Research Article

Critical Institutional Analysis on the Expansion of Hass Avocado Plantations in Colombia

Andres Suarez[1]

1. Corporación Universitaria de la Costa (UNICOSTA), Colombia

This research examines the institutional dynamics surrounding Hass plantations in Salamina, Colombia, highlighting a dialectic of expansion and exclusion. It shows how the expansion of Hass avocado cultivation has led to the consolidation of land ownership by international corporations. This process, facilitated by land allocation policies that favor technical considerations, marginalizes local peasants not involved in the avocado boom. Various factors, including the neoliberal food regime, perpetuate corporate expansion while limiting peasant initiatives. Discourses create a narrative in which Hass cultivation is perceived as the only viable solution, exacerbating the challenges faced by local communities. As a result, the peasantry faces increasing constraints while the agrarian landscape in Salamina becomes increasingly corporatized, prompting critical reflection on agrarian issues in the region.

1. Introduction

The global appeal of the Hass avocado (*Persea americana* Mill. c.v. Hass) stems from its unique blend of physical and nutritional characteristics (Dreher & Davenport, 2013). Being an important source of nutrients, Hass avocado has become one of the most engaging sources of diet, mainly in the Global North (García et al., 2021), prompting major corporations to create vast plantations, mainly in the Global South. In Colombia, the Hass avocado plantations have seen remarkable growth. With a potential of approximately 3.19 million hectares suitable for Hass cultivation, over the past five years, production surged by 89%, making Colombia a significant exporter (Hass Avocado Board, 2022). Among Colombian regions, Caldas stands out, with the second-largest planted area, around 12,000 hectares, and a productivity rate of 12 tons per hectare. In 2022, Caldas accounted for 8% of Hass avocado exports in Colombia, securing the third position in terms of contribution[1]. However, the current expansion of Hass

 doi.org/10.32388/30NKGN.2

avocado plantations in Caldas is generating a process of exclusion in the access to resources that are important for the continuity of peasant communities located in the areas of influence of Hass plantations (Suarez et al., n.d.).

Research on Hass expansion has drawn attention to several negative impacts on forests, water, and people (Budds, 2008; Cho et al., 2021; Denvir et al., 2021; Duran-Llacer et al., 2020; Eldrige, 2024; Pérez-Llorente et al., 2019; Ramírez-Mejía et al., 2022). However, a gap remain in identifying how Hass plantations, while expanding, constrain the peasantry who do not participate in the avocado boom. This paper considers institutional arrangements as an important starting point. Literature analyzing the impacts of Hass plantations has paid attention to changing institutional regimes, mainly based on the introduction of neoliberal policies (Barsimantov & Navia Antezana, 2012; Bolados et al., 2018; Budds, 2004, 2008; Panez Pinto et al., 2018). Yet, these approaches still lack a detailed account of both the formal and informal institutional arrangements surrounding both the expansion of Hass and the exclusion of peasantry, which is an important issue in critical agrarian studies and political ecology (Akram-Lodhi et al., 2021; Hall et al., 2011; Ribot & Peluso, 2003). In this sense, this paper aims to shed lights on what are the institutional arrangements that enable the expansion of corporate Hass plantations and the exclusion of peasantry in the Colombian agricultural landscape.

This paper used the Critical Institutional Analysis and Development (CIAD) framework (Whaley, 2018), to discuss the dialectics of Expansion/Exclusion allowed by institutional arrangements in Hass avocado boom in Colombia. This framework builds upon the original Institutional Analysis and Development (IAD) framework (Ostrom, 2011), and the politicized IAD framework (Clement, 2010), while incorporating elements such as political economy, discourses, and the structure-agency dualism. The CIAD framework, influenced by Critical Realism, delves into the ontological depth of social phenomena and places a strong emphasis on the interplay between social structures and human agency (Bhaskar, 2014). It recognizes that social structures both shape and constrain human agency in defining, applying, and enforcing rules and norms. Simultaneously, it acknowledges the significant role of human agency in shaping and transforming social structures.

The CIAD framework directs attention to broader power structures and temporally situated social dynamics (Figure 1). It is rooted in critical institutionalism and focuses on the systematic analysis of the complex embeddedness of institutions (Whaley, 2018). In Figure 1, this study introduced slight modifications to Whaley's framework regarding the placement of differentiated powers. Building on political ecology, the paper included different categories of power (Svarstad et al., 2018). For instance, the power of social structures (*power 1*), discursive power (*power 2*), and actor-oriented power (*power 3*) is an

adaptation aiming to establish a distinct analytical demarcation between the powers interweaving throughout the entire process.

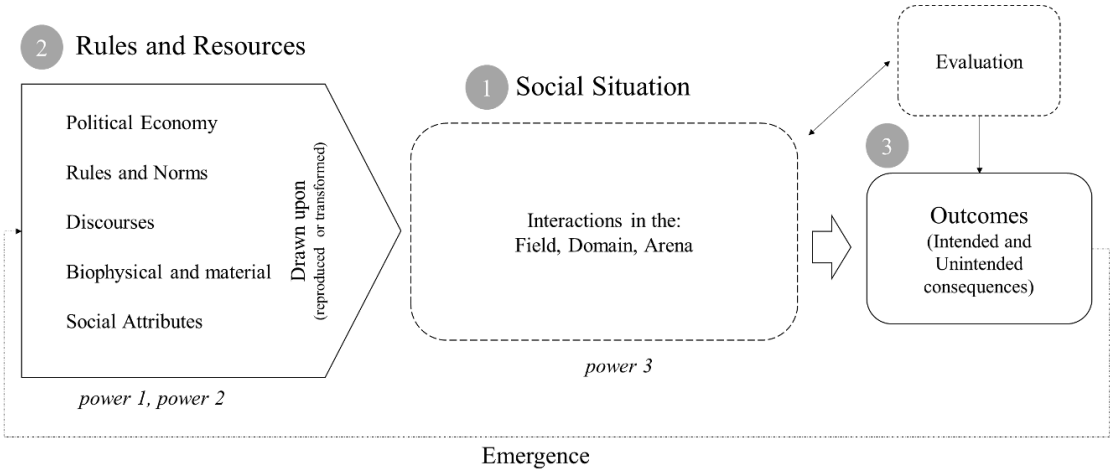


Figure 1. The CIAD Framework was adapted from Whaley (2018).

Rules and resources then make up the framework that influences a social situation (social space of interest to the analyst), which unfolds how social structure (*power 1*) and discourses (*power 2*) interact with human agency (*power 3*) at different levels. In this sense, as presented by Svarstad et al. (2018), power is productively conceived as a combination of these perspectives. The intertwined process produces intended and unintended consequences that, when evaluated, have the potential to reshape rules and resources. Regarding Evaluation, Whaley (2018), stress for the CIAD, a key evaluative criterion is social justice.

2. Methods

2.1. Study area

Caldas is divided into 6 sub-regions and 27 municipalities, of which the northern sub-region is the region with the greatest increase in Hass avocado production in the department. Salamina's municipaluty (Figure 2) was selected for this study because, in addition to representing an important increase in area and production in the context of Caldas, it is the municipality where the most sanctions against companies producing Hass have been presented, and it is the second municipality in the number of complaints against Hass plantations (see Supplementary S1).

