



Social capital, biocultural heritage, and commoning for inclusive sustainability of peasant agriculture: three case studies in Argentina, Bolivia, and Chile

Capital social, patrimônio biocultural e bens comuns para a sustentabilidade inclusiva da agricultura camponesa: três estudos de caso na Argentina, Bolívia e Chile

Lizbeth NÚÑEZ-CARRASCO¹, Jorge CLADERA², Pablo José CRUZ³, Nancy EGAN³, Gabriela Andrea FIGLIOLI⁴, Gastón GODOY-GARRAZA⁵, Celeste GOLSBERG⁵, Ximena QUIÑONES-DÍAZ⁶, Luis SÁEZ-TONACCA⁷, Manuela VIEIRA-PAK⁸, Thierry WINKEL^{9*}

¹ Universidad Católica del Maule (UCM), Facultad de Ciencias Sociales, Curicó, Chile.

² Universidad de Buenos Aires (UBA), Facultad de Filosofía y Letras, Instituto Interdisciplinario de Tilcara, Buenos Aires, Argentina.

³ Unidad Ejecutora en Ciencias Sociales Regionales y Humanidades (UE CISOR), Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Universidad Nacional de Jujuy (UNJU), San Salvador de Jujuy, Argentina.

⁴ Ministerio de Agricultura, Ganadería y Pesca (MAGyP), Jujuy, Argentina.

⁵ Instituto de Investigación y Desarrollo Tecnológico para la Agricultura Familiar, Región NOA (IPAF-NOA), Jujuy, Argentina.

⁶ Universidad Católica del Maule (UCM), Facultad de Ciencias Agrarias y Forestales, Curicó, Chile.

⁷ Universidad de Santiago de Chile (USACH), Facultad Tecnológica, Santiago, Chile.

⁸ Independant Consultant associated to LISODE (cooperative consultancy specialized in participatory approaches), Montpellier, France.

⁹ Centre d'Écologie Fonctionnelle et Évolutive (CEFE), Institut de Recherche pour le Développement (IRD), CNRS, Univ Montpellier, UPVM3, EPHE, Montpellier, France.

* Contact email: thierry.winkel@ird.fr

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ABSTRACT: *Social issues and theoretical background:* the sustainability of human societies depends on the intergenerational transmission of capital stocks, whether natural, social or economic. With ever more competition for economic resources, sustainability must increasingly focus on the mutual reinforcement of social and natural capitals. This perspective is particularly relevant for peasant agriculture and producers, who are constantly at risk of social and economic exclusion, but whose social and natural capitals remain important, though often

underutilized, even by the peasants themselves. The concepts of commoning and social capital are useful for addressing these issues and activating biocultural heritage from an ethically inclusive sustainability perspective. *Objective and methods:* We seek to understand how peasants organize to collectively achieve goals of social and economic inclusion that could promote their sustainability and resilience in the face of economic constraints. Using field surveys and participatory action research, we analyzed the social, economic, and environmental factors that fostered the emergence and sustainability of producer organizations and their value chains. This was done in three peasant organizations in Argentina, Bolivia and Chile, whose common starting point is the valorization of traditional quinoa grain, but which differ greatly in terms of size, internal dynamics and organizational trajectories. *Results:* The successes and challenges of the social innovations implemented in the three cases studied provide lessons on how farmers can mobilize their social capital and leverage the resources of their cultural and natural capitals to achieve ethically inclusive sustainability. While some lessons remain context-specific, others appear to be independent of the size and place of organizations, and several demonstrate the importance of socio-ethical interactions cultivated both within organizations and with consumers.

Keywords: collective action; commons; ethical values; inclusive agriculture; participatory-action research; peasant farmers; quinoa.

RESUMO:

Problemática social e fundamento teórico: A sustentabilidade das sociedades humanas depende da transmissão intergeracional dos estoques de capital, sejam eles naturais, sociais ou econômicos. Com a concorrência crescente por recursos econômicos, a sustentabilidade deve se concentrar cada vez mais no reforço mútuo do capital social e natural. Esta perspectiva é particularmente relevante para a agricultura camponesa e para os produtores sob constante ameaça de exclusão social e econômica, mas cujo capital social e natural permanece importante, embora frequentemente subutilizado, mesmo pelos próprios camponeses. Os conceitos de capital social e bens comuns são úteis para abordar estas questões e ativar o patrimônio biocultural a partir de uma perspectiva de sustentabilidade eticamente inclusiva. *Objetivos e métodos:* Procuramos entender como os camponeses se organizam para alcançar coletivamente objetivos de inclusão social e econômica que possam promover sua sustentabilidade e resiliência diante das restrições econômicas. Utilizando pesquisas de campo e pesquisa-ação participativa, analisamos os fatores sociais, econômicos e ambientais que promoveram o surgimento e a sustentabilidade das organizações de produtores e suas cadeias de valor. Fizemos isso em três organizações camponesas na Argentina, Bolívia e Chile, que compartilham um ponto de partida comum em torno da valorização do grão tradicional de quinoa, mas variam muito em termos de tamanho, dinâmica interna e trajetórias organizacionais. *Resultados:* Os sucessos e desafios das inovações sociais implementadas nos três casos estudados fornecem lições sobre como os agricultores mobilizam seu capital social e aproveitam os recursos de seu capital cultural e natural para alcançar a sustentabilidade eticamente inclusiva. Enquanto algumas lições permanecem específicas do contexto, outras parecem ser independentes do tamanho e do lugar das organizações, e várias demonstram a importância das interações sócio-éticas mantidas tanto dentro das organizações quanto com os consumidores.

Palavras-chave: ação coletiva; bens comuns; valores éticos; agricultura inclusiva; pesquisa-ação participativa; agricultores camponeses; quinoa.

1. Introduction

Socio-ecological sustainability is systemic by nature, encompassing and integrating environment,

society and economy. It also transcends time and focuses primarily on maintaining the integrity of these three components over time. Thus socio-ecological sustainability fits into a heritage perspective

as it involves the intergenerational transmission of these three forms of capital. Natural capital includes all raw materials and resources that are useful to human populations, either for satisfying their basic needs in the short term (food, clothing, housing, health) or for more demanding activities in the short or long term (culture, ecological conservation) (Folke *et al.*, 2016). Because it is valued by human activities such as harvesting, extraction, transformation, work, trade and it is subject to ecological, cultural, or aesthetic concerns, natural capital is closely related to the other two forms of capital. Social capital includes all the abilities, knowledge and skills that enable people to live together and use their environment (Durlauf & Fafchamps, 2004). Economic capital is the sum of assets that can be produced or exchanged in the markets that sustain human societies (Rivera *et al.*, 2019).

If we extend to natural and social capitals the functions that Piketty (2014) attributes solely to economic capital, we can say that the three forms of capital serve both as stocks of value (wealth) and as factors of production. This sharing of the same functions of use further underlines their interdependency. Moreover, these different categories of assets can be tangible (land, plants, animals, infrastructures, equipment, inputs...) or intangible (amenities, skills and knowledge, brands, intellectual property rights, financial securities...), with definitions and scopes that change with the complexity and historical transformations of societies.

Today, due to financial concentration, intensification and globalization of trade, economic capital is increasingly competitive and difficult to control locally. Considering the pre-eminence given for decades to economic assets, which are less rooted in territories, this open competition

generates vulnerabilities in all components of the socio-ecological systems, particularly at the local level (Sen, 2000). Well-known examples of this are rural exodus and industrial relocation due to massive imports of competitive products from abroad or over exploitation of land by productive systems controlled by de-territorialized financial interests (Akram-Lodhi, 2007; Van der Ploeg, 2018). In a world that simultaneously and permanently shows low growth rates and high returns on capital, the divergent forces that prevail in capitalism amplify wealth inequalities and social exclusion (Piketty, 2014). This form of globalized economy not only delocalizes production, leaving the poorest excluded, it also promotes a budgetary approach to territorial management that impoverishes the rural world socially, economically and environmentally. Its current version, preferably virtual, is even more distant from local realities and requires the recreation and co-construction of alternative approaches to sustainable territorial development.

