



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

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## Title

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

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## ABSTRACT

*Societal issue and theoretical background:* The sustainability of human societies relies on the intergenerational transmission of capital stocks, whether natural, social, or economic. With ever more competition for economic resources, the sustainability of societies must increasingly focus on the mutual reinforcement of social and natural capitals. This perspective is particularly relevant for peasant agriculture, under constant threat of social and economic exclusion, but whose social and natural capitals remain important though often underused by the peasants themselves. The concepts of commoning and social capital are useful for addressing these issues and activating biocultural heritage from an inclusive sustainability perspective.

*Objectives and methods:* We seek to understand how peasants organize themselves to collectively achieve social and economic inclusion goals 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 foster the emergence and sustainability of producer organizations and their value chains. We did so in three peasant organizations in Argentina, Bolivia and Chile, which share a common starting point around valorisation of traditional quinoa crops, but vary greatly in terms of size, internal dynamics, and subsequent organisational trajectories.

*Results:* The successes and challenges of the social innovations implemented in the three cases studied provide lessons on how farmers mobilise their social capital and harness the resources of their cultural and natural capital to achieve inclusive sustainability. While some lessons remain context-specific, others appear to be independent of the size and place of the organizations, and several demonstrate the importance of the social interactions maintained both within the organizations and with the end consumers.

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

# 1. INTRODUCTION

Socio-ecological sustainability is systemic in nature, as it crosses and integrates environment, society and economy. It is also transtemporal, as it focuses primarily on maintaining the integrity of these three components over time. Socio-ecological sustainability thus fits a heritage perspective as it involves the intergenerational transmission of three forms of capital respectively associated with nature, society and economy. Natural capital includes all the raw materials and resources that are useful to human populations, either to satisfy their basic needs in the short term (food, clothing, housing, health) or for more sophisticated activities, in the short or long term (culture, ecological conservation). Because it is valued through human activities of harvesting, extraction, transformation, work, trade, and because it is the object of ecological, cultural, or aesthetic concerns, natural capital is closely associated with the other two forms of capital. Social capital encompasses all the abilities, knowledge and skills, including organizational, learning, and relational skills, that enable people to live together and take advantage of their environment. Economic capital is the sum of assets that can be produced or exchanged in the markets that sustain human societies (Rivera *et al.*, 2019).

By extending to natural and social capitals the functions that Piketty (2014) attributes to economic capital alone, 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 interdependencies. Moreover, these different categories of assets can be tangible (land, plants, animals, infrastructures, equipments, inputs...), or intangible (amenities, skills and knowledges, brands, intellectual property rights, financial securities...), with definitions and scope that have changed according to 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 and less rooted in the territories, this open competition generates vulnerabilities in all components of the socio-ecological systems, in particular 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 deforestation and over exploitation of land by productive systems under the control of deterritorialized financial interests. 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, impoverishing the rural world socially, economically and environmentally. Its current version, preferably virtual, puts more distance from local realities, which requires re-creating and co-constructing alternative approaches of sustainable territorial development.

To address the vulnerabilities in the economic sector, there is a renewed interest in both natural and social capitals, which are inherently rooted in local territories and can thus balance out 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 of critical importance in 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 of 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 to the benefit of the agro-industrial sector. 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 (Food and Agriculture Organization), 2021; Milbank *et al.*, 2021). Strengthening these synergies between nature, society and economy for sustainable agriculture are advocated by several approaches such as nature-based agriculture (Sumberg, 2022), holistic management (Gosnell *et al.*, 2020; Hawkins *et al.*, 2022), or regenerative agriculture (Newton *et al.*, 2020; Gordon *et al.*, 2022).