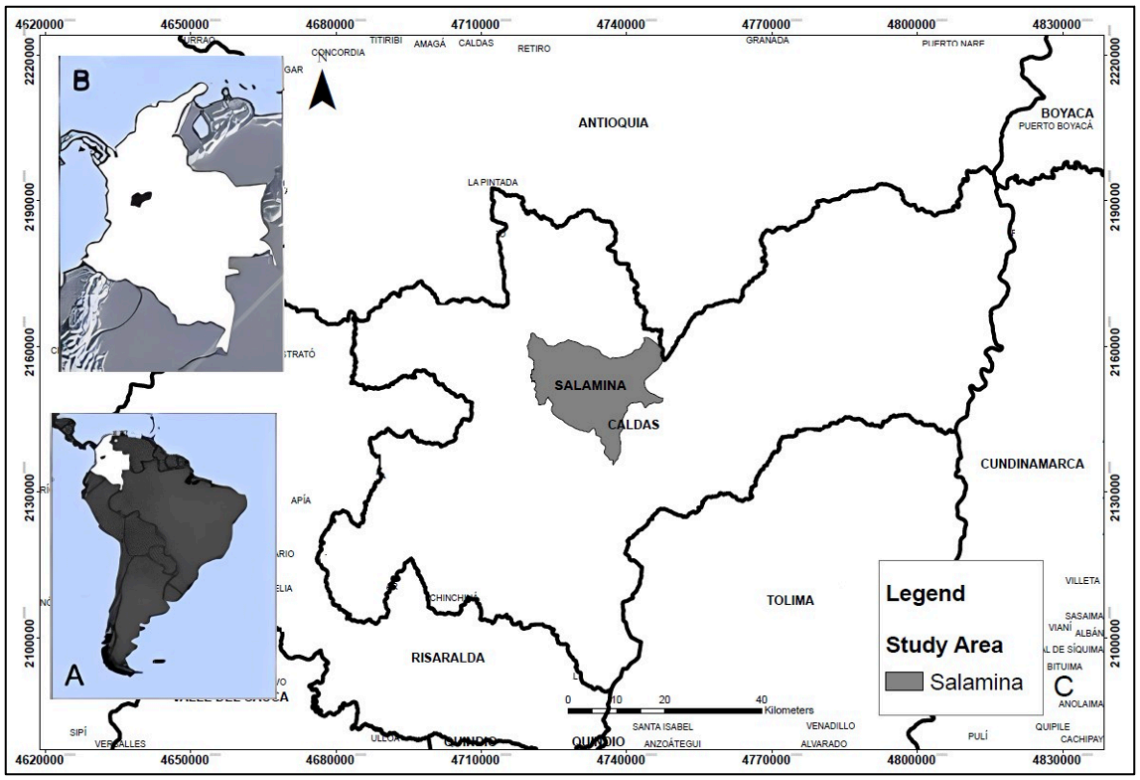


Figure 2. Study area

2.2. Research approach

This study makes up a reflection predicated on empirical investigations conducted in 2022. The methods employed to address the CIAD framework encompassed in-field observations, a meticulous analysis of secondary information sources, and a focus group with peasants living next to Hass plantations. The research used a methodologically guided approach to select sampling participants in the focus group, in line with the principles of realist sampling (Emmel, 2014). Realist sampling did not aim the selection of cases in this study aimed at employing an analytical inductive strategy to represent a population. Rather, it sought to uncover mechanisms and enhance theories that elucidate social processes. Therefore, for the study, peasants living near plantation areas were considered and identified through a snowball sampling process.

Secondary sources included municipal and regional development plans, as well as agricultural statistics. The research delineated the problem definition by scrutinizing the social situation as a dialectical phenomenon where corporate growers expand and the peasantry is excluded because of the landscape intensification. As a foundational step, the research involved the identification of stakeholders and a

meticulous examination of the interrelationships among actors, as well as an exploration of conflicted dynamics. Moreover, the research describes the rules-in-use in Salamina following Ostrom's typology (Ostrom, 2011).

3. Results

3.1. Social Situation: dialectics of corporations expansion and peasantry exclusion

Salamina's traditional coffee-centric landscape has undergone rapid commodification in response to global dietary trends and strategic policies. This shift towards agro-capitalism and specialization, exemplified by the emergence of Hass avocado plantations, has led to intensified landscapes dominated by the lucrative Hass cultivar, resulting in changes in socio-economic dynamics, and environmental degradation. In Salamina, this marks a departure from traditional production systems led by local peasants and cattle ranchers, aligning more with external strategies aimed at facilitating capital accumulation. Currently, the focus in Salamina seems to revolve around streamlining swift capital and land hogging driven by corporate entities extern to Salamina mainly from Chile and Peru, rather than fostering progressive development of local capacity. See Supplementary material S2 for characteristics of the Agents in the Social Situation.

Avocado production in Salamina initially started with local farmers small-scale growing (1-2 ha) and later changed to large-scale cultivation of the Hass variety, influenced by international companies since around 2018. This change in land use has significant implications for water resources and the overall landscape of Salamina. For instance, 9 out of 13 sanctions against Hass companies related to water issues. Notably, Salamina now stands as the second municipality in Caldas with the highest number of water permits, specifically for avocado plantations, totaling 42 permits.

Introducing Hass avocado plantations has altered the landscape dynamics and disrupted access to resources that have traditionally been vital for the local community. In rural areas, small hydrographic micro-basins, which provide water through gravity, typically supply village aqueducts. The management of these aqueducts is the responsibility of the community. However, the incursion of Hass avocado plantations has changed the dynamics of how people benefit from traditional non-formal water sources and the landscape amenities they provide (Suarez et al., 2022).

This intensive use of land has transformed the local landscape, leading to elevated sediment levels in water bodies and triggering regulatory penalties and public complaints against corporations (Suarez et al n.d). Adding complexity to this narrative, international investment in Hass avocados has induced shifts in

property regimes, extensive land acquisitions, and changes in ownership patterns, then reinforcing land concentration (GINI 0.76-0.84 in Salamina). While this expansion has positively affected the local economy, particularly in terms of employment opportunities, it has also engendered challenges, including inflation and difficulties in land access and housing affordability.

In Salamina, there is an emerging process of exclusion of peasantry attributed to the occupation of land by Hass plantations. The brunt of this decline falls heavily upon the region's peasant communities, who, because of their reliance on the agricultural landscape, find themselves ill equipped to adapt to the shifting environment. In stark contrast, corporate growers possessing both substantial financial resources and advanced capabilities exhibit a distinct advantage in harnessing and capitalizing local landscape with a higher scale and intensity.

For instance, the ramifications of exclusion to the advantages furnished by the local landscape loom large. This is exemplified by the concerns about the gradual deprivation of local communities' access to clean water because of environmental pollution.

> "The biggest concern is the possible water pollution because it is in this area [corporation-owned land] where we collect the water we consume. For example, they [Hass corporations] could channel the water so that it is not contaminated, but they do not want to." (Assistant_1).

The loss extends to intangible benefits offered by nature, such as the appreciation of the natural landscape, recreational opportunities, and the transformation of the local landscape with their associated practices. Another dimension to consider pertains to the revenue-sharing model. Corporate growers maximize the land's potential for Hass avocado cultivation, capitalizing on factors like soil fertility and heightened commodity production. In contrast, rural residents frequently find themselves transformed into rural laborers:

> "That is why there are now young people who own a good coffee farm, very productive, but prefer to work with the avocado plantation because in relative terms, working there is easier while working in the coffee plantation is more difficult." (Assistant_3)

The landscape in Salamina plays a pivotal role in sustaining Hass avocado plantations, providing essential ecosystem services like water regulation, soil enrichment, pest control, and others. However, access to this is influenced by asymmetries in knowledge, property ownership, financial resources, authority, and negotiation capabilities (Suarez et al n.d). Structural biases in the region enable the exploitation of this landscape, with policy support amplifying the impact of corporate growers (Supplementary material S2).

This interaction with land use has resulted in an unequal distribution of the benefits, widening the disparities between corporate growers and local peasants.

While the formal institutional framework establishes strategies to ensure compliance with environmental regulations and social participation, it is crucial to acknowledge the influence of various factors that hinder effective enforcement. The lack of adequate resources for enforcement, coupled with the prevailing hegemonic discourses in the region, contributes to the perpetuation of unsustainable dynamics. The resistance from social structures further reinforces the development of plantations, exacerbating the challenges faced in achieving sustainable and equitable resource management in Salamina.

To gain a deeper understanding of the dynamics at play and the factors contributing to exclusion, it is essential to examine the rules-in-use that perpetuate this disparity among agents. Regarding position rules (Table 1), the macro-context represented by the neoliberal food regime creates significant stratification in the agricultural landscape of Salamina, diverging the roles and power dynamics between corporate growers and peasants. Corporate growers, backed by substantial financial resources and advanced technologies, occupy a privileged position. They engage in large-scale, profit-oriented practices, such as Hass avocado plantations, for global markets, while peasants are limited to local markets. Peasants often lack the means to transition to "high-value" crops like Hass avocados and continue with traditional, low-technology farming practices like coffee or plantain cultivation. These practices are an integral part of the region's heritage, but peasants face challenges in accessing capital, technology, and market networks, alongside potential impacts on water and fertile land.

