Exploring the Contribution of Public Policies to the Scaling Up of Agroecology in Peru

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Abstract

This article evaluates the combined contribution of Peruvian public policies to laying a foundation for scaling up agroecology. Through qualitative content analysis, the study explores Peruvian public policies and identifies the conditions they foster or fail to support, which may respectively facilitate or hinder the scaling up of agroecology in the country. Results show that, although agroecology gained limited institutional recognition in Peru in 2021, public policies remain largely focused on economic growth, agribusiness development, and market integration. While some measures support ecological practices and acknowledge cultural and social aspects, these are often framed within goals of productivity and profitability or directed toward organic agriculture, thereby hindering the comprehensive scaling up of agroecology. Nevertheless, the research identifies openings in public policy, such as efforts to strengthen governance structures among smallholder and family farmers, legitimize rural communities' rights, and recognize diverse knowledge systems, that present opportunities for grassroots agroecological initiatives to expand. The study concludes that for agroecology to meaningfully scale up in Peru, public policy must shift from an economic-centric model to one that fosters ecologically sound, culturally grounded, and socially just farming systems, with greater autonomy for local producers from global markets.

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Introduction

The agricultural sector in Latin America faces mounting environmental pressures as it strives to meet the demand for agri-food products from Northern economies, all while addressing social inequality and climate change (LaRota-Aguilera et al., 2022). These strains are evident in multiple countries as they expand agri-food exports, with growing landownership concentration, high agrochemical use, soil erosion from crop intensification, and rising pesticide poisoning cases (Ardisana et al., 2018; Javier, 2020; ECLAC et al., 2021). This extensive list of detrimental consequences raises concerns about the future of land use in these nations and the people reliant on agricultural activities, such as rural populations. These concerns are heightened by the fact that the agricultural industry's average annual growth of 2.7% is partly driven by the displacement of subsistence-oriented peasant-farming units (LaRota-Aguilera et al., 2022).

Given this context, it is necessary to generate research on how alternative agricultural practices, which offer pathways to overcome the negative externalities of high-input industrial agriculture, are being supported and advanced. Particularly in the Latin American context, agroecology emerges as a prominent farming practice, articulated through a social movement of resistance that seeks autonomy for local producers with respect to global markets and promotes socially, economically, and environmentally sustainable modes of production and reproduction (Rosset et al., 2022). Advancing agroecology entails moving toward agroecosystems where chemical and external inputs are replaced by local knowledge and where an ecological rationality prevails over an industrial-oriented approach (Leff, 2002; Altieri and Toledo, 2011; LaRota-Aguilera et al., 2022; Soliz, 2022).

Furthermore, research on agroecology cannot overlook its political dimension, as peasants' choices are constrained by the political systems in which they exist (Mason et al., 2021). Indeed, the concept of agroecology itself is continuously co-produced through political negotiations and power dynamics deployed by scientific, civil society, and political actors within spaces of dialogue shaped by institutional priorities and legitimation strategies (Loconto and Fouilleux, 2019). Therefore, while agroecologists argue that the dissemination of agroecological initiatives must be based on a bottom-up, peasant-to-peasant approach to benefit peasant communities (Altieri and Nicholls, 2017), it is also essential that such initiatives be combined with vertical processes that influence rules and laws and generate the sociopolitical momentum needed to support the agroecological transition (Van der Ploeg et al., 2019; Mason et al., 2021; Valdivia-Díaz and Le Coq, 2021; Soliz, 2022). As Wijeratna (2018) points out, the barrier to agroecology advancement seems to be political or ideological rather than science-based, given the extensive body of research demonstrating the efficiency of agroecological systems.

Embracing the political dimension of agroecology paves the way for advocating its scaling up at the policy level. This implies both developing policy measures and regulations specifically supportive of agroecology and challenging the obstacles resulting from policies and economic practices that have historically disadvantaged peasant communities (Parmentier, 2014; Moore et al., 2015; Wijeratna, 2018; Nicol, 2020). Without a profound change in the existing legal frameworks across Latin America, it will become increasingly difficult for successful agroecological initiatives to spread and effectively address the detrimental consequences of the hegemonic industrial agricultural model (González et al., 2021; Giraldo and Rosset, 2016). Accordingly, the role of the government, as a pivotal stakeholder that constantly chooses new policy goals relying upon its hierarchical authority within nation-states, cannot be underestimated and needs to be further studied.