To address the vulnerabilities in the economic sector, there is a renewed interest in natural and social capitals, which are inherently rooted in local territories and thus can offset certain negative impacts of globalization. Furthermore, natural and social capitals show many interrelations – partially encapsulated in the term ‘biocultural’ – and therefore can reinforce each other and generate synergies for action (Hanspach *et al.*, 2020).

These natural and social resources are critical to peasant agriculture. Sustainably produced and transmitted by peasant farmers for millennia, these forms of capital make up the biocultural heritage of agriculture often in the form of tangible or intangible commons such as land, genetic resources, local knowledge, collective norms, etc. This shared

heritage suffered an accelerated depreciation throughout the 20th century, accompanied by the increasing marginalization of peasant agriculture for the benefit of the agro-industrial sector (Boege, 2015). However, with the successive economic crises in the agricultural and agri-food sectors (Ioris, 2016), several authors argue that natural and social capitals have great value and potential to ensure the sustainability of these activities vital to the global society (FAO *et al.*, 2021; Milbank *et al.*, 2021). Several different approaches advocate strengthening these synergies between nature, society and economy for sustainable agriculture, including nature-based agriculture (Sumberg, 2022), holistic management (Gosnell *et al.*, 2020; Hawkins *et al.*, 2022) and regenerative agriculture (Gordon *et al.*, 2022).

As a repository of biocultural heritage, peasant agriculture could be recognized for its value and role in ensuring food sovereignty and security, as well as the overall socio-ecological sustainability of territories. We posit that collectively strengthening the natural and social capitals of peasant agriculture will increase their autonomy and thus reduce the economic and environmental costs of food and commodity supply chains in the global society. At the same time, strengthening peasant agriculture could improve both its autonomy and its participation in productive and commercial chains of food and goods. To account for this increased prominence, international agencies involved in poverty reduction have developed the concept of inclusive business (Kelly *et al.*, 2015). This concept is discussed in relation to the structural adjustment policies of the 1990s and is sometimes restricted to the inclusion of those at the ‘base of the pyramid’ as mere suppliers of raw materials or labor power (Hahn, 2012; Guarín *et al.*, 2022). However, we argue that market inclu-

sion can also be based on socio-ethical values that support a genuine bottom-up process for the social and economic advancement of small producers, reducing inequalities with the rest of society through transformation towards greater justice, solidarity and participation in the conditions of production, marketing and consumption.

In this article, we focus on the expansion of the role of peasant producers in the supply chains and consumption circuits of global society. Our analysis is based on two sets of concepts and methods detailed below. In the conceptual plan, the notions of social capital, biocultural heritage, and commons are mobilized in relation to the model of ethical socio-economic inclusion. In the operational plan, we used the approach of participatory action research to guide the set-up, accompaniment, and post-project analysis of three action research initiatives with peasant communities in South America.

2. Conceptual bases

2.1. Social capital and socioeconomic inclusion

Following the culturalist school, we consider social capital as the sum of collective resources such as networks, knowledge, and trust that facilitate coordination and cooperation for the mutual benefit of the members of a social organization (Siisiäinen, 2003; Durlauf & Fafchamps, 2004). Thus, we leave aside the structuralist conception of social capital as essentially an individual resource resulting from participation in elitist networks (Bourdieu, 1980). In the latter view, social capital is an individual resource that reinforces the effects of domination of

economic and cultural capitals with the consequent exclusion of those at the bottom of the social pyramid. On the contrary, social capital as a collective resource can mitigate the effects of economic and cultural domination (Siisiäinen, 2003). Aiming for mutual benefit, social capital serves to socially and economically include farmers who, through grouping, cooperating and activating their biocultural capital, agree on production objectives and norms, generate production volumes, and thus strengthen their commercial capacity and economic protagonism (Grivins & Tisenkopfs, 2018). The social capital accumulated by peasant producer communities appears to be the key to building a redistributive model that improves both their income and socio-economic inclusion (Macías Vázquez & Alonso González, 2015). Short trade circuits are examples of such inclusive, stable, and fair arrangements by which peasant farmers can access even globalized markets while maintaining some control over their production (Davies & Ryals, 2010; Grivins & Tisenkopfs, 2018). Activating the symbolic value of their biocultural heritage through product labeling is another way for peasants to possibly gain social recognition and inclusion, while strengthening the protection and sustainability of their cultural and natural capitals (Van Hulst, 2015; Essex & Read, 2016).

Considering these social issues of sustainability, we have developed the concept of ‘inclusive sustainability’ to emphasize the social dimensions of responsibility, agency, and equity as ethical drivers for the environmental issues of natural capital management. In fact, the visions, decisions, and actions of all human groups play an important role in the use and sustainability of natural capital (Beddoe *et al.*, 2009; Arias-Maldonado, 2015). Sustainability thus requires social equity, since inequality and so-

cial exclusion lead to imbalances and tensions that, along with economic uncertainties, favor short-term agreements rather than the long-term consensus essential for sustainability. Including the multiple cultural and intergenerational dimensions of human-environment relations is essential to address the complex issues involved in the sustainability of these relations.

2.2. *Biocultural heritage*

Biocultural heritage comprises a set of natural resources –from genes to landscapes– as well as knowledge and practices related to the historical and ecological context of human societies (Gavin *et al.*, 2015). These societies are not exclusively represented by indigenous populations: the inhabitants of highly transformed rural areas and urban environments also develop worldviews and livelihood strategies that are linked to local biodiversity and therefore produce a biocultural heritage (Sterling *et al.*, 2017; Hanspach *et al.*, 2020). Whether tangible or intangible, biocultural heritage is both a heritage of the past (even recent) and a legacy for the future. This value of transmission between the past and the future makes heritage a transgenerational object which embeds a component of sustainability (Winkel *et al.*, 2020). Furthermore, biocultural heritage objects – for example: handicrafts, vernacular architecture, or gastronomy– are also distinctive of the territory and, because of this, are vectors of social identity for the peasant communities who live there. At the same time, they constitute opportunities in their territorial and economic dynamics (Núñez-Carrasco *et al.*, 2021), both locally

in tourism, farmers fairs, or community supported agriculture, and non-locally in external markets.

As part of the biocultural heritage for millennia, peasant agriculture meets humanity's food needs, shapes rural landscapes, generates and maintains agrobiodiversity. It has recently been recognized by international organizations –MERCOSUR included family farming in its agenda since 2005, and FAO declared 2014 the International Year of Family Farming. It is also recognized by consumers, who express a continuous demand for food with quality or origin certificates (Autio *et al.*, 2013). However, peasant agriculture remains marginal in public policies, which mostly continue to favor individualism and the fragmentation of family farms to the benefit of the agribusiness sector (Murray, 2002). Human and environmental health are sacrificed for the sake of short-term profitability, while the pillars of sustainable agriculture – land and water, biodiversity, local knowledge, and social cohesion – are made vulnerable (Gosnell *et al.*, 2020). For its part, the agro-industrial sector is discovering its own vulnerability to the crises it generates (zoonoses, soil degradation, water pollution and restriction, pollinator extinction, farmers indebtedness, speculation, etc.), not to mention its social and aesthetic impacts (proletarianization of farmers, rural exodus, consumer distrust, destruction of amenities, etc.) (Ioris, 2016).

2.3. *From commons to commoning*

Commons are often considered as simple material or immaterial shared resources such as water, land, seeds, or artistic designs, working techniques, traditional knowledge, etc. These commons differ

from private goods (i.e., exposed to rivalry and exclusivity among users) and from public goods (without rivalry or exclusivity) because they are rivalrous but not exclusive (at least within a community). However, considering that the previous definition ignores the social and dynamic dimensions of common goods, some authors stress that there is no common without community (Ostrom, 1990; Merino Pérez, 2014). Thus, a common is not only a resource, but also the set of rules and values mobilized by the community that cares for that resource (Gibson-Graham *et al.*, 2013; Bollier, 2021). The expression 'commoning' has been coined by Bollier (2021) to include the dimensions of production, governance, culture, and personal interests that are mobilized by responsible local communities for the dynamic management of shared resources.