As a depository of the biocultural heritage, peasant agriculture holds an opportunity to gain recognition of its value and its role for the food sovereignty and security, and overall socio-ecological sustainability of the territories. We posit that collectively strengthening the natural and social capitals of peasant agriculture gives it greater degrees of autonomy, thus reducing the economic and environmental costs of global society's food and commodity supply chains. Simultaneously, strengthening the peasant agriculture could improve both its autonomy and 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 (Alliance for Inclusive Business, 2011; Kelly *et al.*, 2015). This notion is debated as it relates 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 labour power (Hahn, 2012; Likoko & Kini, 2017). But we argue that market inclusion 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 mobilised in their 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 socio-economic 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 a mutual benefit among the members of a social organization (Siisiäinen, 2003). We thus leave aside the structuralist approach of social capital conceived essentially as an individual resource derived from participation in elitist networks

(Bourdieu, 1980). In this view, social capital as an individual resource 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 mitigates these effects of economic and cultural domination (Siisiäinen, 2003). Aiming at mutual benefit, social capital naturally serves the social and economic inclusion of farmers who, by 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 producers then appears as the key to building a redistributive model that improves both their economic 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 globalised 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 gain social recognition and inclusion, while strengthening the protection and sustainability of their cultural and natural capital (Vanhulst, 2015; Essex & Read, 2016).

## 2.2. Biocultural heritage

Biocultural heritage comprises a set of natural resources –from genes to landscapes–, knowledge and practices related to the historical and ecological contexts of human societies (Gavin *et al.*, 2015). 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, therefore, embeds a component of sustainability (Winkel *et al.*, 2020). Besides, biocultural heritage objects –for example: handicrafts, vernacular architecture, or gastronomy– are also distinctive of the territory and, thus, are vectors of social identity for the peasant communities who live there. At the same time, they constitute opportunities for 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 the food needs of humanity, shapes rural landscapes, generates and maintains agrobiodiversity. It has recently been recognised by international organisations –the MERCOSUR included family farming in his agenda since 2005, and the FAO declared 2014 "International Year of Family Farming"– and by consumers who express a continuous demand for food with quality or origin certification (Autio *et al.*, 2013). However, peasant agriculture remains marginal in public policies, which mostly continue to favour individualism and the fragmentation of family farms in favour 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...), not to mention its social and aesthetic impacts (farmer proletarianization, rural exodus, consumer distrust, destruction of amenities...) (Ioris, 2016).

Hence our proposal, from a perspective of sustainable and ethically inclusive agriculture, to collectively activate the biocultural heritage in order to strengthen the identity and social cohesion and, therefore, the social and economic inclusion of the peasant sector.

## **2.3. From commons to commoning**

Often, commons are still considered as simple material or immaterial shared resources such as water, land, seeds, or artistic designs, working techniques, traditional knowledge, etc. These common goods are differentiated from private goods (i.e. exposed to rivalry and exclusivity among users) or 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). Thus, a common is not only a resource but also the set of rules and values mobilised by the community of users who care for that resource (Gibson-Graham *et al.*, 2013; Bollier, 2021). The expression "commoning" has been coined by Bollier (2015) to include the dimensions of production, governance, culture and personal interests that are mobilised by responsible local communities for the dynamic management of shared resources.

In order 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 mutually safe space for trust and reciprocity (Ostrom, 1998). It also empowers local actors through collective learning of common skills in management, negotiating, marketing or communication.

## **3. METHODS AND AREAS OF ACTION**

The approach of participatory action research was used to mobilise 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**

In order 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 socio-technical innovation in an ethical perspective of empowerment of local actors (Wittmayer & Schöpke, 2014; Biggs *et al.*, 2021). The model of social work with rural communities makes it possible to base the complex understanding of the territories at different scales and at different times, in order to build social situations in dialogue with the triad of civil society, the state and the market.



Even when initially designed by academic actors, the PAR process must be flexible in the face of a possible change in the project's initial goals, since local stakeholders –rather than mere 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 the condition of the interactive, non-linear process of socio-technical innovation, while expressing a true ethics of science for action. The same constructive friction between different cultures operates in the dialogue between social sciences and natural sciences. This is another valuable contribution made by PAR to interdisciplinarity, which is essential for understanding the complexity of socio-environmental systems.