Therefore, this research focuses on Peru, a country where, despite agroecology having been a movement in constant motion, growth, and evolution for decades, it is only recently that its government has made tangible policy changes. The history of Peru's agroecological movement can be traced back to the 1980s, with the emergence of local non-governmental organizations that laid the institutional foundations in support of agroecological principles (Alvarado et al., 2017). These efforts received political recognition with the creation

of the National Commission of Organic Products (CONAPO) in 2001, which facilitated the enactment of the first public policies on the subject, such as the Technical Regulation for Organic Products (2006) and Law N.° 29196—Promotion of Organic or Ecological Production (2008). Over time, the development of ecological markets, gastronomy fairs, awareness-raising initiatives, international coalitions, and academic research has further strengthened the agroecological movement in Peru (Alvarado et al., 2017; Valdivia-Díaz and Le Coq, 2021). However, it was in 2021 that the term "agroecology" was explicitly institutionalized in public policy by the Ministry of Agricultural Development and Irrigation of Peru (MIDAGRI) through the creation of the General Directorate of Agricultural Development and Agroecology and the enactment of the National Concerted Plan for the Promotion and Encouragement of Organic or Ecological Production (PLANAE).

Despite these growing political advances, Peru presents a scenario that suggests a different reality. Scholars such as Castillo (2021), Chamochumbi and Capoen (2022), and Zamora et al. (2022) argue that Peruvian political efforts ostensibly in favor of agroecology operate disjointedly and with limited funding, while national policies and subsidies continue to prioritize industrial agriculture. This is echoed in recurring evidence, such as: (1) despite the growth in the gross value of agricultural production in Peru, the average monthly per capita income of smallholder farmers remains the lowest in the entire Peruvian economy (MIDAGRI, 2021); (2) repeated reports of pesticide residues exceeding permitted levels in food products for both domestic consumption and export, indicating continued dependence on agrochemical inputs (SENASA, 2023); and (3) persistent food insecurity, which has significantly worsened in the aftermath of the COVID-19 pandemic (FAO, 2022). When these elements are considered alongside the latent risk of agroecology co-optation at the governmental level—understood as mechanisms of adjustment and accommodation that may reinforce the hegemonic agri-food regime (Giraldo and Rosset, 2016; González et al., 2021)—the consolidation of agroecology in the Peruvian political context appears complex and uncertain, requiring critical scrutiny.

Taking these issues into account, this research explores Peruvian public policies and identifies the conditions they foster or fail to support, which may respectively facilitate or hinder the scaling up of agroecology in the country. The aim is to evaluate the combined contribution of these policies to meaningfully establish a foundation at the policy level for scaling up agroecology, while also identifying inconsistencies or gaps. This endeavor is carried out in three main steps. First, delimiting the set of relevant public policies to be analyzed and the methods for examining them. Second, establishing the framework for analysis based on a proposal for conditions that facilitate the scaling up of agroecology. Third, evaluating whether these policies jointly promote such conditions and outlining the implications for the scaling up of agroecology in the Peruvian context.

Methodology

Data Collection

The data collection process within this research followed specific inclusion criteria. The first criterion applied was that the public policies to be analyzed must be enacted by MIDAGRI. This ministry is considered relevant for this research since it oversees promoting competitiveness, innovation, inclusion, and productive diversification in the agrarian sector, prioritizing the benefit of the rural population in Peru. Furthermore, since 2021, it has housed the General Directorate of Agricultural Development and Agroecology, which is tasked with promoting strategies and plans in this specific area.

However, to strengthen the validity of the research and enhance the accuracy of the findings (Creswell, 2018), a governmental data source other than MIDAGRI was consulted. Thus, two policies enacted by the Presidency of the Council of Ministers (PCM) were also considered, as this governmental body coordinates and articulates multi-sectoral national policies, directly influencing those implemented by MIDAGRI.

