten, P. (2020). Traditional ecological knowledge in innovation governance: A framework for responsible and just innovation. *Journal of Responsible Innovation*, 7(1), 26–44.

Lundvall, B. a. (2007). National innovation systems—analytical concept and development tool. *Industry & Innovation*, 14(1), 95–119.

Martínez-Torres, M. E., & Rosset, P. M. (2010). La ví a campesina: The birth and evolution of a transnational social movement. *Journal of Peasant Studies*, 37(1), 149–175.

Merino, R. (2016). An alternative to 'alternative development'? Buen vivir and human development in Andean countries. *Oxford Development Studies*, 44(3), 271–286. doi:10.1080/13600818.2016.1144733

Merino, R., & Gustafsson, M. T. (2021). Localizing the indigenous environmental steward norm: The making of conservation and territorial rights in Peru. *Environmental Science and Policy*, 124(July), 627–634.

Mignolo, W., & Walsh, C. (2018). *On decoloniality: Concepts, analytics, praxis*. Durham: Duke University Press.

Mun, N. K. (2015). La problemática transición boliviana hacia la época postneoliberal: el caso de la economía comunitaria. *Revista Estudios Sociales*, 54(2014), 22–38.

Nicolini, D. (2009). Zooming in and out: studying practises by switching thCeoretical lenses and trailing connections. *Organization Studies*, 30(12), 1391–1418. doi:10.1177/0170840609349875

Ojalehto mays, B., Seligman, R., & Medin, D. L. (2020). Cognition beyond the human: Cognitive psychology and the new animism. *Ethos*, 48(1), 50–73.

Pansera, M. (2013). Frugality, grassroots and inclusiveness: New challenges for mainstream innovation theories. African Journal of Science, *Technology, Innovation & Development*, 5(6), 469–478.

Pansera, M., Arthur, K. N. A., Jimenez, A., & Pandey, P. (2020). The Plurality of Technology and Innovation in the Global South. In S. De Saille, F. Medvecky, M. Van Oudheusden, K. Albertson, E. Amanatidou, T. Birabi, et al. (Eds.), *Responsibility beyond growth: A case for responsible stagnation* (pp. 91–110). Bristol University Press. doi:10.46692/9781529208351.011

Pansera, M., & Owen, R. (2018). Framing inclusive innovation within the discourse of development: Insights from case studies in India *Research Policy*, 47(1), 23–34.

Papaioannou, T. (2014). How inclusive can innovation and development be in the twenty-first century? *Innovation and Development*, 4(2), 187–202. doi:10.1080/2157930X.2014.921355

Perry, K. (2020). Innovation, institutions, and development: A critical review and grounded heterodox economic analysis of late-industrialising contexts. *Cambridge Journal of Economics*, 44(2), 391–415. doi:10.1093/cje/bez049

Quijano, A. (2007). Coloniality and modernity/rationality. *Cultural Studies*, 21(2–3), 168–178. doi:10.1080/09502380601164353

Radcliffe, S. A. (2018). Tackling complex inequalities and Ecuador's Buen Vivir: Leaving no-one behind and equality in diversity. *Bulletin of Latin American Research*, 37(4), 417–433. doi:10.1111/blar.12706

Ramírez-Cendrero, J. García, S. Santillán, A. (2017). Sumak kawsay in Ecuador: The role of communitarian economy and the experience of the rural communities in Sarayaku (Ecuadorian Amazonia), *Journal of Rural Studies*, 53, 111–121. doi:10.1016/j.jrurstud.2017.05.018

Stephenson, A. (2012). The Quechua, the guardians of the Potato. *Cultural Survival Quarterly*, 36(1), 6–7.

Strand, R., Saltelli, A., Giampietro, M., Rommetveit, K., & Funtowicz, S. (2018). New narratives for innovation. *Journal of Cleaner Production*, 197, 1849–1853. doi:10.1016/j.jclepro.2016.10.194

Suri, S. (2005). Potato capital of the world offers up new recipe. *IPS News*. Retrieved from https://grain.org/article/entries/2165-andes-potato-Park-cip-agreement

Tanasescu, M. (2013). The rights of nature in Ecuador: The making of an idea. *International Journal of Environmental Studies*, 70(6), 846–861. doi:10.1080/00207233.2013.845715

Tatliadim, A. N. (2015). *Intersections of local ontologies and the market economy through rural community tourism: A case study of Amaru village in Southern Andes, Peru*. London: University College London (UCL).

Villalba-Eguiluz, C. U., & Etxano, I. (2017). Buen Vivir vs development (II): The limits of (neo-)extractivism. *Ecological Economics* (138), 1–11. doi:10.1016/j.ecolecon.2017.03.010

Villalba-Eguiluz, U., Arcos-Alonso, A., Pérez de Mendiguren, J. C., & Urretabizkaia, L. (2020) Social and solidarity economy in Ecuador: Fostering an alternative development model? *Sustainability*, 12, 6876.

Villalba-Eguiluz, U., & Pérez-De-Mendiguren, J. C. (2019). The social and solidarity economy as a way to buen vivir. *Iberoamerican Journal of Development Studies*, 8(1), 106–136.

von Hippel, E. (2009). Democratizing innovation: The evolving phenomenon of user innovation. *International Journal of Innovation Science*, 1(1), 29–40. doi:10.1260/175722209787951224

Walsh, C. (2010). Development as Buen Vivir: Institutional arrangements and (de)colonial entanglements. *Development*, 53(1), 15–21. doi:10.1057/dev.2009.93

Walshe, R., & Argumedo, A. (2016). Ayni, Ayllu, Yanantin and Chanincha the cultural values enabling adaptation to climate change in communities of the Potato Park, in the Peruvian Andes. *GAIA*, 25(3), 166–173. doi:10.14512/gaia.25.3.7

Willis, K. (2005). *Theories and practises of development* (2nd ed.). New York, NY: Routledge.

Wright, C. (2014). Indigenous mobilisation and the law of consultation in Peru: A boomerang pattern? *International Indigenous Policy Journal*, 5(4), 1–16. doi:10.18584/iipj.2014.5.4.4

Ytrehus, L. A. (2019). Making sense of communitarianism: The Bolivian experience. *Third World Quarterly*, *40*(6), 1089–1106. doi:10.1080/01436597.2019.1573635

Yujuico, E. (2008). Connecting the dots in social entrepreneurship through the capabilities approach. *Socio-Economic Review*, *6*, 493–513. doi:10.1093/ser/mwn003

Zeschky, M., Widenmayer, B., & Gassmann, O. (2011). Frugal innovation in emerging markets. *Research-Technology Management*, *54*(4), 38–45.