To govern the commons, commoning seeks to avoid both the traps of mercantile and unsustainable selfishness and the difficulties of inflexible, remote, and bureaucratic – if not corrupt or corporatist – institutional control (Bollier, 2021). In particular, supporting institutions – governmental or otherwise – prone to the 'pathology of command and control' (Cox, 2016) should avoid undermining the autonomy and empowerment of responsible local communities since countless examples of commoning – from land and water for cultivation to open-source technologies – disprove the purely theoretical case envisioned by Hardin (1968) of actors who, unable to communicate and driven by their self-interest alone, would over-exploit an unrestricted resource.

Commoning brings ethical social inclusion since it requires cooperative governance and, thereby, builds a space for trust and reciprocity (Ostrom, 1998). It also empowers local actors through col-

lective learning of common skills in management, negotiating, marketing or communication.

3. Methods and areas of action

We used participatory action research to mobilize the notions of biocultural heritage and commoning in processes of action research aimed at the inclusive sustainability of peasant farmers in local or regional contexts in Argentina, Bolivia, and Chile.

3.1. Participative action research

To improve the capacity of local producers to decide and act together to change their reality, participatory action research (PAR) promotes dialogue between science and society to co-construct knowledge and sociotechnical innovation from an ethical perspective to empower local actors (Wittmayer & Schöpke, 2014; Biggs *et al.*, 2021). The model of social work with rural communities makes it possible to ground a complex understanding of the territories in different scales and time frames in order to build social situations that dialogue with the triad of civil society, the State and the market.

Even if a PAR process has been originally conceived by academic actors, it needs to be flexible in the face of possible change in the original project goals, since local stakeholders – and not just beneficiaries or passive subjects – are protagonists in the implementation, evaluation and possible projections of the PAR. This “constructive friction” between different actors’ rationales and goals is a fundamental condition of interactive, non-linear processes of socio-technical innovation, while

it also expresses the ethics of science for action. The same constructive friction between different cultures operates in the dialogue between the social and natural sciences, and is another valuable contribution made by PAR to interdisciplinarity, something essential for understanding the complexity of socio-environmental systems.

Our approach to socio-environmental complexity is both systemic – seeking to identify the structures that determine social action – and constructivist – analyzing society as a product of social action. In the end, the innovation by which a change in reality takes place can be more or less radical, from a simple adaptation to a changing local or foreign context, to the creation of an unprecedented socio-economic or territorial device.

Through the articulated work between communities, technical and academic bodies, the three PAR cases presented here have sought to promote the valorization of agricultural products that have an unquestionable heritage character, including quinoa (*Chenopodium quinoa* Willd.), an ancestral grain from the Andean highlands and the Chilean coast, present in all three case studies. In each community, the objective to valorize quinoa and other agricultural products was presented at public meetings, making it clear that this was a fully negotiable proposal that needed to be agreed upon in the interests of the community. We followed an ethical approach to co-production research (Étienne, 2014; West & Schill, 2022). Through multiple meetings – some individual but most collective –, workshops, feedback sessions and, in some cases, role playing games, a dialogue developed and diverse perspectives were discussed (for details, see the description of each case study in section 4).

3.2. *Quinoa in the context of the Southern Andes and Central Chile*

Quinoa offers exemplary cases for an analysis of the issue of the inclusion of peasant farming through the valorization of biocultural heritage. This ancestral grain is emblematic of the valorization of agri-food heritage in Bolivia since the 1970s (Winkel *et al.*, 2014, 2016; Barrientos *et al.*, 2017) and more recently in neighboring countries such as Chile and Argentina (Núñez Carrasco & Bazile, 2009; Andrade *et al.*, 2015; Lacoste *et al.*, 2017). In fact, quinoa has been globalized by the media as a superfood, healthy (high in protein, gluten-free) and authentic (sometimes under the controversial slogan of “Inca rice”¹). Its production process, by mostly organic, small producers, further increases its appeal to consumers. While the success of quinoa has enabled many small-scale producers to gain access to the global market and thus achieve economic and social inclusion, it also poses real or potential environmental, social, and economic risks that could lead to the exclusion of small-scale producers to the benefit of economic actors better equipped to deal with these risks. In fact, there has been a proliferation of actors (the State, development agencies, NGOs, transnational corporations, etc.) each with different motivations and priorities, who question the relative control of small producers and their organizations over quinoa’s production and marketing (Zandstra, 2015).

The growing complexity of the quinoa production chain has led to reflections on economic models that are inclusive of peasant producers and provide social, environmental, and economic benefits for all actors in the value chain. Studies focusing on Bolivia and Peru – the world’s leading quinoa exporters – point to producer associations and partnerships among producers, processors, marketers and consumers as levers for an inclusive model (Padulosi *et al.*, 2014; Zandstra, 2015; Böhm, 2016; Bedoya-Perales *et al.*, 2018).

In Bolivia, whose quinoa exports dominated the world market for more than four decades beginning in the 1970s, quinoa production remained in the hands of small farmers’ organizations and received only late support from the State (Laguna, 2011; Zandstra, 2015). In Chile and Argentina, the recent rescue of quinoa has been driven by State institutions that provided technical assistance, training and credit, and involved not only small producers but also a dynamic agribusiness sector (Andrade *et al.*, 2015; Vidueiros *et al.*, 2015; PUC, 2017; Golsberg, 2021). Despite this socio-economic contrast, in all three countries the industrial-productivist model still predominates in the agricultural economy, and peasant family agriculture remains marginal in terms of GDP and exposed to structural conditions of poverty and social exclusion (Contreras *et al.*, 2014).

Our proposal, drawn from a perspective that included sustainable and ethically inclusive agriculture, was to collectively activate the biocultural heritage to strengthen identity and social cohesion

¹ The commercial slogan “Inca rice” is inappropriate because: i) unlike rice in the Asian or African diet, quinoa has never been the staple of the Andean diet, a role played by maize and potatoes; ii) in various regions of the Andes, quinoa was domesticated several thousand years before the arrival of the Incas; iii) in terms of nutrition, quinoa, a pseudocereal rich in proteins, should not be considered just as a starchy food like rice or other cereals.

and therefore, the social and economic inclusion of the peasant sector. By analyzing, within the same theoretical framework, three territorial experiences of social capital mobilization motivated by the promotion of quinoa production, but following different paths and purposes, we sought to identify the common rationales activated by local actors and institutions to promote agricultural biocultural heritage for the benefit of peasant communities. In terms of participative research, we set out to provide local producers with tools to:

- i) evaluate the options for valorizing their biocultural heritage in the current context, and
- ii) access commercial channels and markets that value products with a biocultural heritage identity.

4. Results

Table 1 provides an overview of the main characteristics of the three case studies developed below according to the chronology of their socio-territorial dynamics, namely: since the 1970s for the Bolivian case, the early 2000s for the Argentine case, and the year 2017 for the Chilean case.

4.1. Case 1: Salar de Uyuni, Bolivia

4.1.1. Geographic and social context

The following observations and data describe the situation in the area with the highest commercial

quinoa production in the world between 2007 and 2010, as analyzed in the framework of the Equeco project (from the acronym in Spanish “Emergencia de la quinua en el comercio mundial”).

This area is located in the southern highlands of Bolivia, on the banks of the Uyuni Salt Flat (hereinafter “Uyuni”), where plains at 3,600 masl alternate with volcanic reliefs reaching to over 6,000 masl. This extreme high desert environment has been occupied for millennia by farmers who raise camelids and grow quinoa and potatoes (Cruz *et al.*, 2017). Generally, pastures are located on the plains, while crops were traditionally grown on hillsides, where they are less exposed to frost (Pouteau *et al.*, 2011).