Different rules	Rules-in-use
Position rules	The neoliberal food regime positions corporate growers differently from peasants and small-scale farmers when taking part in the agricultural landscape from Salamina.
Boundary rules	Both corporate growers and peasants can take part in the agricultural landscape from Salamina, yet the level of participation is not fair, given the positions they occupy.
Aggregation rules	Within the agro-capitalist context stimulated by the corporate food regime, corporate growers enjoy greater access to sources to exploit the landscape.
Information rules	Information related to the implications of plantations on land and ecosystems in the agricultural landscape of Salamina is often obscured or neglected.
Payoff rules	Costs and benefits are distributed unevenly, with corporate growers reaping more benefits while peasants bear the costs of depleting the agricultural landscape from Salamina.
Scope rules	Unequal outcomes to all agents given landscape governance.

Table 1. Rules-in-use in Salamina.

Concerning boundary rules, participation in Salamina's agricultural landscape is open to both corporate growers and peasants, but the fairness of this participation is skewed. Corporate growers wield more influence, while peasants, because of limited resources and smaller landholdings often face marginalization. Within the context of agro-capitalism under the neoliberal food regime and considering aggregation rules, corporate growers strategically are propelled to gain extensive access to the resources needed for exploiting the region's landscape (Supplementary S2). This positioning empowers corporate growers to influence land use decisions, particularly in cultivating Hass avocados, causing a transformation of the agricultural landscape. This concentration of power and resources intensifies disparities between corporate growers and peasantry.

Hidden information regarding the environmental consequences of extensive plantations, especially those focused on Hass avocados, often remains concealed. This pertains to information rules. It relates to the far-reaching environmental degradation from the rapid expansion of such plantations (i.e. extent of water and soil degradation), which affects land and ecosystems and remains hidden from the general population, reinforcing exclusion. Concerning payoff rules, the distribution of costs and benefits in Salamina's agricultural landscape is imbalanced, with corporate growers benefiting more while peasants bear the

costs (ecological unequal exchange). This is clear in Salamina, where corporate growers exploit the landscape, depriving peasants of access to ecosystem services, and often leading to their displacement and employment as plantation laborers.

It is noteworthy that Salamina has 49 villages, where the rural population and agricultural activities are distributed. However, Hass avocado cultivation is concentrated in only five villages, with the level of activity concentration varying from 11% in one village (Corozal) to 73% in La Quiebra, and reaching an extreme of 82% of the total area in Pocito village. As one of the participants in the focus groups stressed:

> "In the not too distant future, I see my village completely depopulated. First, because the avocado plantations have surrounded us and the time may come when they will come to destroy the few properties that remain, because at this moment in my village is limited to nine small farms of coffee growing families. We are practically suffocated by them." (Assistant_2)

3.2. Rules and Resources

3.2.1. Political Economy

Neo-liberal policies, advocating global production patterns for efficiency and integrated markets, raise concerns about their impact on peasants in developing nations (Weis, 2004). In Latin America, these policies have led to export-oriented agribusiness, favoring extensive monoculture and negatively affecting agriculture and food systems (De Miranda et al., 2007; González, 2014). These reforms dismantled productive forces, attracting foreign direct investment, particularly in resource extraction, dominating capital flows by the late 1990s (Veltmeyer, 2020).

The rise of extractive capital is evident in the trend of "re-primarization," exporting raw commodities to meet global demand (Petras, 2020). This economic shift reflects increased foreign investments for land acquisition and access to global market resources (Delgado Weis, 2020). The example of Hass avocado plantations aligns with a national policy emphasizing agricultural commodities for economic revenue. In Salamina, foreign corporate-led avocado plantations, lack of state support for small-scale initiatives, and the absence of industrial processing underscore the impact of neo-liberal policies on land exploitation and resource management.

The expansion of Hass avocado plantations in Colombia can be understood because of various factors and policies that shape the production and export dynamics of the crop (Figure 3). First, the increased demand for healthy natural products and expanding markets in the Global North has driven the growth of avocado

plantations. This demand, coupled with rising avocado prices, has made avocado production a promising venture for producing countries like Colombia. Second, the prioritization of the Hass avocado value chain in the previous National Development Plan 2018-2022 and the rural capitalization incentives provided by the Ministry of Agriculture and Rural Development[2] have played a significant role in promoting avocado production at the national level. The creation of the first private capital fund for Hass avocados in 2020 has further facilitated investment and expansion in the sector. Colombia currently has a significant land area dedicated to Hass avocado cultivation, with the departments of Antioquia, Caldas, Quindío, Risaralda, Valle del Cauca, Tolima, Huila, and Cauca being the largest producers. The avocado industry in Colombia supports a substantial number of producers operating in many production units, and generating a significant number of jobs.

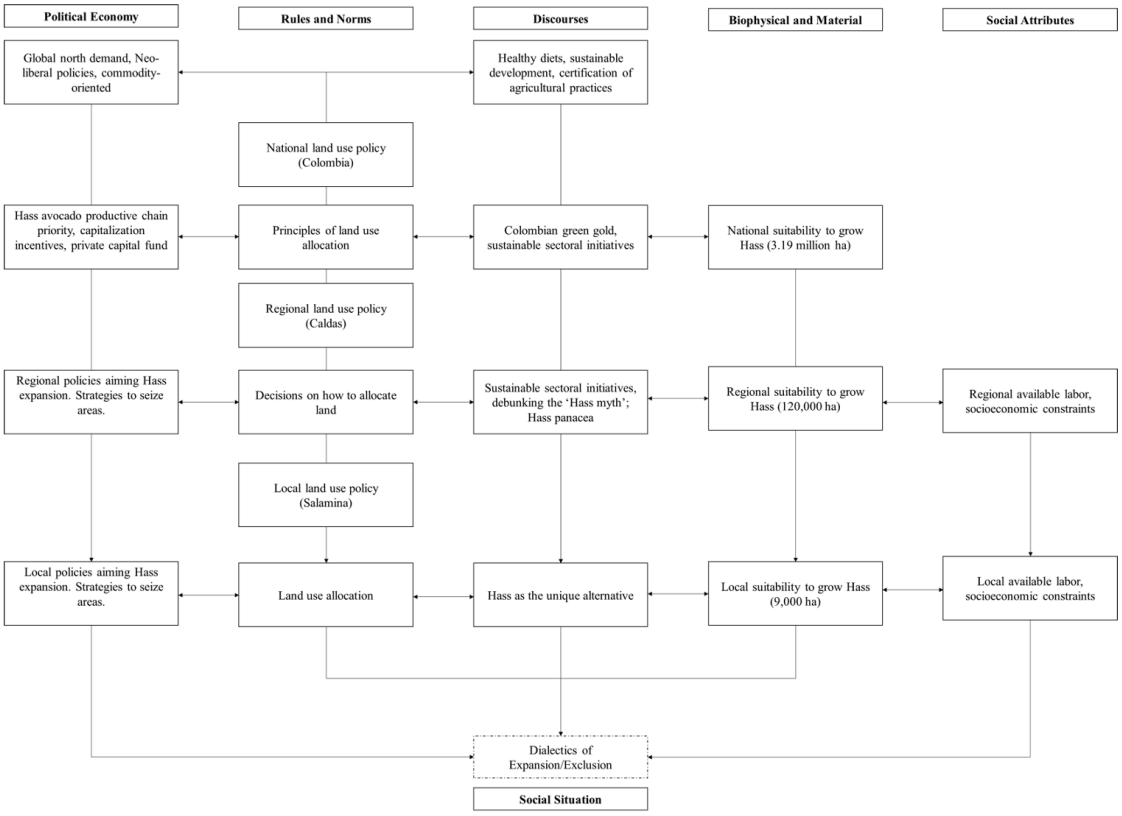


Figure 3. Rules and Resources. Based on Clement (2010) and Whaley (2018)

The department of Caldas has witnessed significant growth in avocado production, becoming the second-largest producer of Hass avocados in Colombia by 2020. This growth can be attributed to the department's interest in expanding the planted area and increasing productivity levels, as outlined in its public policy for

agricultural development defined through Assembly Ordinance 724 of 2014. This policy reflects the department's commitment to promoting avocado production as a means of economic development. At the same time, foreign corporations mainly from Peru and Chile have harnessed the opportunity to grow Hass in Caldas.