Additional criteria included that the public policies selected for analysis must be sourced from official

government websites, must be currently in effect at the national level during the search period (October to December 2023), and must be oriented toward activities or goals related to agriculture or rural settings. Furthermore, the collected public policies must fall under the categories of National Policy, Strategy, Plan, or Program, as these are the types of public policies that primarily shape Peruvian ministries' agendas. It is worth noting that within the Peruvian context, according to Law N° 29158—Organic Law of the Executive Branch, National Policies are political instruments that define priority objectives, guidelines, and service provisions to be achieved and supervised to ensure the normal development of public and private activities at the national level, and are reflected in Strategies, Plans, and Programs (PRODUCE, 2013). Similarly, Strategies are defined as sets of activities that identify an expected change for the country and define a flexible route to achieve it, developing objectives and a vision (CEPLAN, 2016). Plans are more specific instruments encompassing objectives, indicators, and prioritized actions, based on a global diagnosis of a territory or entity (PRODUCE, 2013; CEPLAN, 2023). Lastly, Programs are functional structures created to address specific problems within the scope of the ministry to which they belong (PRODUCE, 2013).

Beyond these data collection criteria, and to further strengthen the validity of the research, a request for access to public information was submitted through the MIDAGRI online reception desk. The request was addressed using the following query: "A list of the Policies, Strategies, Plans, and Programs of National Scale that exist in Peru on Agroecology or with a focus on Agroecology." The response provided by MIDAGRI helped complement the data collected during this research.

As an outcome of the data collection process, a set of 11 public policies were retrieved for analysis, including two National Policies, two Strategies, six Plans, and one Program. In addition, MIDAGRI's response provided further information on relevant laws and regulations (distinct from National Policies, Strategies, Plans, or Programs) that the ministry considers related to the agroecological evolution process at the governmental level in Peru, offering a broader understanding of the situation. However, it is worth noting that, based on the analysis of each policy document, none of the collected Peruvian public policies were originally designed or formulated with the specific aim of promoting agroecology. This does not pose an obstacle to the present research, as examining the orientation of implemented agrarian-related public policies can still reveal the national context in which agroecology seeks—or could potentially seek—to scale up. Appendix A compiles the details of the public policies analyzed in this study, along with the complementary laws and regulations provided by MIDAGRI.

Framework for Analysis

The 11 selected public policies were subjected to qualitative content analysis. This approach involves drawing inferences from data (in this case, policy documents) by identifying key characteristics and elements within them, using coding categories derived from a proposed framework to guide interpretation (Gray, 2004; Wong, 2008; Creswell, 2018). This method is commonly applied to environmental policy topics to examine how policy texts reflect institutional priorities and lawmakers' underlying perspectives (IDS, 2013; Hall and Steiner, 2020).

The first step in the analysis was to define the framework used in this study as the analytical lens. Drawing on evidence of the global spread of agroecological initiatives, which often share common elements across different regions (Steglich et al., 2022), the study identified elements frequently emphasized in the literature as supportive of agroecology's advancement. These elements were compiled and reinterpreted as conditions, which then served as the basis of the analysis.