In Bolivia, since 2006, a leftist nationalist policy has sought to reduce poverty in the rural sector, in particular through legal recognition of community lands and the creation of electricity, telephone and road infrastructures (Vieira-Pak, 2015; Vassas-Toral, 2016). At the same time, a national agricultural policy was launched in favor of high Andean production of camelids and quinoa. But this happened more than 30 years after the first peasant initiatives – supported by foreign NGOs – took the gamble in the early 1970s to create an export market for quinoa to the northern hemisphere² to offset the social impact of the country's economic situation at that time (Laguna, 2011; Walsh-Dilley, 2020).

Despite its extreme geographical conditions, this high-altitude desert was traditionally connected to the Andean “archipelago” (Murra, 1985) by the intense trade in salt, minerals, wool, quinoa, and meat from the Uyuni area in exchange for corn,

² A substantial and largely informal export market to neighboring Peru has existed since ancient times and continued during the Equeco project observation period (Laguna 2011).

coca, cloth, etc. from the Andean valleys and the Pacific coast. These exchanges correspond to an ancestral practice of temporary migration either for commercial caravans or for seasonal work in mines, agriculture, and distant cities. Common land tenure, with community use for pastures on the one hand, and family usufruct without private land property for crops on the other hand (Vassas-Toral, 2016), confers a degree of social equity in access to land. Because of the absence of a land market, this common land tenure system still in force today protects communities from the risks of excessive land concentration or grabbing by foreigners (Winkel *et al.*, 2016).

The global success of commercial quinoa production that began in this region in the early 1970s has generated a strong territorial dynamic due to:

i) the partial mechanization of quinoa cultivation, which required converting to crops of a large part of the flatland pastures, the only spaces accessible to tractors,

ii) the replacement of the distant and prolonged emigration of the inhabitants by various forms of seasonal mobility to nearby urban centers which, for many quinoa producers, have become their main place of residence.

This territorial dynamic did not develop at the same speed everywhere: the northern (Intersalar) and southern edges of Uyuni have long been pioneers (Laguna, 2011; Walsh-Dilley, 2020), while the western edge resisted until 2010-2014, continuing to favor camelid herding over farming.

During the observation period (2007-2010), there were approximately 12,000 quinoa-producing families living in the study area, most of them

with a deep Aymara or Quechua cultural identity (Vieira-Pak, 2015; Vassas-Toral, 2016). This factor of social cohesion can be seen, among other traits, in the rotating positions by which each member of the community in turn assumes responsibilities of common interest. For each producer, complying with these community obligations and paying the local land taxes guarantees his right to access the land, even if his residence in the community is intermittent (Vassas-Toral, 2016).

In relation to this lively tradition of self-management and participation in collective life, local populations have demonstrated their organizational and negotiating capacity by forming, with the incentives of European NGOs, powerful associations of thousands of family producers such as CECAOT (*Central de Cooperativas Agropecuarias Operación Tierra*, founded in 1974) or ANAPQUI (*Asociación Nacional de Productores de Quinoa*, founded in 1983) to promote the production, processing and marketing of quinoa, including exports to new niche markets with organic and fair trade certifications (Laguna, 2011; Tschopp, 2018). This export marketing, mainly focused from the outset on sales in solidarity channels and fair-trade shops in Europe, North America and Japan, has expanded since the 2000s with large volume sales in the supermarkets of multinational chains (Laguna *et al.*, 2006), in a transition to a broader scale similar to that of other smallholder products such as coffee (Guerrero-Jiménez & Herrero-Hernández, 2021).

As a result of their success in commercial quinoa production, local producers have promoted a rebalancing of regional territorial development, investing their new income not so much in rural communities but rather in nearby cities – Salinas de Garcí Mendoza, Llica, Uyuni, Challapata, Oruro,

etc. – where life is more attractive to their families. In particular, the services of education, health, electricity, water, transport, and connection in the urban area allows them to improve their children's training and professional insertion compared to the rural area (Vassas-Toral, 2016).

To limit the socio-economic risks inherent to agricultural production in an extreme environment, local populations maintain ancestral life strategies based on agricultural and non-agricultural, local, and non-local multi-activities. Taking advantage of their dual residence between the countryside and the city, most families combine two or more activities in agriculture and livestock, crafts, transport, trade, mining, urban jobs, tourism, etc. (Vassas-Toral, 2016). Among their agricultural activities, families continue to produce quinoa and potatoes for self-consumption while camelid and sheep breeding – less profitable and hardly compatible with urban residency – have decreased to the benefit of commercial quinoa cultivation. Craft activities (wool weaving) and tourism (accommodation, driver-guide) remain marginal. The main non-agricultural activities take place in the city where families, especially those with children in school, prefer to live. Non-agricultural income provides a guarantee against the volatility of the quinoa export price, which peaked in January 2014 (about 6,000 USD/ton) and then stabilized at around 1,200-1,600 USD/ton (MERCADERO, 2015). The price guarantees offered by multi-year fair trade contracts show their limits here because, while small producers are protected against inter-annual falls in market prices, their contracts also limit increases from one year to the next, which prevent them from benefiting from any surge in international market prices. The number of affiliated producers benefiting

from these fair-trade contracts varies greatly from one locality to another, ranging from 80-90% of the farms in the most remote areas, to just a few in areas better connected to conventional trade circuits (Tschopp *et al.*, 2018).

While assessing the income of farming families remains hazardous, a survey of 36 households in the study area in 2007 (when the quinoa producer received a price of about 750 USD/ton) shows the large disparity within the same community, with incomes ranging from 200 to 18,000 USD/year (Winkel *et al.*, 2016). This disparity in household income, also observed by other authors (e.g. Laguna, 2011), reflect differences in social status (e.g. single mothers vs. extended families) and inequalities in economic power, both of which influence access to land since, in the region, the inheritance of land is generally patrilineal and the extent of cultivated land depends on the ability of individual producers to hire manual labor or a tractor to till and sow the land.

4.1.2. Equeco: a participative project of action research

The Equeco project was launched in 2007, more than three decades after the start of quinoa production for export in the Uyuni region, a process that dates back to late 1969 when European NGOs supported the arrival of the first agricultural tractors (Laguna, 2011). Asking about the sustainability of a process that has been underway for more than 30 years, the project researchers examined the social and environmental history of local quinoa production (for more details, see Winkel *et al.*, 2020, 2016, 2014). A first part of the study examined the life

histories and territorial mobility of 170 members of 5 communities in the Uyuni region (Candelaria de Viluyo, Chilalo, Otuyo, Palaya, San Juan de Rosario) (Vassas-Toral, 2016). In addition, the study focused on territorial dynamics and community responses to the expansion of quinoa cultivation in 4 communities (Jirira, Mañica, Palaya, Copacabana) (Vieira-Pak, 2015, 2012). Researchers gained access to these communities through the NGO AVSF (Agronomists & Veterinarians Without Frontiers), involved in a regional project on sustainable management of local agro-pastoral systems. Based on the social and environmental assessment of quinoa production in the area, the researchers supported the communities and the NGO in a process of consensual redefinition of community standards for access and use of land (AVSF, 2010). This renewal of collective territorial rules, which existed in the oral tradition but had to be reactivated and formalized in writing, was an innovation that was essentially adaptive to the new reality of the commercial surge in quinoa. These new land-use norms, including extended fallow periods and living barriers of native vegetation, were negotiated and initiated in the communities studied during the project observation period (2007-2010), but were not always implemented in a sustainable manner nor throughout the Uyuni region (Walsh-Dilley, 2020).

Regarding participation, in addition to a long period of participant observation in farm and community activities (see Vassas-Toral, 2016, for details), the project methodology was also based on role-playing workshops followed by group sessions to discuss with the participating producers what happened during the game and analyze the similarity between the game and reality. These role-playing workshops followed a companion modeling approach

(Étienne, 2014) and were held in each of the four study communities of the territorial dynamics (see Vieira-Pak, 2015, 2012, for details). In terms of action, the researchers issued recommendations for local development agents (producers, authorities, NGOs) and accompanied the process of renegotiation between producer organizations and international certification entities such as FairTrade International on new fair-trade standards for quinoa (Salliou, 2011).