To regulate and guide the expansion of avocado production, the Departmental Agriculture Secretariat issued Resolution 6509 in 2018. This resolution establishes environmental and technical guidelines for Hass avocado production in Caldas, aiming to ensure sustainable practices in the sector. Agreements have been established to promote good agricultural practices and avoid deforestation, orienting the cultivation of Hass towards pasture areas, which are widely available in Caldas. However, controversies surrounding avocado plantations persist in the department. Complaints have been raised regarding issues such as displacement, land grabbing, and damage to water resources. These concerns highlight the social and environmental impacts associated with the expansion of avocado production (Supplementary material S1).

In response to these concerns, the environmental authority in Caldas has implemented precautionary measures and imposed sanctions on companies responsible for environmental damage. This shows the efforts to address and mitigate the negative consequences of avocado plantations on the environment and local communities. In Caldas, a department comprising 27 municipalities, there is one municipality characterized by these conflicts: Salamina. Salamina has the highest number of sanctions and preventive measures against corporate growers (13) and ranks second in the number of complaints, totaling six in 2022.

3.2.2. Rules and Norms

As an established democracy, Colombia's formal institutions, guided by the national Constitution and comprehensive regulations, uphold the fundamental right of every citizen to have access to a healthy environment. The Constitution establishes various participatory mechanisms to ensure the application of these rights. It also emphasizes the right to private property, with the central expectation that private property should serve both social and ecological interests. Given these principles, it is expected that agricultural development, including the allocation of land to different stakeholders, should follow a set of rules that are consistent with these overarching constitutional ideals.

Coordinated and coherent political-administrative and physical planning actions are essential to establish effective instruments to guide land development and regulate the use, occupation and transformation of its physical space (i.e., Law 388/1997, Decree 1077/2015). At the regional level, it is expected that the regulations generated at the national level will be incorporated. Here, additional elements are involved

that configure land allocation according to a series of determinants that limit land occupation (Resolution 0825 of 2023 of Corpocaldas). This includes what type of land is dedicated mainly to ecosystem conservation and risk protection. Once this has been determined, these regulations will be adapted at the municipal level and the areas that are not under restriction will be used for development. This responsibility falls to the municipalities in the so-called land-use planning instruments. The Regional Autonomous Corporation (Environmental Authority) acts as an advisory and coordinating body in this process.

The guidelines, considering hierarchical and technical aspects, directly influence changes in Salamina's land use. In this context, various conflicting scenarios emerge where public and private interests collide when it comes to benefiting from the agricultural landscape. Public organizations create sector-specific agendas that allow Hass corporations to negotiate land use when authorities develop land use planning -Regional environmental authority plays a significant role-. Corporations directly negotiate practices and strategies to harmonize productive activities with ecosystem conservation. This is particularly the case with the inter-sectoral Hass avocado-working agenda in Caldas, which operates at the regional level but has implications for municipalities where avocado is produced; also, there is a figure called "municipal avocado roundtable" that influence land use decision in Salamina[3].

Locally, the allocation of land tries to fit the land use into the regional guidelines. In this way, municipalities such as Salamina has been able to prevent even greater impacts of Hass plantations by considering land use allocation guidelines. Thus, following the guidelines of regional policies and formal land-use planning instruments, the companies aim to use and expand the available pastures as much as possible (Table 2).

Rural land use	Area (ha)
Permanent crops	2,762
Pastures	20,603

Table 2. Potential to increase Hass

Source EOT Salamina (2019).

doi.org/10.32388/30NKGN.2

In order to become binding institutional arrangements, it is imperative that monitoring and enforcement processes are incorporated to ensure compliance with established formal rules and regulations. Colombia exhibits an extensive policy and regulatory framework and an environmental sanctioning regime that aims to guarantee adherence to sustainability-oriented actions. The regulations pertaining to rural land use outline the conditions for the occupation and utilization of ecosystems and landscapes. Nonetheless, in Colombia, there is an additional historical pattern of inadequate regulatory control over natural capital (Cardona and Suarez, 2024). Moreover, the intended regulations overlook aspects that, although not visible, are real and have causal powers in the way they generate governance processes in agricultural landscapes. In this sense, formal rules do not present strategies to confront structural constraints that arise from various social and power structures, which transcend the local scale and, not being contained by said formal arrangements, reproduce structures of inequality and unsustainability. Regulation and enforcement deal only with instrumental and technical issues related to the suitability of land for different uses.

A concerning aspect is the absence of comprehensive legislation regarding land appropriation. This regulatory gap has created fertile ground for land accumulation, where powerful entities exploit the lack of control and oversight, leading to detrimental social and ecological consequences. The absence of robust regulations to govern land appropriation exacerbates the overarching implications of this issue, further compromising the sustainability and equitable distribution of resources in the municipality.

Informally and unintentionally, a scenario has unfolded where various disparities have emerged in how the rules are put into practice by agents with particular agendas. The existing formal institutional framework in Salamina has been infiltrated by agro-capitalism, resulting in the reconfiguration of rules that disadvantage the agricultural landscape, at least for the agents with fewer powers and influence. Extensive corporate-owned plantations have obscured the intended social and ecological role of property, which should yield both social and ecological benefits, leading to land grabbing and exacerbating ecological imbalances.

On the other hand, micro-level informal institutional arrangements related to access have been changing. Traditionally, adjacent properties used to have easements as a way of interconnecting rural areas and properties with assets such as roads or water intakes. However, with the concentration of large portions of land in the hands of corporations dedicated to Hass cultivation, these arrangements have changed, as there are current restrictions on access to areas where easements are used to serve farmers (Figure 4).

Figure 4. Restriction to access in Salamina. Source: The author.

3.2.3. Discourses

In Colombia, Hass avocado is considered as the "green gold", the "flagship fruit" or even the "national proud" because of its important increasing in production and exports. According to the director of Corpohass (Corporation of producers and exporters of Hass from Colombia):

> "Hass avocado stands out in more than 30 countries where it reaches, not only because of its flavor, but also because it makes its way as a referent of sustainability for the world, from its three dimensions. Its positive impact translates into well-being and quality of life for those who are part of its value chain, economic growth and responsible use of resources[4]".

doi.org/10.32388/30NKGN.2

Following this line, the Hass avocado is being used as the main alternative for rural sector development in Caldas and Salamina. Employment and income generation are widely acknowledged as key strengths of Hass plantations. It is noteworthy that beyond the agriculture and development agencies from Caldas and Salamina, even the regional environmental authority in its formal communication platform[5], depicts Hass avocado plantations as champion of sustainable development. The authority cites "*good environmental performance practices*," "*well-organized management of surface waters*," "*effective control of materials resulting from road construction*," and "*proper rainwater handling on slopes*." The communication made by the director of the environmental authority also stressed, "*this highlights the importance of debunking myths related to agrochemicals, water supply, and water pollution related to Hass avocado plantations*." In making this statement, the environmental authority dismisses many pieces of evidence, including sanctions within its jurisdiction, that substantiate the implications associated with Hass avocado plantations.

In Salamina, there is a confluence of discourses, which integrates ideas and concepts on different scales. Although the current process of increasing avocado plantations is presented as a win-win discourse, this is far from being the case. On one hand, the philosophy of capitalism presents discourses that portray the accumulation of capital as the norm and the goal in occupying rural land, along with the neoliberal ideology of individualism and self-determination without state intervention. Here, ideas embedded in the belief of rural backwardness and poverty as a lack of monetary resources are identified. Therefore, large-scale plantations emerge as the sole alternative to fulfill those objectives of rural development, employment generation, and economic growth. Then, agribusiness companies often create a narrative emphasizing the limited capabilities and productivity of smallholder farmers to gain land and establish control over resources (Hasudungan & Neilson, 2020).

Conflicting discourses arise, entwined with the aspirations of sustainable development. Despite ostensibly prioritizing environmental conservation and social justice, these discourses perpetuate economic growth as the principal developmental impetus, giving rise to noteworthy contradictions (Giraldo, 2019; Næss, 2006). This duality is clear in the diverse policies enacted at the national, regional, and local tiers, where the pursuit of economic growth and job creation coexists with an avowed commitment to the tenets of sustainable development. However, this apparent alignment is contradicted by the prevalence of grievances and sanctions in Salamina.