Our approach of socio-environmental complexity is both systemic –seeking to identify the structures that determine social action– and constructivist –analysing society as a product of social action. In the end, the innovation by which the change in reality takes place can be more or less radical, from the 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 valorisation of agricultural products that have an unquestionable heritage character. Through multiple meetings –some individual but most collective–, workshops, feedback sessions and, in some cases, role playing games, a dialog of knowledge was opened and diverse perspectives were discussed. We have set ourselves the goal of providing local producers with tools so that they can: i) evaluate the options for valorising their biocultural heritage in the current context, and ii) access marketing channels and markets that value products with a biocultural heritage identity. At the same time, knowledge was generated in and from action that is useful for science and society.

### 3.2. Areas of action

In order to analyse in all its diversity the issue of the inclusion of peasant farming through the valorisation of biocultural heritage, quinoa (*Chenopodium quinoa* Willd.) offers exemplary cases. This ancestral grain from the Andes and the Chilean coast is emblematic of the rescue and valorisation of the agri-food heritage in Bolivia since the 1970s (Winkel *et al.*, 2014, 2016; Barrientos *et al.*, 2017) and more recently in neighbouring countries such as Chile and Argentina (Núñez Carrasco & Bazile, 2009; Andrade *et al.*, 2015; Bazile *et al.*, 2015; Daza *et al.*, 2015; Lacoste *et al.*, 2017). In fact, quinoa has been globalised by the media with an image of superfood, healthy (high in protein, gluten-free) and authentic (sometime under the controversial slogan of "Inca rice"). Its production process, by small, mostly organic producers, further increases the appeal of quinoa 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.) with different motivations and priorities that question the relative control of small producers and their organisations over 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 that can generate 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 between producers, processors, marketers and consumers as levers of 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 from the 1970s onwards, quinoa production remained in the hands of small farmers' organisations 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 providing 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 (Pontificia Universidad Católica de Chile), 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 (Salcedo & Guzmán, 2014).

Analyzing, within the same theoretical framework, three territorial experiences of social capital mobilisation motivated by the promotion of quinoa production, but following different paths and purposes, we seek to identify the rationales activated by local actors and institutions to promote agricultural biocultural heritage for the benefit of peasant communities.

## 4. RESULTS

Table 1 gives a summary of the main features of the three case studies developed below.

### 4.1. Case 1: Quebrada de Humahuaca, Argentina

#### 4.1.1. Geographical and social context

The Quebrada de Humahuaca (hereinafter "Humahuaca"), in the northwestern province of Jujuy, is a territory of great symbolic weight for the social imaginary of Argentina. It combines an imposing mountain landscape with ancient and uninterrupted links with the cultural trajectories of its Andean neighbours, 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 valley of Humahuaca was a communication and commercial route, which developed a specific production of fodder for the maintenance of the cattle troops and the mule trains that circulated between the Andean mining centres 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, fruit production made its reputation, followed from 1980 onwards by 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 of 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 populations since pre-Hispanic times and their recent yet vigorous ethnic re-emergence, the validity of traditional artistic and ritual expressions, the importance of their 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 (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.

#### 4.1.2. The PRODERI project "Rescue and revaluation of organic quinoa production" as a participatory action experience

From 2008 onwards, the global surge in quinoa and its repercussions among the Bolivian high-Andean communities, led a conglomerate of public and private organisations in the province of Jujuy to incorporate into this process the local rural areas, which, like their Bolivian counterparts, have preserved quinoa agricultural traditions. This enthusiasm first crystallised in a public-private program: the Program for Strengthening Quinoa in Northwest Argentina (Daza *et al.*, 2015), which was based on a methodology inspired by certain Bolivian experiences: skill-based training, which, by proposing the replacement of the classical pedagogical process by a theoretical and practical knowledge generated through on-site workshops (Daza *et al.*, 2015), facilitated the development of participative research action experiences.