4.2. Case 2: *Quebrada de Humahuaca, Argentina*

4.2.1. *Geographical and social context*

The Quebrada de Humahuaca (hereinafter “Humahuaca”), in the northwestern province of Jujuy, is a territory of great symbolic importance to Argentina’s social imaginary. It combines an imposing mountain landscape with ancient and uninterrupted links with the cultural trajectories of its Andean neighbors, Bolivia and Chile. The rural communities of Humahuaca have their origin in the demographic concentrations (the colonial *reducciones*) forced by the Spanish crown to facilitate the Christianisation and tax control of the indigenous populations. This process did not prevent the territory from remaining mainly under the administration of the indigenous communities themselves until the declaration of independence and the establishment of the Republic in the 19th century, when new laws of liberal inspiration promoted the distribution of lands to private smallholders. As a consequence of this historical process, both individual and collective land control mechanisms coexist until today in Humahuaca, with

different degrees of validity according to the norms prevailing in each locality.

Until the end of the 19th century, the Humahuaca Valley was a communication and commercial route, and produced fodder for the maintenance of the cattle troops and the mule trains that circulated between the Andean mining centers in the north or west (including Bolivia and Chile), and the ports of the Rio de la Plata. At the beginning of the 20th century, it was reputed as a fruit producing region and then, from 1980 onwards, as a center for vegetable production to supply the urban markets of northwest Argentina. During all these moments, the local farming families never stopped maintaining a parallel agricultural activity aimed at self-supply or barter in a multiplicity of traditional products, such as corn, creole wheat, creole barley, quinoa, Andean tubers, legumes, fruits, sheep and goat cheeses, or *charqui* (dry meat).

The continuity of the original population since pre-Hispanic times and its recent yet vigorous ethnic re-emergence, the vitality of traditional artistic and ritual expressions, the importance of its archaeological sites for the interpretation of pre-Hispanic cultural trajectories, their architecture and sacred art linked to successive American Christian traditions, and their leading role during the period of American independence, led to the Quebrada de Humahuaca being declared a World Heritage Site in 2003 (UNESCO, 2003). The traditional agricultural practices then underwent an ambiguous process, due to the increase in land property prices on the one hand, and tourist and gastronomic development on the other. One consequence of this process has been the demographic concentration in the urban peripheries of populations coming from the surrounding rural areas, and the consequent incorporation of

peri-urban activities into the occupations of traditional rural families (Braticevic, 2021; Cladera, 2022).

4.2.2. The PRODERI project “Rescue and revaluation of organic quinoa production” as a participatory action experience

Beginning in 2008, the global surge in quinoa cultivation and its repercussions among the Bolivian high-Andean communities, led a conglomerate of public and private organizations in Jujuy province to incorporate into this process the local rural areas, which like their Bolivian counterparts have preserved quinoa agricultural traditions. This enthusiasm initially crystallized in a public-private program. The Program for Strengthening Quinoa in Northwest Argentina was based on a methodology inspired by certain Bolivian experiences, including skill-based training that replaced the classical pedagogical process with theoretical and practical knowledge generated through on-site workshops in which two co-authors took direct part to facilitate the development of participative research action experiences (Golsberg, 2021; Cladera, 2020a, 2022).

Under this methodological premise, various local experiences have been consolidated since 2013, articulating technical teams from public institutions with social groups in various Andean territories in northwest Argentina. In Humahuaca, the experience that has shown the greatest validity and continuity over time was facilitated by an indigenous peasant organization, the Union of Small Aboriginal Producers of Jujuy and Salta (UPPAJS). It received the cooperation of both technical staff from the Secretary of Family Agriculture (SsAF) of the Ministry of Agriculture, and academic staff

from the Interdisciplinary Institute of Tilcara, a research center of the University of Buenos Aires. The initial assessment suggested that, in order to achieve marketable volumes of quinoa in the region, it was necessary to consolidate family farming as well as to speed up the post-harvest processing of the grains through its mechanization. This is how the project Rescue and Revaluation of Organic Quinoa Production came about, which was presented to a national funding portfolio called the Program for Inclusive Rural Development (PRODERI). This project was designed to benefit 40 peasant families from 14 different rural communities in the department of Humahuaca. It was formulated and implemented under the sponsorship of the Mallku Andina Foundation between August 2014 and July 2016, consolidating an associative group – the *Quineros de la Quebrada de Humahuaca* – that is still active today.

While the Program to Strengthen Quinoa in Northwest Argentina aimed to achieve competitive marketable volumes in national and international grain markets, its top-down approach came up against very divergent local criteria regarding the values placed on agricultural diversification. The *Quineros de la Quebrada de Humahuaca* Group gained legitimacy by adopting a participatory action methodology, which allowed the technical proposals to be adapted at any time to the priorities decided in the farmers' assemblies (Golsberg, 2021). After a few initial attempts at collective marketing, the Group decided to prioritize the consolidation of each family farm rather than sales strategies. The scale of local production and native expectations – which were more concerned with ensuring the survival of ancestral agricultural varieties than with obtaining quick profits – were better conveyed through

traditional systems of food exchange (seed fairs, *cambalaches*, i.e. barter of work for seed on a local scale) than through the management of large-volume markets (Cladera, 2022). Thus, the enthusiasm for a program to stimulate quinoa production was explained less by an economic interest than by the demand for local cultural identity, and in line with this, for access to material conditions to improve the agricultural activity of each family. Concretely the project led to the co-design and collective acquisition of a quinoa threshing machine whose use was defined by a consensual protocol (Annex n°5 in Golsberg, 2021). In addition to a monitoring committee and a usage coordinator, this protocol provided for the intervention of *operarios*, young people responsible for the maintenance and operation of the thresher. Finally, the associative group constituted the most important human nucleus – because of the number of members, the territorial expansion, and the experience in collective action it provided – of a new space for corporate representation of quinoa producers throughout the region: the Quinoa Producers' Table, which involves 83 peasant families from three departments in the province of Jujuy.

4.3. Case 3: Lipimávida, Chile

4.3.1. Geographical and social context

Lipimávida, a small town on the Pacific coast, is located in the commune of Vichuquén, in the Maule Region of central Chile. In 2010, according to the national policy for isolated localities, Vichuquén was the most isolated commune in the Maule Region, in critical conditions for access to services, education and economic capacity for consumption

(Cubillos-Celis *et al.*, 2018). The February 2010 earthquake and tsunami were devastating in Lipimávida. Subsequently, this exiguous coastal area – inhabited although not buildable according to civil security standards – experienced a strong territorial dynamic with the multiplication of constructions and tourist lodges on previously cultivated coastal land and the building of a new district in an upper sector of the town.

The coastal sector is a resort area that offers long beaches, with a settlement of inhabitants traditionally dedicated to family agriculture and handicrafts in ceramics (*gredas*) and looms typical of the area. The location at the end of the J-60 coastal route gives Lipimávida a certain uniqueness and isolation that is especially attractive for tourists looking for peaceful seascapes and a pleasant Mediterranean climate.

Among the gastronomic attractions of the town is the papaya (*Carica* sp.), whose high stems crowned with broad leaves are part of the local landscape in courtyards and orchards. With these fruits, women prepare preserves, jams and desserts that, together with the country cuisine, characterize the table of Lipimávida. The successful experience in the production, transformation, and commercialization of papaya has proved very useful when it came to launching a pilot project around the local biocultural heritage.

Quinoa is another important crop in the memory of the people of Lipimávida. Its annual harvest ensured food for the winter in the times of their parents who remember the agricultural practices of sowing, harvesting and post-harvesting, especially the desaponification known as “seven waters” a task handled by women (Cubillos-Celis *et al.*, 2018). When asked about the reasons for

the decline in quinoa consumption, producers and consumers cite the time and labor required for this processing. Therefore, although quinoa has been part of the local diet and history, nowadays few farmers produce it and few people consume it. However, with the growing reputation of quinoa as a superfood in the media, the inhabitants of these rural areas are beginning to recover it as part of their traditions, seeing this as an opportunity to improve and diversify their family income.