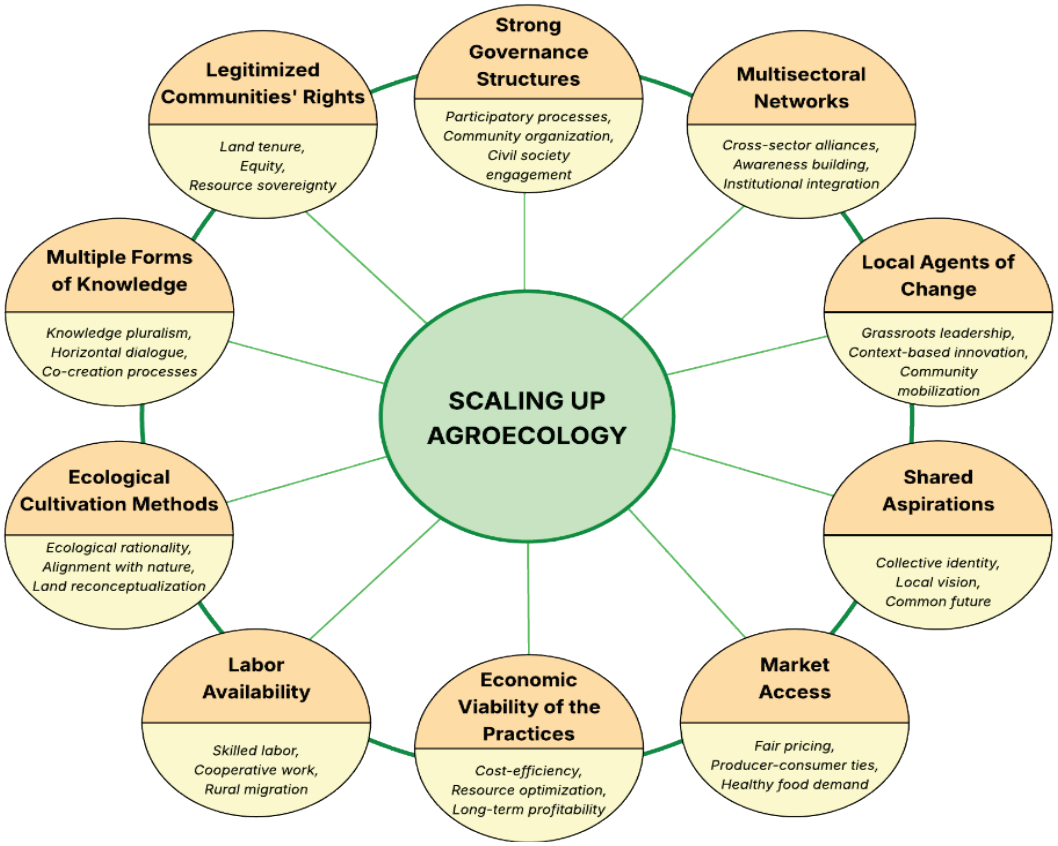
The term "condition" is understood within this research as a circumstance that enhances, or in its absence constrains, the strengthening of agroecology as both a practice and a social movement capable of challenging dominant agro-industrial mindsets and gaining sustained political recognition. Hence, supporting these conditions not only brings direct benefits to agroecological farmers but also contributes politically by facilitating

the institutional and regulatory positioning of agroecology. Promoting these conditions through public policy thus becomes a virtuous cycle, as it not only operates as a driving force for the horizontal replication and dissemination of agroecological initiatives but also for their vertical scaling up at the political level.

Using the Web of Science and Google Scholar databases, publications were selected to outline the proposal for conditions that facilitate the scaling up of agroecology. The selected publications included the term "agroecology"—or "agroecología" in Spanish—in their titles, as well as those that fulfilled one or more of the following criteria: (1) reference to the terms "element(s)," "factor(s)," or "condition(s)" in the abstract or table of contents (leading to the selection of Gómez et al., 2017; Van der Ploeg et al., 2019; González et al., 2021; Rosset et al., 2022; Steglich et al., 2022); (2) conducted within a Peruvian context (leading to the selection of Alvarado et al., 2017; Villafuerte, 2017; De La Cruz and Dessein, 2021; Valdivia-Díaz and Le Coq, 2021; Chamochumbi and Capoen, 2022; Soliz, 2022; Quispe et al., 2022; Zamora et al., 2022); (3) authorship by prominent scholars who have shaped the agroecology discipline in Latin America (leading to the selection of Altieri and Toledo, 2011; Altieri and Nicholls, 2017); or (4) reference to the Food and Agriculture Organization (FAO)'s stance on agroecology's expansion, given its influential role as an international organization (leading to the selection of FAO, 2018; Barrios et al., 2020; Wezel et al., 2020).

As a result, this study consolidates a proposal for ten conditions considered to facilitate the scaling up of agroecology, based on the shared suggestions of authors and scholars (referenced earlier) who have examined the topic. These conditions are: strong governance structures; multisectoral networks; presence of local agents of change; shared aspirations; market access; economic viability of the practices; labor availability; ecological cultivation methods; recognition of multiple forms of knowledge; and legitimized communities' rights. Figure 1 presents these conditions graphically, with each circle representing one condition. The upper part of the circle displays the condition's name, while the lower part highlights key words summarizing its meaning. Further details about each condition are provided in Appendix B.