Export certifications are one aspect that reinforces the discourse of sustainable development embodied in plantation agriculture. In Hass avocado production in Salamina, with an aim for international markets, growers need to meet accreditation requirements that 'certify' the environmentally and socially sustainable practices. These certifications include Global G.A.P (Good Agricultural Practices), SMETA

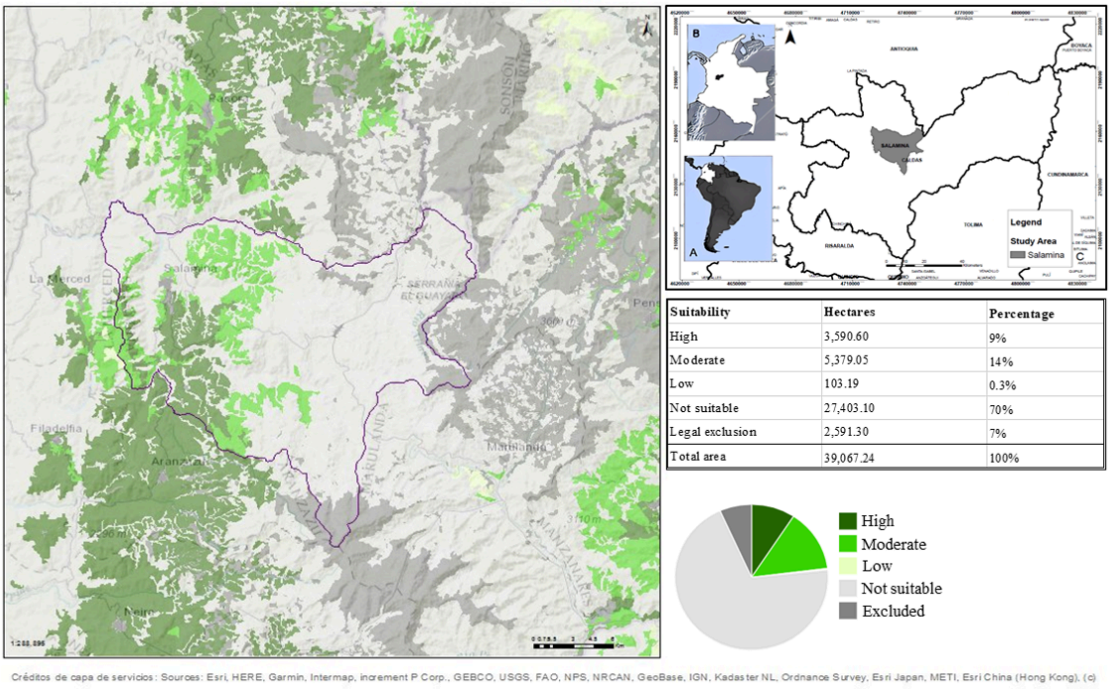
(Sedex Members Ethical Trade Audit), the Rainforest Alliance, and others. When corporations successfully complete these certification processes, they not only strengthen the discourse about the legitimacy of their plantations but also propel it forward because of the prominence of these labels. This represents a 'certification fetishism', which conceals the underlying dynamics behind the certified product itself. These discourses together, as posed by Dryzek (2005), represent the unspoken conventions that shape the backdrop for social engagement, holding a similar importance to formal institutional regulations.

With this, the new scenario revolves around the consolidation of Hass plantations, leaving aside other options that could be viable. For example, participants stressed that "there is no training for young people to empower themselves in the countryside, in order to diversify the economy towards other alternatives". Assistant_3. Assistant_4 stated, "I have seen that corporations focused on their activity, purely on avocado, offer education and training in the so-called *avocado school*, which seeks to get young people technically oriented towards avocado management." Assistant_3 also raised the question: why cannot we be agricultural entrepreneurs too, what happens is that there is no public policy that supports initiatives? For example, if we plant corn, and it dies, nobody pays for it."

3.2.4. Biophysical and Material

Hass avocado is commonly grown at altitudes ranging from sea level to approximately 2,500 meters above sea level by conventional standards. However, in Colombia, the predominant agricultural practice focuses on the cultivation of this type of avocado at altitudes ranging between 800 and 2,500 meters. According to Fonseca et al. (2018), it is noteworthy that, in Colombia, the aptitude to produce Hass avocado amounts to 3.19 million ha, of which 632 thousand ha present high aptitude, 1.8 million ha have medium aptitude and 1.4 million ha have low aptitude. At the level of Caldas, the suitability reaches over 120 thousand hectares.

In this context, the cultivation of Hass avocados in Salamina exhibits a suitability for production across over 9 thousand hectares (Figure 5). Approximately 3590.6 hectares (40% of total suitability) are classified as highly suitable, 5,379 hectares (56%) as moderately suitable, and 103.19 hectares (1%) as having low suitability. Presently, the existing plantations cover over 2 thousand hectares, showing a substantial untapped potential for expanding Hass cultivar production to approximately 3.3 times the current extent in the future.



Suitability	Hectares	Percentage
High	3,590.60	9%
Moderate	5,379.05	14%
Low	103.19	0.3%
Not suitable	27,403.10	70%
Legal exclusion	2,591.30	7%
Total area	39,067.24	100%

Figure 5. Hass avocado suitability in Salamina. Source: Author based on SIPRA (https://sipra.upra.gov.co)

Salamina is home to a diverse range of ecosystems and abundant water resources. According to the EOT Salamina (2021), the area possesses 15 hydrographic micro-basins that supply water to the region. Vast expanses of pasture predominantly characterize the landscape of Salamina, covering 20,603 hectares, which accounts for 53.3% and forests occupy 17% of the municipality's land. This prevalence of pasture is a common trend in regions that have traditionally relied on a livestock-based economy. Permanent and transitory crops are relatively low in Salamina. The municipality has over two thousand hectares of permanent crops and a mere 11 hectares of annual and transitory crops, representing 7.1% and 0.03% of the total municipal area, respectively (EOT Salamina, 2021).

Although the soils of Salamina have the potential for crop production, it is crucial to recognize that, an 83.7% of these soils have characteristics that require careful management and adaptation for agricultural use. Some of these soils may have limitations, such as poor drainage or erosion issues, which need to be addressed to ensure their optimal utilization in agriculture. While it is feasible to use these soils, it needs meticulous management and implementing specific agricultural techniques to overcome the limitations and maximize production (EOT Salamina, 2021). Over 15 thousand hectares in Salamina face land use conflicts because of overuse, underscoring the urgent need for sustainable land management practices[6].

doi.org/10.32388/30NKGN.2

The ecosystems and agroecosystems in Salamina have played a vital role in providing a wide range of ecosystem services to both urban and rural populations. The people of Salamina highly value water supply and regulation, soil fertility, and food production, as evidenced by some studies (Suarez et al., 2022; Corpocaldas and WCS, 2020). It is noteworthy that Salamina is within the UNESCO-recognized coffee cultural landscape, which also is an important aspect that the increasing of Hass plantations has endangered.

3.2.5. Socio-productive Attributes

Salamina, a small municipality with around 19,923 residents, grapples with socio-economic challenges. Roughly 38% of its population lives in rural areas, where 10.3% experience unmet basic needs, and 1.4% live in poverty. Multidimensional poverty among rural residents stands at 40.8% (PDM Salamina, 2020). The circumstances in Salamina underscore the land distribution challenges in Caldas, ranking fourth among the 32 departments in Colombia with the highest GINI land index. According to the Government of Caldas (2020), Salamina exhibits a GINI of land ranging from 0.76 to 0.84, with pasture farms being the predominant land-use system, concentrating the largest area.

Historically, Salamina's economy revolved around coffee cultivation, typically on farms ranging from three to 3.4 hectares. Land ownership was traditionally divided into two categories: extensive pastures held by wealthy individuals and farming systems driven by peasants, primarily focusing on coffee and plantain cultivation in hilly areas with limited technological and financial resources. Non-mechanized coffee farming on high slopes, with coffee serving as a primary source of income and cultural identity for rural communities, has long shaped Salamina's cultural landscape.

Over the past two decades, an enduring economic crisis in the coffee industry has posed a significant challenge to Salamina's existing coffee production system. The combination of falling coffee prices and increasing production expenses has resulted in a substantial reduction in the cultivated coffee area, amounting to over 670 hectares (representing about 28%) from 2007 to 2022. These changes have led to a significant increase in avocado plantations, from 380 hectares in 2018 (7% of total products planted in Salamina) to 2,500 hectares in 2022 (over 30%), while coffee production areas decreased by 119 hectares, and livestock production systems decreased by 19% between the years 2019 and 2022 (Supplementary material S3).