At the regional level, extensive forest monocultures, water scarcity, arable soil pollution, rural and urban landscape degradation, recurrent droughts and wildfires are associated with an economic and social model that destroys the natural and cultural heritage. However, there is growing awareness of biocultural heritage as an economic resource for tourism, which is illustrated by the architectural restoration of the ancient town of Vichuquén after the 2010 earthquake (Cruz, 2014) and the agreement for the local watershed management implemented since 2017 by the Agency for Sustainability and Climate Change.

In Lipimávida, despite the individualism that underpins the institutional and political context of elective democracy, widespread private property and a neo-liberal economy, the vitality and cultural identity of local associations generate a high degree of solidarity and social cohesion among their members. Some people in Lipimávida also have experiences of international commercial exchange, such as the marketing of papaya to Belgium (carried out through an alliance with a Fairtrade labelled farmer's company) and the promotion and sale of loom crafts in several European countries.

4.3.2. Baquiana: a participative project of action research

The creation of the pilot project was a process of co-construction between researchers and local stakeholders. In June 2017, based on a proposal by the Baquiana research team (from its acronym in Spanish Social and Ecological Bases for the Participatory Management of Quinoa Genetic Resources in Family Farming Communities in the Maule Region), a collaborative relationship developed and involved the exchange of knowledge and experiences with a group of a dozen local inhabitants, mostly women. This process of social innovation and inclusion took place in four workshops held between June and November 2017, a period in which the researchers convened, listened to, and brought together networks and experts appropriate to the local reality. On their side, the participating producers felt the need to unite individual enterprises, as some members of the group, with previous experience in production and sales, had expressed interest in carrying out collective actions and installing their products in the locality.

Focusing on quinoa production, a preliminary diagnosis established the heritage character of this product in the area and, in addition, its potential for the economic inclusion of peasant families (Cubillos-Celis *et al.*, 2018). However, during the participatory consultation with local producers, the initial focus on quinoa set by the researchers was redirected and refined towards the valorization of other food and craft products of local peasant biocultural heritage, namely: papaya, weaves, ceramics, medicinal plants. In fact, local actors expressed that although most of them did not grow quinoa,

their problem was not the rescue of this crop, since they could buy quinoa from other communities, particularly from the neighboring region of O'Higgins (Núñez Carrasco & Bazile, 2009; Lacoste *et al.*, 2017). In addition, in their meeting with an expert in quinoa threshing and desaponification invited at the second workshop, they were convinced that cleaning the grain is a complex process and that it was better for them to buy quinoa from other producers. Similarly, after the third workshop to which a socio-economist expert in the co-design of agricultural development projects was invited, they felt that, for them, the innovation of producing quinoa as a vegetable (Sáez-Tonacca *et al.*, 2018) was still premature and risky. On the contrary, they saw a promising opportunity in the proposal by the same expert to activate their local production and human capacities through short value chain trading.

After analyzing their strengths and weaknesses, and based on their previous experience with the production and sale of papaya and handicrafts, the local actors decided at their fourth meeting to value quinoa and other heritage products through an open-air market (*feria libre*), taking advantage of the presence of tourists in their resort during the summer season and long weekends. In this way, two of their main objectives were met: the valorization of their resources and local knowledge, and to meet with consumers.

From the beginning, the researchers prepared the articulation of interests, positions, and wills with regional and local actors of the State and the market. In this way, it has been possible to meet the basic conditions for having professionals from the Local Development Program (PRODESAL), part of the National Institute for Agricultural Development (INDAP). This was possible thanks to the support

of the authorities of the Commune of Vichuquén. Both the Mayor of Vichuquén and the professionals of PRODESAL showed flexibility in welcoming

this unexpected citizen and academic initiative and included it in their agenda and supported it with dedicated time and socio-technical knowledge.

TABLE 1 – Main descriptors of the three case studies.

Item	Case 1: Uyuni	Case 2: Humahuaca	Case 3: Lipimávida
Geographic territory	Area surrounding the Salar de Uyuni (Potosi and Oruro departments, SW Bolivia), semiarid region of ancestral commercial production	Quebrada de Humahuaca (Jujuy province, NW Argentina), dry Andean valley, world heritage and tourist area	Locality of Lipimávida (Vichuquén municipality, Maule region, central Chile), coastal dryland of tourist interest
Biocultural heritage	Quinoa Real	Quinoa and traditional agrosystems	Local processed foods, medicinal plants, wool crafts, ceramics
Organisation name	CECAOT, ANAPQUI	Grupo Asociativo los Quineros de la Quebrada de Humahuaca	Feria Patrimonial de Lipimávida
Producer organisation	Regional producers associations and their national federations	Producers association and territorial boards	Informal group of farmers and artisans
Participant type	Producer associations, NGOs, neighborhood councils, municipalities	Smallholder farmers living in indigenous peasant communities	Mostly women farmers
Number of participants	several thousands	40 people in the producers association, 83 in the board of territorial organizations	12 people in 2017, 15 in 2022
Type of agriculture and land tenure system	Peasant agriculture with collective control on land access and use	Peasant agriculture with tradition in partial collective land tenure	Peasant agriculture with full private land property
Related institutions	Municipalities, international NGO (AVSF), and foreign research institutes (IRD and Equeco consortium)	Cluster of local and regional institutions, Ministry of Agriculture (SsAF), University (UBA)	Municipality, University (UCM), Ministry de Agriculture (INDAP, PRODESAL) and foreign research institute (IRD)
Markets	National and international niche markets of health, gluten-free, organic, fairtrade food	Local consumption fairs (seed fairs, peasant fairs, barter fairs)	Touristic fairs of local foods and crafts
Labels and certifications	Organic and/or fairtrade certifications based on international standards	Family Agriculture label in process of being obtained	n/a
Public policy	Promotion of the national quinoa export industry	Promotion of national and regional quinoa production and farmer's markets	Promotion of farmer's markets
Main bibliographic sources	Laguna, 2011; Winkel <i>et al.</i> , 2012, 2016, 2020	Golsberg, 2021; Cladera, 2022	Winkel <i>et al.</i> , 2020

SOURCE: The authors

Since its inauguration in January 2018, the Lipimávida Heritage Fair (*Feria Patrimonial de Lipimávida*) has been operating regularly, not only during the summer season, but also whenever tourists are received. In this way, the members of the group are fulfilling a commitment that makes sense for their interests and capacities, preparing their handicrafts and harvesting their vegetable gardens to offer affordable, fresh and innovative products to the diverse public that visits them. By combining different products in a unique offer, the heritage character of these local agricultural and craft products has been enhanced, making public the knowledge and know-how of the inhabitants of Lipimávida. The change in the initial objective of the project reflects the caution of local actors in the face of the uncertainties of the local production and market for quinoa as well as a certain pragmatism which induced them to “work with what is there” to quickly realize their project. However, caution and pragmatism did not prevent creative innovation with an unprecedented heritage product fair. While giving satisfaction to its protagonists in the economic plan, the fair was also constituted as a meeting place between producers and consumers, between the countryside and city. This need for a direct link between producers and consumers is so strong that it was renewed as soon as the containment measures related to the COVID-19 pandemic were loosened.

5. Discussion and conclusion

The three cases presented here illustrate how the mobilization of social capital by farmers can contribute to the inclusive sustainability of their communities, particularly by promoting their com-

mon biocultural heritage of food and craft production. Mobilizing social capital requires cooperation and self-organization among producers, which are also essential to the process of commoning, and which can lead to more or less formally constituted local groups (cases 2 and 3) or to the formation of powerful national associations (case 1). Although social capital mobilization and commoning are essentially local processes, they take place in a wider context of public policy – or lack of it – which we will discuss before examining their local ins and outs. From this, we will propose a conceptual outline for a strategy of inclusive sustainability for peasant agriculture activating biocultural heritage, social capital, and commoning.