Under this methodological premise, different local experiences have gained strength since 2013, articulating technical teams from public bodies with social groups in various Andean territories in northwest Argentina. In Humahuaca, the experience that showed the greatest validity and continuity over time was facilitated by an indigenous peasant organisation, the Union of Small Aboriginal Producers of Jujuy (UPPAJ). It received the cooperation of both a technical staff of the Secretariat of Family Agriculture (SsAF) of the Ministry of Agriculture, and an academic staff from the Interdisciplinary Institute of Tilcara, of the University of Buenos Aires. The initial diagnosis 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 Quinueros 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 Quinueros 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. After a few initial attempts at collective marketing, the Group decided to prioritise 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. Thus, the enthusiasm for a programme to stimulate quinoa production is explained less by an economic interest than by the demand for local cultural identity, and in line with this, by access to material conditions to improve the agricultural activity of each family. 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.

## 4.2. Case 2: Salar de Uyuni, Bolivia

### 4.2.1. Geographical and social context

The following observations and data describe the situation in the area with the highest commercial production of quinoa in the world between 2007 and 2010, as analysed 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 Salar de Uyuni (hereinafter "Uyuni"), where plains at 3,600 masl alternate with volcanic relief culminating at 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, less exposed to frost than the plains (Pouteau *et al.*, 2011).

In Bolivia, since 2006, a nationalist left 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 favour 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 from scratch to offset the social impact of the country's economic situation at that time (Laguna, 2011).

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 Salar in exchange for corn, 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 more or less 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 protects communities from the risks of excessive land concentration or grabbing by foreigners (Winkel *et al.*, 2016).

The global success in 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 centres which, for many quinoa producers, have become their main place of residence.

In the observation period (2007-2010), the study area was populated by approximately 12,000 quinoa-producing families, 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 organisational and negotiating capacity by forming, with the incentive 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 certification and fair trade (Laguna, 2011; Tschopp *et al.*, 2018). This export marketing, initially focused 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, in a transition to a broader scale similar to that of other smallholder products such as coffee (Guerrero-Jiménez & Herrero-Hernández, 2021).

As a corollary to 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 maintain a self-consumption production of quinoa and potatoes, while camelid and sheep breeding –less profitable and hardly compatible with urban residency– decreases to the benefit of commercial quinoa cultivation. Craft activities (wool) 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 price of quinoa, which peaked in January 2014 (about 6,000 USD/tonne) and then stabilised at around 1,200-1,600 USD/tonne.

While assessing the income of farming families remains hazardous, a survey of 36 households in the study area in 2007 (when quinoa was paid to the producer at about USD 750/tonne) reveals the large disparity within the same community, with incomes ranging from USD 200 to USD 18,000 per year (Winkel *et al.*, 2016). This disparity in household income reflects 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 use is generally patrilineal and the extent of cultivated land depends on each producer's ability to hire manual labour or a tractor driver to till and sow the land.

#### 4.2.2. 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 Salar de Uyuni region, a process that can be dated back to late 1969, when European NGOs supported the arrival of the first agricultural tractors (Laguna, 2011). Questioning 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.*, 2014, 2016, 2020). The focus groups were quinoa producers from various rural communities around the Salar de Uyuni as well as 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 formalised in writing, was an innovation that was essentially adaptive to the new reality of the commercial surge in quinoa.

In terms of participation, in addition to a long phase of participant observation in farm and community activities, the project methodology was based, in particular, on role-playing workshops followed by group analysis sessions to discuss with the participating producers what happened during the game and to analyse the similarity between game and reality (Vieira-Pak, 2015). In terms of action, the researchers issued recommendations for local development agents (producers, authorities, NGOs) and accompanied the process of renegotiation between producer organisations and international certification entities such as FairTrade International on new fair trade standards for quinoa (Salliou, 2011).

### 4.3. Case 3: Lipimávida, Chile

#### 4.3.1. Geographical and social context

Lipimávida, a small town on the Pacific coast, belongs to the commune of Vichuquén, in the Maule Region, 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 dynamics with the multiplication of constructions and tourist lodges on previously cultivated coastal land and the building of a new district in a upper sector of the town.

The coastal sector is a resort that offers long beaches, with a settlement of inhabitants traditionally dedicated to family agriculture, along with traditional crafts 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, 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 commercialisation of papaya has proved very useful when it came to launching a pilot project around the bio-cultural heritage of the town.