Hass corporations have shifted land utilization from pastures to Hass avocado production. In this context, dealing with a specific group of customary elites, such as livestock and pasture owners streamlined the process of land access. Negotiating with multiple small traditional producers, like coffee or plantain

growers (3.4 ha on average), would have been time-consuming, costly, and uncertain. Consequently, a significant portion of pastures, including areas with crucial water sources, have been acquired by large avocado companies, focusing primarily on elevations ranging from 1,800 to 2,100 meters above sea level, precisely where vital water springs are situated (Corpocaldas and WCS, 2022).

3.3. Outcomes and Evaluation

In Salamina, both intended and unintended consequences stemming from the structure-agency relation related to the Hass avocado plantations phenomenon, and its implications institutions. The intended outcome is the perpetuation of the agro-capitalism model, driven by the heightened production of agricultural commodities such as Hass avocados, aimed at capital accumulation. Simultaneously, albeit unintentionally, this process contributes to the perpetuation of the prevailing global neoliberal-food regime. Corporate growers embody the agency behind these dynamics, and public and private organizations actively promote the consolidation of a specific product (the Hass cultivar) through a particular strategy (large-scale plantations). These actions are further bolstered by the increasing demand from Global North consumers for healthier dietary options, which induce commodification in the agricultural landscapes of Salamina. An additional unintended consequence arises from the perpetuation of exclusion of peasantry because of biased agricultural landscape governance, which does not ensure the equitable distribution of landscape benefits.

4. Discussion

Critical literature on Hass avocado has mainly focused on how institutional changes following neoliberal transitions have facilitated its expansion and its social and environmental impacts. Research shows how the use of market opportunities allowed farmers to convert land to avocado plantations through microcredit and subsidies from government agencies (Budds, 2004). At the same time, attention has been drawn to the overarching issues of the incorporation of neoliberal policies beyond state control of the market, the erosion of communal institutions, and the lack of enforcement of agrarian and environmental laws and indigenous rights (Barsimantov & Navia Antezana, 2012; De la Vega-Rivera & Merino-Pérez, 2021; Khan et al., 2021).

Dispersed extractive activities amalgamate to shape a cohesive trajectory of extractivism development worldwide (Ye et al., 2020), and Hass avocado is not the exception. This paper argues that Salamina, which was once a localized and secluded participant in the global Hass avocado market, currently plays a pivotal role within the machinery that fortifies the existing neoliberal food regime (*power 1*). Within the context of

Salamina, the adoption of crop commodities like the Hass cultivar serves as the driving catalyst for structural reproduction in contemporary global agricultural development strategies (c.f. McMichael, 2009). In substantiating this transition, an important part of Colombia's formal land-use allocation institutions have pushed to promote Hass plantations, regardless of the implications outside technical regimes related to land use suitability or land availability. Moreover, the institutional framework welcomes large corporations and pushes aside peasant initiatives, needs and local informal institutional arrangements.

As discussed in Chile regarding the nexus of Hass growing and water resources (Bolados et al., 2018), the initiatives to technically define watersheds in the context of integrated water resources management did not address existing inequalities and limitations triggered by Hass plantations. In the case presented in this paper, the problem is similar, since the technical definition of the areas suitable for Hass cultivation (over 3 million hectares) and the regional strategy to seize available pastureland at regional level (Suarez et al., n.d.) did not take into account the issues of access and exclusion mobilized by Hass plantations.

On the other hand, literature draws attention to institutional frameworks related to product certification that undermine local markets when growing Hass avocado (Friedmann & McNair, 2009). The process aligns with discourses of sustainable development and the search for "superfoods" (*power* 2) that have become popular among middle- and high-income populations in developed regions of the world (Magrach & Sanz, 2020). This paper found as in other studies that Hass avocado expansion also has benefited from discourses related to development and employment (Budds, 2004). In this line, "Hass institutional framework" allow actors framing differently the issues surrounding plantations. By one hand, discourses are mobilized to legitimate practices (Bolados et al., 2018; Budds, 2008), and also to present Hass growing as the unique alternative to overcome agricultural crisis in Salamina. However, other positions are neglected, (i.e. peasantry), who face negative consequences of plantations, such as exclusion.

The expansion/exclusion dialectics presented in this paper stress a coordination challenge. Therefore, in the case of Salamina, it could be key to establish coordination mechanisms such as networks among peasants and small farmers reliant on and affected by the exclusion produced by large-scale occupation and the skewed bargaining powers of the actors (*power* 3). As per Hollingsworth (2000), such networks form as semi-formal memberships characterized by multilateral and voluntary exchange, resource dependence, and are built upon trust and personal relations.

In these coordination mechanisms, enforcement relies on external authority, leveraging the extensive environmental laws and policies governing land use allocation. While there have been advancements in addressing complaints and implementing sanctions on plantations, the establishment of robust networks

could potentially alleviate conflicts stemming from these activities through coordinated action in monitoring various land use governance approaches. In this context, the development of new rules and norms should aim to counteract the existing rules-in-use that perpetuate exclusion. This alternative approach should prioritize fair rules that mediate land use allocation, where dilemmas arise within agricultural landscapes.

5. Conclusion

This research presents a critical institutional analysis of the dialectics of expansion and exclusion associated with Hass plantations in Salamina, Colombia. The analysis reveals that the expansion of Hass avocado cultivation has led to a concentration of land ownership in the hands of international corporations. This concentration has been facilitated by various policies and strategies for land allocation, which prioritize technical considerations and marginalize actors not involved in the avocado boom. Various forces have played significant roles in this process, including the neoliberal food regime, which promotes corporate expansion while limiting peasant initiatives. Discursive power has created a narrative where Hass cultivation is perceived as the only viable solution, while the unequal power dynamics among different actors make negotiation and coordination challenging. As a result, the peasantry faces increasing constraints, and the agricultural landscape in Salamina is becoming increasingly corporatized, prompting critical questions about agrarian issues in the region.

Supplementary Materials

#	Detail of the sanctions and preventive measures
1	Occupation of several watercourses and forest harvesting without a permit, as well as sedimentation and impact on water bodies with material left over from the opening of roads.
2	Agricultural burns that endangered the environmental protection zone and the Curubital aqueduct zone in Salamina.
3	Alleged affectation of the Chagualito stream because of the disposal of material from road excavation, contamination of the drainage, and affectation of the water supply to the municipal capital of Salamina.
4	Sediment contribution to the Curubital creek due to the absence of trenches or structures to control mass movements coming from the road.
5	Impact on water sources supplying the La Frisolera micro power generation plant because of the opening and use of roads, as well as the disposal of debris over bodies of water.
6	Felling of trees without a logging permit and possible impact on a water body.
7	Alleged agricultural burning on the Riobamba property.
8	Inadequate disposal of waste from road construction, deterioration of the protective forest strip and occupation of watercourses without authorization from Corpocaldas.
9	Alleged damage to protective forest strips, lack of protection of springs, occupation of watercourses, and related activities.
10	Opening of internal roads within the area that corresponds to the protected forest area, inadequate disposal of debris.
11	Opening of internal roads, inadequate disposal of debris on water sources, waterway intervention without permission and impact on the protective forest strip. Damage to vegetation cover and watercourse and intervention of forest areas protecting watercourses because of road construction.
12	Impact on vegetation cover and watercourse and the intervention of forest areas protecting watercourses because of road construction.
13	Impact on vegetation cover and watercourse and the intervention of forest areas protecting watercourses because of road construction, the use and exploitation of natural resources and the generation of discharges because of activities carried out on the property without the respective environmental permits.

Supplementary Material S1. Sanctioning processes and preventive measures against avocado producers in Salamina, Caldas.

Northern Caldas	Sanctions/preventive measures
Aguadas	6
Salamina	13 (1st) out of 27 municipalities
Pacora	0
Aranzazu	2

Source: Corpocaldas (2022). Response to request for information, Hass avocado plantations, department of Caldas.