5.1. Social capital and public policy for empowerment and social inclusion of peasant farmers

Social capital is the asset that enables the collective action of communities (Durstun, 2000) but, like other types of capital, it is not equally distributed in society. The initial endowment of social capital is related to cultural environment and history and the creation of cooperatives or associations may be particularly favored by this factor, since, where associative density is high and long standing, individuals will have values and capacities that make them more likely to cooperate and participate democratically (Saz-Gil *et al.*, 2021). We first explore the question of whether this was the case in the three communities studied here and, if so, how it has affected their capacity to trigger collective action, generate new social capital, and leverage external resources for their initiatives.

In Uyuni, communities had a greater initial endowment of social capital based on the vivid indigenous tradition of reciprocity practices, collective management of the land and other common resources (Laguna, 2011; Walsh-Dilley, 2013; Winkel *et al.*, 2016). In Humahuaca, the quinoa strengthening program was implemented with a pre-existing organization – UPPAJS – that had social recognition and convening capacity in the province. In this territory, the initial social capital endowment of today's farmers can also be explained by the persistence of collective and autonomous resource management systems by their ancestors in colonial times and up to the early 19th century. Later, they incorporated cash crops, but preserved ancestral crops and practices, showing a cultural continuity with their ancestors (Cladera, 2020b, 2022). Compared to Uyuni and Humahuaca, Lipimávida may have had a lower initial endowment of social capital as a consequence of the social system of submission of indigenous populations that was maintained from the beginning of the Republic until the Agrarian Reform of the 1950's-60's (Murray, 2002; Robles-Ortiz, 2009), and is still reinforced by the repression exercised by the Chilean dictatorship on rural organizations in the 1970s-90s and the subsequent three decades of neoliberalism in democracy (Murray, 2002; Pisani & Micheletti, 2020).

Thus, in the context of development programs, the State can act as a promoter of social capital or as a nullifier of social capital, by fostering clientelist relationships or promoting distrust among people and thereby eroding the constituent elements of social capital (Arriagada, 2003; Pisani & Micheletti, 2020; Saz-Gil *et al.*, 2021). In this regard, in the case of Uyuni, the producers' collective action to revalue quinoa was initiated in the 1970s, supported by fo-

reign NGOs and later consolidated without significant State assistance. The State only took significant action in the 2010s, when a strong development dynamic had already been underway for four decades and had to adjust its policy objectives to those of the powerful producer organizations (Laguna, 2011; Zandstra, 2015). The Bolivian government, jointly with Peru and Ecuador, spearheaded the process of declaring 2013 the International Year of the Quinoa at the United Nations (United Nations, 2012).

In Humahuaca, collective action was triggered by a public-private project. The intervention methodology of this project, developed in the light of the Bolivian experience, was based on participation and the valuation of local knowledge. In this way, the project was rooted in pre-existing local social capital, marginally benefiting from public policy programs launched in the 2010s to support peasant agriculture (Golsberg, 2021; Cladera, 2022).

In the case of Lipimávida, the collective action was triggered by a research-action project financed with public resources and co-led by a national private university and a foreign research institute. In this case, the project used an intervention methodology of territorial social work with rural communities, centered on the interests of the local community and promoted the collaboration between public and private agents in the territory (Núñez-Carrasco, 2020). Once collective action was triggered Lipimávida received, from the first months, some support from the municipal government because the project was consistent with public policies in favor of family farming. In fact, in Chile, municipalities are the preferred level of intervention for public policies to support self-consumption or marketing and are implemented locally by technical support agencies like PRODESAL and coordinated at national level

by INDAP and a set of other institutions. Yet, these interventions are not specifically oriented towards associative or collective projects and, in fact, support mostly individual producers while addressing technical problems such as product quality, sanitary standards or packaging (De Kartzow, 2016). Hence, the objective of peasant farmers' inclusion appears essentially limited to productive and economic issues, making peasant farmers mere suppliers of products at the base of the agrifood value chains.

In all three cases, therefore, State institutions supported pre-existing collective or associative projects rooted in social and cultural capitals without causing significant disruption, perhaps mainly because of the limited ambitions of the public policies in terms of collective action.

5.2. *Social capital and local actions of commoning for inclusive sustainability*

Social capital, understood as a collective feature, is constructed, and developed within social networks that are more or less extensive – from the local to the global level – and more or less tightly knit – from the immediate family to the international export chains (McShane *et al.*, 2016). When analyzing social networks, a distinction is usually made between strong ties, which arise from family, friends and even professional relationships, and weak ties corresponding to more casual relationships. Weak ties provide other information than strong ties – these latter often already known to stakeholders – and thus serve as “bridges” to different networks giving access to brand new information and new contacts (Deshpande & Khanna, 2020). Weak ties allow for a balance of trust and control between the

groups forming the networks, as well as between individuals within the groups themselves.

In Uyuni, strong ties between community members are a tradition since, for generations, people have exchanged work – a practice called *ayni* – and renegotiated access to common land every year (Walsh-Dilley, 2013). Yet, these ties, which go far beyond the cultivation of quinoa, now tend to focus on family or kin members (Vassas-Toral, 2016). Furthermore, dissension may have arisen with community members who had migrated out of their locality of origin for too long and who, nevertheless, claimed land for cultivation when the quinoa trade began to flourish (see Suppl. Mat. B in Winkel *et al.*, 2016). Another source of conflict arose when some community members equipped with tractors claimed to plough large areas of common pasture and thus acquire the usufruct of it, failing full individual land ownership, which does not exist in this area (Walsh-Dilley, 2016). After an initial phase of *laissez-faire*, local communities regained control over the land by reactivating ancestral community rules of access to land subject to the fulfilment of common obligations, and by issuing new consensual norms considering the innovation of mechanization (Winkel *et al.*, 2016). They did this with the support of the regional and national producers' organizations as well as external NGOs and certification bodies (AVSF, 2010). The new, weaker ties with external actors have thus made it possible to locally reactivate strong ancestral ties. In fact, all these supra-local actors and organizations opened new spaces for relations at the regional and national levels, certainly less personalized at first, but which united producers in their struggle for recognition as interlocutors with trade negotiators on the one hand and the State on the other (Zandstra,

2015). Trade negotiations including those for fair trade or organic production certifications are played out at the international level, which is even more remote and impersonal but is nonetheless a form of inclusive relationship, contractualized by mutually binding fairtrade agreements (Salliou, 2011). This “hybrid economy” negotiated by local producers thus manages to reinforce and include their local and ancestral practices of cooperation in the new context of globalization (Walsh-Dilley, 2013). Locally, while the renewed norms of land access and use have not abolished the socio-economic and gender disparities noted above (section 4.1.1), they do constitute a form of social capital rooted in tradition and ensuring equitable access to land for all families fulfilling their community obligations. The quinoa producers who dedicate themselves to small-scale local production and remain outside the international export circuit, also maintain interesting social links in their relationships with middlemen, sometimes considered to be profiteers, but whose role in the social and economic inclusion of the most marginal producers is nonetheless decisive (Ofstehage, 2011).

In Humahuaca and Lipimávida, the local producer associations do not yet have links at the national or international level. Starting from the ground up, they have created new links based on their common and immediate economic interests, with no basis in any active tradition of collective land resource governance. In both cases, the collective action was first oriented towards opening commercial opportunities, for example by negotiating with local authorities for access to a marketplace for the producer association and thus gaining visibility with customers that individual producers could not have hoped for alone. In Humahuaca, collective action

supported by rural development officers was also needed to gain shared access to essential technical means of production, such as a quinoa threshing machine. In terms of social inclusion, the quinoa producer association decided that the position of *operario* should be reserved for the younger members of the association and that they would be paid for it: by this means the association seeks to retain its vital forces even if, in practice, the arrangement has only partially worked (Golsberg, 2021). Without ignoring the possible power games at play in any collective enterprise, we see that in both cases equal participation in decision-making and equal access to the benefits of the association for men and women, young and old, indicate an equitable distribution of the social capital activated within the association. However, benefits reserved for association members can be seen as potential sources of social and economic inequality within communities (Durlauf & Fafchamps, 2004).