Quinoa is another crop that stands out 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, in particular the desaponification known as "seven waters", a task in the hands of women (Cubillos-Celis *et al.*, 2018). The time and labour required for this processing are the main reasons cited by producers and consumers when asked about the decline in quinoa in their meals. 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 landscapes 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) or 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 setting up of the pilot project has been a process of co-construction between researchers and local stakeholders. In June 2017, on the basis of a proposal by the research team of Baquiana (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 relationship of collaboration and exchange of knowledge and experience was established with a group of a dozen local inhabitants, mostly women. Focusing on quinoa production, the 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, in the course of the participatory consultation, the initial focus on quinoa was redirected and refined towards the valorisation of other food and craft products of local peasant biocultural heritage, namely: papaya, weaves, *greda*, medicinal plants. In addition, 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 neighbouring region of O'Higgins (Núñez Carrasco & Bazile, 2009; Lacoste *et al.*, 2017). On the other hand, in their meeting with an expert in quinoa threshing and desaponification invited by the project, 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 a participatory workshop with a socioeconomist who is an expert in co-designing agricultural development projects, 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.

Thus, analysing their strengths and weaknesses, and based on their previous experience in the production and sale of papaya and handicrafts, the local actors decided at their fourth meeting to value quinoa and other heritage products through a free fair (*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: to value their resources and local knowledge, and to meet with consumers. This process of social innovation and inclusion took place 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 and who were identified in workshop instances. It was clear that there was a latent need in the community to unite individual enterprises, as the leaders 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.

From the beginning, the researchers prepared the articulation of interests, positions, and wills with regional and local actors of the state and the market. This made it possible to meet the basic conditions for having professionals from the Local Development Programme (PRODESAL), which depends on 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 to welcome this unexpected citizen and academic initiative, including it in their agenda and supporting it with time dedicated, and socio-technical knowledge.

After opening in January 2018, the Lipimávida Heritage Fair (*Feria Patrimonial de Lipimávida*) has been operating regularly, not only in the summer season, but also at all times when tourists are received. The members of the group are thus fulfilling a commitment that makes sense of their interests and capacities, preparing their handicrafts and harvesting their vegetable gardens, in order to offer fresh and innovative products, as well as affordable 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 known 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 induces them to "work with what is there" in order to quickly realise their project. However, caution and pragmatism did not prevent creative innovation with an unprecedented heritage product fair. Giving satisfaction to its protagonists in the economic plan, the fair was also constituted as a meeting place between producers and consumers, between 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 linked to the COVID-19 pandemic were loosened.

With the return to democracy in Chile in the 1990s, the state initiated a policy of productive promotion for the peasants, considered a form of inclusive business. However, the commercial subordination of peasants to the value chains of the conventional agro-food industry, which is generally characterized by a high level of concentration, has prevented them from accessing the benefits of economic growth (De Kartzow, 2016). In this context, the state has deployed policies that promote the insertion of peasants in markets through strategies such as (1) formalization and specialization of farmers as suppliers of raw materials for large agro-industrial corporations, (2) formation of associative farmers' enterprises, focused on exports, and (3) creation and strengthening of local farmers' markets of a boutique type, linked to local festivals, or in areas of tourist interest.

546 **Table 1. Main descriptors of the three case studies.**

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

## 5. DISCUSSION AND CONCLUSION

The three cases presented here illustrate how the mobilisation of social capital by farmers can contribute to the inclusive sustainability of their communities, particularly through the promotion of their common biocultural heritage of food and craft production. The mobilisation of social capital calls for producers' cooperation and self-organisation, which are also essential to the process of commoning, and which can lead to more or less formally constituted local groups (cases 1 and 3) or to the formation of powerful national associations (case 2). Although social capital mobilisation 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 framework 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). Was this the case in the three communities studied here, and how did it affect their capacity to trigger collective action, generate new social capital and leverage external resources for their initiatives?