Positions	Agents	Characteristics	Practices*
Producers	Peasantry	Small scale, less than 5 ha farms.	Practices mainly related to coffee and plantain growing. Maintenance of traditional agricultural activities, self-consumption, local market engagement, and community ties at the micro level (farm-village), small-scale landscape intensification.
	Cooperative farmers	Grouping of people engaging in the commercialization of avocados, different sizes, mostly 1-2 ha, few cases reach 30 ha.	Local and regional market engagement. Small-scale landscape intensification.
	Corporate growers	Primarily, external corporations. Seventeen properties identified, with an average area of 158 hectares, ranging from a minimum of 46 hectares to a maximum of 748 hectares. A single company may possess multiple properties in the region.	Practices focus on Hass avocado plantations. Large-scale landscape transformation, international-oriented market, community engagement at the municipal level given the employment.
	Livestock farmers	Traditional owners of large tracts of land dedicated mainly to pasture and livestock.	Cattle production, land ownership as a source of wealth.
Laborers	Rural inhabitants	Labor force available to work in the agricultural sector of Salamina.	Engaging in seasonal or permanent activities related to agriculture work according to the available possibilities.
Monitoring/enforcement	Corpocaldas	Environmental authority that promotes environmental conservation and sustainable use of ecosystems.	Rule of law, monitoring environmental degradation, promotion of sustainable practices. Sanctioning power.

Positions	Agents	Characteristics	Practices*
	Municipality of Salamina	Local administrative authority that deals with land use management and planning.	Rule of law, monitoring land use development, follow regional environmental guidelines. Partial sanctioning power.
	Rural citizens	Monitoring transformations and environmental degradation in Salamina.	Monitoring and reporting to different instances the state of the ecosystems.
Promotion	Municipality of Salamina	Local administrative authority that deals with the municipality's development.	Development promotion. Financing of rural development, advisory services for agricultural activities (at local level).
	Government of Caldas	Regional administrative authority that deals with the region's development.	Development promotion. Financing of rural development, advisory services for agricultural activities (at regional level).
	Other national-level organizations	Different organizations that promote the development of the agricultural sector and mainly the Hass avocado.	Advisory services for agricultural activities (at regional level and local level), funding activities, promoting development.
	Corpocaldas	Environmental authority that promotes guidelines to fit development and environmental concerns in the region.	Promoting sustainable development through guidelines is not always compulsory for rural development.

Supplementary Material S2. Characteristics of the Agents in the Social Situation

**Routinized behavior according to each participant's position.*

doi.org/10.32388/30NKGN.2

	Hass planted area (ha)			Hass production (t)			Coffee planted area (ha)			Cattle ranches (# farms)		
Region	2020	2022	(+)	2020	2022	(+)	2007	2022	(-)	2019	2022	(-)
Northern Caldas	6,647	9,336	2,689	15,261	86,772	71,511	14,291	10,831	3,460	1,962	1,691	271
Aguadas	1,201	1,702	501	4,227	30,040	25,813	4,620	4,050	570	519	443	76
Aranzazu	1,200	2,894	1,694	1,588	19,002	17,414	2,597	1,581	1,016	422	376	46
Pácora	2,200	2,240	40	9,127	30,800	21,673	4,010	3,180	830	403	372	31
Salamina	2,045	2,500	455	319	6,930	6,611	3,064	2,020	1,044	618	500	118

Supplementary Material S3. Change in Hass avocado, coffee, and livestock in the northern Caldas sub-region.

Regional statistics show that for the four municipalities that make up the northern sub-region (Aranzazu, Pácora, Salamina, and Aguadas) all of them have shown an increase in Hass avocado (2020-2022). In this period, Northern Caldas increased its Hass avocado area by more than 2 thousand hectares, with Aranzazu being the municipality with the greatest increase in area, followed by Salamina. Salamina saw a remarkable 21-fold increase in avocado production tons in 2022 compared to 2020, leading among the municipalities in Caldas[a]. Data from 2023 depicts a Hass avocado cultivation area spanning 2,965 hectares[b].

Source: Own elaboration based on EVAS agriculture 2007-2022. Salamina is the municipality in the sub-region with the lowest yield per hectare (6 t/ha), compared to Aguadas (20 t/ha), Aranzazu (10 t/ha), and Pácora (14 t/ha).

———

[a] EVAS-Evaluaciones agropecuarias municipales 2007-2022. Raw statistics of the agricultural sector in Colombia. Available at: https://upra.gov.co/es-co/Paginas/eva.aspx

[b] Geoportal Corpocaldas (2024). Agendas Sectoriales/ Predios aguacateros. Available at: https://corpocaldas-visorpublico-pro.geoambiental.co/

Footnotes

[1] Informe Analdex 2022. Informe exportaciones de aguacate Hass septiembre 2022. Dirección de Asuntos Económicos.

[2] MADR. (2021). *Incentivo a la Capitalización Rural - Programa DRE* [*Incentive for Rural Capitalization - DRE Program*]. Retrieved from https://acortar.link/RrsU6i

[3] The Salamina's roundtable involves various stakeholders, including the community. However, negotiations are difficult because of the open and exposed way roundtables are developed.

[4] Corpohass [Official]. (2024, 13.03). En 2024 duplicamos los envíos de Hass Origen Colombia para el Super Bowl 1.496 toneladas de Aguacate Hass colombiano acompañarán la popular celebración deportiva de Estados Unidos. https://www.corpohass.com/post/en-2024-duplicamos-los-env%C3%ADos-de-hass-origen-colombia-para-el-super-bowl

[5] Corpocaldas [Official]. (2020, 20.09). Llegamos hasta la vereda Curubital ubicada en el municipio de Salamina, con el objetivo de conocer de primera mano los planes de manejo agroambiental que ha ejecutado la empresa aguacatera Agrícola pacífico sur Pacífico Sur. [Video]. Facebook. https://www.facebook.com/watch/?v=1868753635494 79

[6] At the time of the published report on land use in Salamina, the avocado plantations had not yet started to develop on a large scale.

References

- Akram-Lodhi, A., Dietz, K., Engels, B., & McKay, B. (2021). Handbook of Critical Agrarian Studies (Issue 1). Edward Elgar Publishing Limited.
- Barsimantov, J., & Navia Antezana, J. (2012). Forest cover change and land tenure change in Mexico's avocado region: Is community forestry related to reduced deforestation for high value crops. Applied Geography, 32(2), 844–853. https://doi.org/10.1016/j.apgeog.2011.09.001
- Bhaskar, R. (2014). The Possibility of Naturalism (Third edit). Taylor & Francis. https://doi.org/10.4324/9781315756332
- Bolados, P., Henriquez, F., Ceruti, C., & Sánchez, A. (2018). La eco-geo-política del agua: una propuesta desde los territorios en las luchas por la recuperación del agua en la provincia de Petorca (Zona central de Chile). Revista Rupturas, 8(1), 167–199.

- Budds, J. (2004). Political Ecology of Water in Chile. Singapore Journal of Tropical Geography, 25(3), 322–342.
- Budds, J. (2008). Whose scarcity? The hydrosocial cycle and the changing waterscape of La Ligua river basin, Chile. Contentious Geographies: Environmental Knowledge, Meaning, Scale, 59–78.
- Cardona, C and Suarez, A. (2024). Integrated Water Resources Management in Colombia: A Historical Perspective. Ambiente & Sociedade (27).
- Cho, K., Goldstein, B., Gounaridis, D., & Newell, J. P. (2021). Where does your guacamole come from? Detecting deforestation associated with the exports of avocados from Mexico to the United States. Journal of Environmental Management, 278(P1), 111482. https://doi.org/10.1016/j.jenvman.2020.111482
- Clement, F. (2010). Analysing decentralised natural resource governance: Proposition for a "politicised" institutional analysis and development framework. Policy Sciences, 43(2), 129–156. https://doi.org/10.1007/s11077-009-9100-8
- Corpocaldas (Corporación Autónoma Regional de Caldas) y WCS. (2020). Estructura ecológica para la subregión Norte de Caldas. Manizales, Colombia.
- De la Vega-Rivera, A., & Merino-Pérez, L. (2021). Socio-environmental impacts of the avocado boom in the Meseta Purépecha, Michoacán, Mexico. Sustainability (Switzerland), 13(13). https://doi.org/10.3390/su13137247
- De Miranda, A. C., Moreira, J. C., De Carvalho, R., & Peres, F. (2007). Neoliberalismo, uso de agrotóxicos e a crise da soberania alimentar no Brasil. Ciencia e Saude Coletiva, 12(1), 7–14. https://doi.org/10.1590/S1413-81232007000100002
- Delgado-Wise, R. (2020). Capitalism on the frontier of agroextractivism. Buen Vivir and the challenges to capitalism in Latin America, 50-70.
- Denvir, A., Arima, E. Y., González-Rodríguez, A., & Young, K. R. (2021). Ecological and human dimensions of avocado expansion in México: Towards supply-chain sustainability. Ambio. https://doi.org/10.1007/s13280-021-01538-6
- Dreher, M. L., & Davenport, A. J. (2013). Hass Avocado Composition and Potential Health Effects. Critical Reviews in Food Science and Nutrition, 53(7), 738–750. https://doi.org/10.1080/10408398.2011.556759
- Dryzek, J. S. (2005). Making sense of earth's politics: A discourse approach. The politics of the earth. Environmental discourses, 12(7), 3-24.
- Duran-Llacer, I., Munizaga, J., Arumí, J. L., Ruybal, C., Aguayo, M., Sáez-Carrillo, K., Arriagada, L., & Rojas, O. (2020). Lessons to be learned: Groundwater depletion in Chile's ligua and petorca watersheds through an interdisciplinary approach. Water (Switzerland), 12(9). https://doi.org/10.3390/w12092446
- Eldrige, H. M. (2024). The avocado debate. Routledge.