In economic terms, the links between producers and consumers have taken the form of commercial circuits, either local (in Humahuaca and Lipimávida) or international (in Uyuni) which, in all cases, constitute short value chains as they include a reduced number of intermediaries. In addition to distributing added value more equitably, short value chains support the autonomous organization of producers (Macías Vázquez & Alonso González, 2015). Formal certification standards (in Uyuni) or mere ethical criteria of mutual trust and fairness (in Humahuaca, Lipimávida) also promote awareness among producers, decision makers and consumers of the social and environmental challenges of the agroecological transition. For example, practical training workshops and the provision of crop inputs in Humahuaca, or discussion groups with sustaina-

bility researchers in Lipimávida, have consolidated the farmers' traditional agroecological systems. In Uyuni, intensive dialogue within each community has raised awareness of the environmental and social challenges of expanding quinoa cultivation, leading to the renewal of local standards for the sustainable use of land resources (AVSF, 2010), thereby building the confidence and commitment of end consumer organizations in importing countries (Salliou, 2011). At the community level, these internationally certified standards have validated the ancestral model of common land ownership as a guarantee of environmental sustainability and social equity, thus addressing the ethical concerns shared by local producers and foreign consumers.

In all three cases, short circuits have led peasant producers to shift from trade relations with conventional distributors who focus on sales volume and margins, to direct links with nearby intermediaries and various end consumers – local urban consumers, foreign eco-responsible consumers, tourists– who are more sensitive to the criteria of product quality and authenticity, social justice, or respect for the environment (Castaldo *et al.*, 2009; Matta, 2019; Discetti, 2020). Such criteria carry obvious ethical values of respect for the peasant people, their work, and their products (Davies & Ryals, 2010). However, as well described in the case of coffee (McMurtry, 2009; Guerrero-Jiménez & Herrero-Hernández, 2021), the inclusion of small producer organizations in the international market carries the risks of making fairtrade more impersonal for both local producers and end consumers, of losing control of trade negotiations for small producers, or of information asymmetries to the benefit of transnational companies that sell both fairtrade and conventional products.

However, interventions from outside communities are not only synonymous with dependence and loss of autonomy. They can also be levers for rebalancing the power games within communities. This was the case in Uyuni, where new land use standards supported by foreign NGOs curbed the land grabbing ambitions of some local actors. Tourism, often blamed for introducing serious socio-cultural and economic imbalances, can also be a means of risk dispersion, economic redistribution, and social justice, and even a factor of resilience, as illustrated by the case of Lipimávida, where urban visitors continued to come as soon as the strict confinement was lifted. A similar case has been thoroughly analyzed in smallholder communities facing the health and socioeconomic shock of the COVID-19 pandemic in Peru (Gascón & Mamani, 2021).

Despite the different sizes and degrees of formalization of their producer organizations, the three cases presented here illustrate how the socio-economic inclusion of peasant farming through the valorization of local biocultural products activates links of varying intensity between producers, and with their environment and end consumers. The intensity of these links remains independent of the level of organization considered – from local association to national confederation – and rather reflects the pragmatic arrangements and innovations necessary for the commoning, protection and valorization of biocultural resources.

5.3. A conceptual frame for an inclusive sustainability strategy in peasant agriculture

The transformative potential of valorizing biocultural heritage for the benefit of peasant agriculture has been little explored (but see: Hart *et al.*, 2016; Morales, 2020). We contribute to filling this research gap by examining three transformative entry points: first, biocultural heritage itself as a resource of tangible and intangible assets rooted in the local environment and society; second, social capital as a collective resource used by a group of people or an organization to autonomously construct social and economic protagonism for the mutual benefit of its members; thirdly, commoning as the set of collective decisions and actions aimed at managing local social and natural resources in a perspective of social justice, environmental sustainability and economic viability.

The case studies presented here allow us to examine the interaction between social capital and commoning related to the biocultural heritage of peasant communities, and to identify possible levers of transformation to be activated for its valorization towards a more inclusive and sustainable agriculture. Since this systemic approach is place- and problem-specific, farmer producers as well as other stakeholders in the transformation project have to identify themselves the components that they feel should be activated as levers of the desired change and specify the outcomes they wish to achieve.

Figure 1 illustrates how these levers of change relate to each other, as well as some of their potential components and outcomes of interest, in line with the objective of collective valorization of biocultural heritage. Some components can be shared between two entry points, such as the “identity” that characterizes any biocultural heritage object rooted in its territory and local society and, at the same time, cements the social capital of any

community. Moreover, these components activated by the transformation process often also become one of its results, since their activation reinforces or even reactivates them after a time of dormancy or marginalization. For example, identity or autonomy are maintained and developed precisely by the fact of being activated as levers of change.

Likewise, outcomes can be multidimensional, such as social cohesion, which is supposed to be stimulated when social capital is mobilized through a process of commoning, but which also results from and becomes a component of biocultural heritage. Furthermore, synergistic effects between the outcomes occur when, for example, the preservation of heritage through socio-environmental standards also leads to its recognition through sustainability certificates which, in turn, facilitate access to high-value niche markets, as observed in the Uyuni case presented here.

Future research could focus on outcomes that can be used as indicators of social justice (e.g. social cohesion or recognition), environmental sustainability (e.g. heritage preservation) or economic viability (e.g. increased income, market connection, socio-economic resilience). Research could also go beyond components and outcomes and examine how the transformative strategy illustrated here might fit into broader models of sustainability science, such as regenerative agriculture (Gordon *et al.*, 2022) or emerging paradigms such as socio-environmental boundaries (Raworth, 2017) or plant economics (Rotondi *et al.*, 2022).

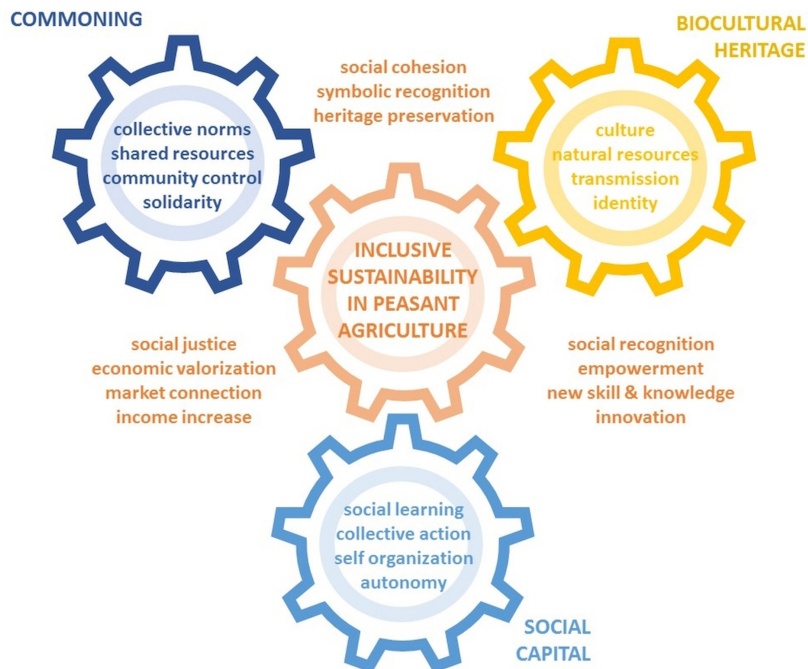


FIGURE 1 – Framing diagram for a strategy of inclusive sustainability in peasant agriculture activating biocultural heritage, social capital, and commoning practices. Based on our experience with three case studies in contrasting agri-food systems, this diagram shows three transformative levers (peripheral gear wheels) with their major components (within wheels), and some potential outcomes (between wheels) to be considered in seeking an inclusive sustainability of peasant agriculture (central gear wheel).

SOURCE: the authors.

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