In Uyuni, the communities had a greater initial endowment of social capital based on the vivid indigenous tradition of collective management of the land and other common resources (Laguna, 2011; Winkel *et al.*, 2016). In Humahuaca, the quinoa strengthening programme was implemented with a pre-existing organisation -UPPAJ- which had a 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 on, they incorporated cash crops, but preserved ancestral crops and practices, showing a cultural continuity with their ancestors (Cladera, 2020, 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 maintained from the beginning of the Republic until the Agrarian Reform of the 1950's-60's (Murray, 2002; Robles-Ortiz, 2009), and still reinforced by the repression exercised by the Chilean dictatorship on rural organisations in the 1970s-90s and the subsequent three decades of neoliberalism in democracy (Murray, 2002; Pisani & Micheletti, 2020).

The state can thus act as a promoter of social capital in development programmes or, on the opposite, as a nullifier of social capital, by fostering clientelistic relationships or promoting distrust among people, 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 foreign 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 organisations (Laguna, 2011; Zandstra, 2015). In this perspective, 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, has been 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 (Daza *et al.*, 2015; Golsberg, 2021).

In the case of Lipimávida, 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, an intervention methodology of territorial social work with rural communities was used, whose central axis was the interests of the local community and which promoted collaboration between public and private agents in the territory. Once collective action was triggered, Lipimávida received from his first months some support from the municipal government because the project was consistent with public policies in favour of family farming. In fact, in Chile, municipalities are the preferred level of intervention for public policies to support self-consumption or marketing, 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, 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, the state has 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

The social capital, understood as a collective feature, is created 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 analysing social networks, a distinction is usually made between strong ties arising 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). Besides, weak ties allows 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 is a tradition since, for generations, people have exchanged work —a practice called *ayni*— and renegotiated access to common land every year. Yet, these ties, which go far beyond the cultivation of quinoa, are more easily centred today on family or kin members. 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. 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 taking into account the innovation of mechanisation (Winkel *et al.*, 2016). They did this with the support of the regional and national producers organisations 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 organisations opened up new spaces for relations at the regional and national levels, certainly less personalised 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, contractualised by mutually binding fairtrade agreements (Salliou, 2011). As for the quinoa producers who, remaining outside the international export circuit, dedicate themselves to small-scale local production, an interesting case of social links is constituted by their relationship 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, local producer associations do not have yet ties as 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 up commercial opportunities, for example by negotiating with local authorities for access to a market place for the producer association, thus gaining a visibility with customers that each individual producer could not hope for. In Humahuaca,

collective action was also necessary to obtain shared access to essential technical means of production  
such as a quinoa seed thresher.

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 (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  
sustainability researchers in Lipimávida, have consolidated the farmers' traditional agroecological systems.  
In Uyuni, intense 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, thereby building the confidence and commitment of end consumers in importing  
countries. 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 producers and 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 (e.g. McMurtry, 2009; Guerrero-Jiménez & Herrero-Hernández, 2021), the inclusion of  
small producer organisations 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.

But interventions from outside the 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 or by the communities of small-scale producers  
in Peru faced with the health and socio-economic shock of the COVID-19 pandemic (Gascón & Mamani,  
2021).

These three cases, different in size and level of formalisation of their producer organisations, illustrate  
how the socio-economic inclusion of peasant farming through the valorisation 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 organisation considered –from local

association to national confederation— and rather reflects the pragmatic arrangements and innovations necessary for the commoning, protection and valorisation of biocultural resources.

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

The transformative potential of valorising 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 organisation 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.