- Emmel, N. (2014). Sampling and Choosing Cases in Qualitative Research: A Realist Approach. In Sampling and Choosing Cases in Qualitative Research: A Realist Approach. https://doi.org/10.4135/9781473913882
- EOT Salamina (2021). Esquema de Ordenamiento Territorial de Salamina. Documento diagnostico.
- Fonseca, F.; Aguilar, D.; et al. (2018). «Zonificación de aptitud para el cultivo comercial de aguacate Hass en Colombia, a escala 1:100.000». Bogotá: UPRA.
- Friedmann, H., & McNair, A. (2009). Whose Rules Rule? Contested Projects to Certify "Local Production for Distant Consumers." Transnational Agrarian Movements Confronting Globalization, 239–265. https://doi.org/10.1002/9781444307191.ch9
- Fulgoni, V. L., Dreher, M., & Davenport, A. J. (2013). Avocado consumption is associated with better diet quality and nutrient intake, and lower metabolic syndrome risk in US adults: Results from the National Health and Nutrition Examination Survey (NHANES) 2001-2008. Nutrition Journal, 12(1), 1–6. https://doi.org/10.1186/1475-2891-12-1
- García, J. S. A., Hurtado-Salazar, A., & Ceballos-Aguirre, N. (2021). Current overview of hass avocado in colombia. Challenges and opportunities: A review. Ciencia Rural, 51(8), 1–9. https://doi.org/10.1590/0103-8478cr20200903
- Giraldo, O. F. (2019). Political Ecology of Agriculture. In Political Ecology of Agriculture. https://doi.org/10.1007/978-3-030-11824-2
- González, H. (2014). Specialization on a global scale and agrifood vulnerability: 30 years of export agriculture in Mexico. Development Studies Research, 1(1), 295–310. https://doi.org/10.1080/21665095.2014.929973
- Government of Caldas (2020). Plan departamental de extension agripecuaria de Caldas 2020-2023. document retrieved on 01.12.24. Available at: https://www.minagricultura.gov.co/ministerio/direcciones/PublishingImages/Paginas/PDEA/Caldas.pdf
- Hall, Hirsch, & Li. (2011). Powers of Exclusion. In Land Dilemmas in Southeast Asia. (p. 257).
- Hasudungan, A., & Neilson, J. (2020). The institutional environment of the palm oil value chain and its impact on community development in kapuas hulu, indonesia. Southeast Asian Studies, 9(3), 439–465. https://doi.org/10.20495/seas.9.3_439
- Hass Avocado Board (2022). Country Profile: Colombia. Producer country profile produced by CIRAD, The Centre De Cooperation International En Recherche Agronomique Pour Le Développement.
- Hollingsworth, J. R. (2000). Doing institutional analysis: Implications for the study of innovations. Review of International Political Economy, 7(4), 595–644. https://doi.org/10.1080/096922900750034563

- Khan, N., Kakabadse, N. K., & Skouloudis, A. (2021). Socio-ecological resilience and environmental sustainability: case of avocado from Mexico. International Journal of Sustainable Development and World Ecology, 00(00), 1–15. https://doi.org/10.1080/13504509.2021.1902419
- Magrach, A., & Sanz, M. J. (2020). Environmental and social consequences of the increase in the demand for 'superfoods' world-wide. People and Nature, 2(2), 267–278. https://doi.org/10.1002/pan3.10085
- McMichael, P. (2009). Banking on agriculture: A review of the world development report 2008. Journal of Agrarian Change, 9(2), 235–246. https://doi.org/10.1111/j.1471-0366.2009.00203.x
- Næss, P. (2006). Unsustainable Growth, Unsustainable Capitalism. Journal of Critical Realism, 5(2), 197–227. https://doi.org/10.1558/jocr.v5i2.197
- Ostrom, E. (2011). Background on the Institutional Analysis and Development Framework. Policy Studies Journal, 39(1), 7–27. https://doi.org/10.1111/j.1541-0072.2010.00394.x
- Panez Pinto, A., Mansilla Quiñones, P., & Moreira-Muñoz, A. (2018). Agua, tierra y fractura sociometabólica del agronegocio. Actividad frutícola en Petorca, Chile. Bitácora Urbano Territorial, 28(3), 153–160. https://doi.org/10.15446/bitacora.v28n3.72210
- PDM Salamina (2020). Plan de Desarrollo Municipal Salamina - Caldas 2020-2023: "Construyendo Confianza". Available at: https://www.scribd.com/document/636152512/Untitled. Retrieved on 20.03.24.
- Pérez-Llorente, I., Ramírez, M. I., Paneque-Gálvez, J., Orozco, C. G., & González-López, R. (2019). Unraveling complex relations between forest-cover change and conflicts through spatial and relational analyses. Ecology and Society, 24(3). https://doi.org/10.5751/ES-10992-240303
- Ramírez-Mejía, D., Levers, C., & Mas, J. F. (2022). Spatial patterns and determinants of avocado frontier dynamics in Mexico. Regional Environmental Change, 22(1). https://doi.org/10.1007/s10113-022-01883-6
- Ribot, J. C., & Peluso, N. L. (2003). A theory of access. Rural Sociology, 68(2), 153–181. https://doi.org/10.1111/j.1549-0831.2003.tb00133.x
- Petras, J. (2020). Extractive capitalism: Development and resistance dynamics. In Buen Vivir and the Challenges to Capitalism in Latin America (pp. 31-49). Routledge.
- Suarez, A., Ruiz-Agudelo, C. A., et al. (2022). Recognizing, normalizing and articulating: An approach to highlight plural values of water ecosystem services in Colombia. Heliyon, 8(9). https://doi.org/10.1016/j.heliyon.2022.e10622
- Suarez, A., Domptail, S.E., & Gwozdz, W. (n.d.). Seizing pastures: Hass avocado expansion and resource access exclusion in Salamina, Colombia. Paper in progress.

- Svarstad, H., Benjaminsen, T. A., & Overå, R. (2018). Power theories in political ecology. Journal of Political Ecology, 25(1), 350–363. https://doi.org/10.2458/v25i1.23044
- Weis, T. (2004). Restructuring and redundancy: The impacts and illogic of neoliberal agricultural reforms in Jamaica. Journal of Agrarian Change, 4(4), 461–491. https://doi.org/10.1111/j.1471-0366.2004.00088.x
- Whaley, L. (2018). The critical institutional analysis and development (CIAD) framework. International Journal of the Commons, 12(2), 137–161. https://doi.org/10.18352/ijc.848
- Ye, J., van der Ploeg, J. D., Schneider, S., & Shanin, T. (2020). The incursions of extractivism: moving from dispersed places to global capitalism. Journal of Peasant Studies, 47(1), 155–183. https://doi.org/10.1080/03066150.2018.1559834
- Veltmeyer, H., & Lau, E. Z. (2020). Buen Vivir and the challenges to capitalism in latin America. In Buen Vivir and the Challenges to Capitalism in Latin America. Taylor & Francis Group. https://doi.org/10.4324/9781003091516

Declarations

Funding: I would like to thank the financial support from the German Academic Exchange Service (DAAD) under the program Development-Related Postgraduate Courses (EPOS), contract number P1401273 for funding this research. In addition, I would like to thank to Justus Liebig University-Giessen and the International PhD Program in Agricultural Economics, Bioeconomics and Sustainable Food Systems (IPPAE) for the academic support.

Potential competing interests: No potential competing interests to declare.