Figure 1. Proposal for conditions that support the scaling up of agroecology



Source: Own elaboration.

It is worth noting that the aim of this study is not to suggest that the scaling up of agroecology requires the strict presence of all the conditions considered here, as it can be driven to varying degrees by one or more of these conditions or even by new conditions that emerge from specific contexts. Agroecology is not merely a box of ecological tools to be applied by stakeholders (Leff, 2002). This does not contradict the notion, however, that an ideal environment for scaling up agroecology would be one in which the proposed conditions are strongly present and mutually reinforcing. Therefore, rather than competing with existing frameworks, the conditions proposed in this research may be seen as a complementary contribution to the broader debate on the drivers of agroecology's expansion, inviting comparison and dialogue with other established approaches.

Data Analysis

Each public policy was coded based on whether its content aligned with one or more of the proposed conditions. For instance, text fragments referencing the promotion of farmer associations or equitable participation of members of peasant communities were coded under the condition "strong governance structures"; references to the connection between consumers and agricultural producers or incentives for marketing and direct sales were coded under "market access"; and similarly for the remaining conditions. This coding process allowed for a structured yet flexible interpretation of the policy content based on the research's analytical lens.

However, as the policy documents were thoroughly read, two additional types of text fragments drew particular attention and were considered worth coding for the analysis. The first type consisted of text fragments reflecting ideas discordant with agroecology, particularly those indicating an industrial-oriented approach prevailing over an ecological one. These instances were deemed relevant to document, as this research also aims to reveal inconsistencies or gaps in public policies that could hinder the scaling up of agroecology. The second type included explicit mentions of the term "agroecology" and its derivatives (e.g., "agroecological"). These were considered relevant to document, given that none of the current Peruvian public policies includes the term "agroecology" in their titles and that the potential co-optation of agroecological principles is a key concern of this research.

It is important to note that, given the exploratory nature of this research at the policy level, some limitations must be acknowledged. This study focuses on the analysis of policy documents, which allows for an understanding of the normative frameworks, institutional commitments, and stated governmental priorities that may encourage or hinder the scaling up of agroecology in Peru. However, such an approach does not extend to the implementation phase of these policies, which can differ significantly from their design. While policy texts provide valuable insights into the formal orientation of the government, they do not capture the complexities that may arise during the execution of policies at local levels. This distinction is relevant, as the transformative potential of public policies is shaped not only by their content but also by how they are operationalized in practice. Additionally, while the study includes a comprehensive review of national-level policies enacted by key governmental bodies, it does not incorporate subnational policies due to time constraints. These aspects present opportunities for future research to build on this work.

Results

Conditions for Scaling Up Agroecology Promoted in Peruvian Public Policies

From the analysis of the 11 policy documents collected (described in Appendix A), nine of the ten proposed conditions that facilitate the scaling up of agroecology were found to be promoted. The only condition that did not emerge from the data analysis was "shared aspirations," while "market access" and "economic viability of the practices" were supported in all the analyzed public policies. Table 1 summarizes which conditions were present in each public policy.

Table 1. Conditions for scaling up agroecology promoted in Peruvian public policies