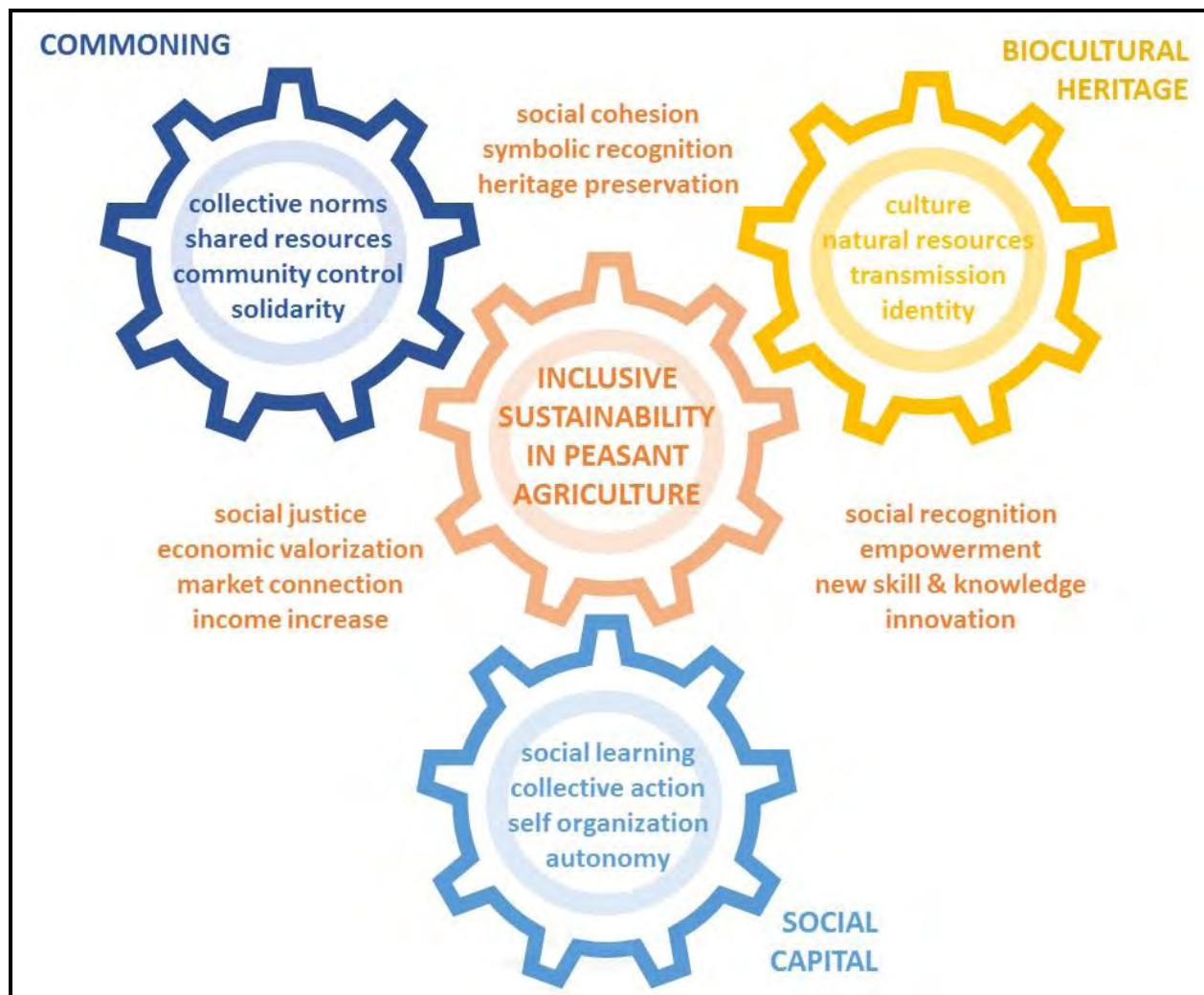
The case studies presented here allow us to examine the interaction between social capital and commoning related to the biocultural heritage of peasant communities, and to identify possible levers of transformation to be activated for its valorisation towards a more inclusive and sustainable agriculture. Since this systemic approach is place- and problem-specific, farmer producers, as well as other stakeholders in the desired transformation project, have to identify themselves the components that they believe should be activated as levers of 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 valorisation of biocultural heritage. Some components can be shared between two entry points, such as the "identity" that characterises 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. This is how identity or autonomy, for example, are maintained and developed by the very fact of being activated as levers of change.

Similarly, outcomes can be multidimensional, such as social cohesion, which is supposed to be stimulated when social capital is mobilised 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 the economic approach to socio-environmental boundaries, the so-called "doughnut economics" (Raworth, 2017).





**Fig. 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).

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