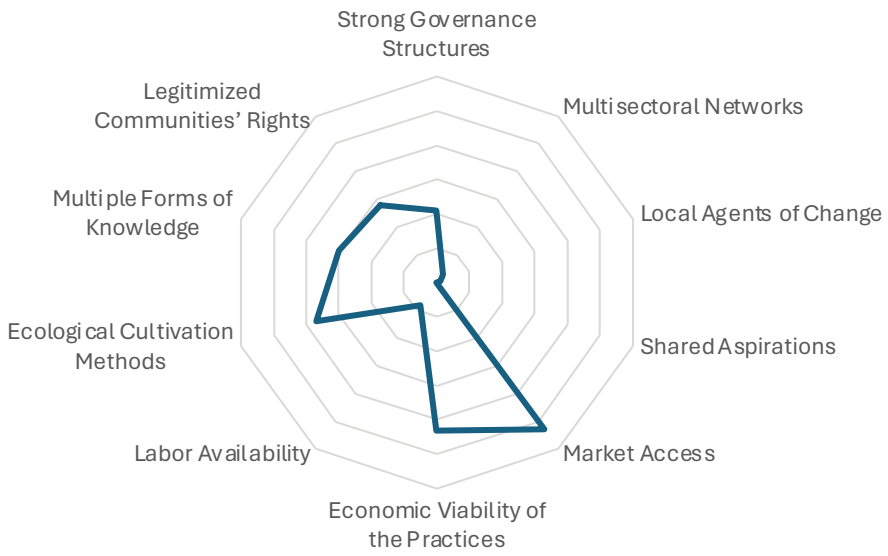
CONDITIONS	PP1	PP2	PP3	PP4	PP5	PP6	PP7	PP8	PP9	PP10	PP11
Strong Governance Structures	X		X	X	X	X	X	X	X	X	X
Multisectoral Networks			X		X		X				
Local Agents of Change	X										
Shared Aspirations											
Market Access	X	X	X	X	X	X	X	X	X	X	X
Economic Viability of the Practices	X	X	X	X	X	X	X	X	X	X	X
Labor Availability	X					X	X			X	
Ecological Cultivation Methods	X		X	X	X	X	X	X	X	X	X
Multiple Forms of Knowledge	X		X	X		X	X	X	X	X	
Legitimized Communities' Rights	X		X	X			X	X	X	X	

LEGEND OF PUBLIC POLICIES (PP)
PP1: National Agrarian Policy 2021-2030 (PNA).
PP2: Twenty-Third State Policy - Agricultural and Rural Development Policy (23rd Policy).
PP3: National Strategy for Family Farming 2015-2021 (ENAF).
PP4: National Strategy for Food and Nutrition Security 2013-2021 (ENSAN).
PP5: Action Plan for public procurement of food from family farming (ACCIONAF).
PP6: National Plan for the Promotion of Organic or Ecological Production (PLANAE).
PP7: National Plan for Family Farming 2019-2021 (PLANAF).
PP8: Multiannual Sectoral Strategic Plan of the Agriculture and Irrigation Sector (PESEM).
PP9: National Plan for Food and Nutrition Security 2015-2021 (PNSAN).
PP10: National Strategic Plan for Development to 2050 (PEDN).
PP11: Rural Agrarian Productive Development Program (AGRORURAL).

Source: Own elaboration.

When it comes to how each of the proposed conditions appeared in the policy documents, "market access," "economic viability of the practices," and "ecological cultivation methods" were the most frequently identified. Figure 2 illustrates the predominance of these conditions based on the number of text segments coded for each condition across the policy documents.

Figure 2. *Prevalence of conditions for scaling up agroecology in Peruvian public policies*



Source: Own elaboration.

The recurrent identification of the conditions "market access" and "economic viability of the practices" in the data can be explained by the explicit intention of Peruvian agrarian National Policies (specifically the PNA and the 23rd Policy) to promote the profitability and market expansion of agrarian activities and the vertical integration of agricultural producers into international and national value chains. Since these national policies operate as an umbrella for determining the visions and objectives of Plans, Strategies, and Programs, the orientation toward productivity-oriented goals in national agricultural activities expands in the political context.

The goals mentioned in the policy documents that support the predominant presence of these two conditions include: increasing farmers' productivity, improving the profitability of production systems, enhancing business conditions, promoting business development, facilitating access to credit and insurance, providing technical assistance in financial management, linking agricultural producers to markets, generating greater value added, and reducing production costs. Some notable quotes from the policy documents that support this result are presented below.

> *Within the subsidiary and regulatory role of the State as established in the Constitution, we will promote profitability and the expansion of the market for agricultural activities, boosting their competitiveness with an export-oriented approach and seeking social improvement for the rural population... (the State) will support the expansion of the agricultural frontier and the increase of agricultural production, placing special emphasis on productivity, the promotion of exports with increasing added value, and defending the domestic market from subsidized imports. (translated quote from the 23rd Policy)*

> *(Priority Objective 1) seeks to develop market access conditions (for agricultural producers)... and reduce intermediation through direct marketing channels with national and international reach. (translated quote from the PNA)*

> *With the implementation of the objectives and strategic actions of the Plan, sustained profitability results are expected to be achieved in the ecological production of family farming... for the organic sector, particularly for the producers responsible for supplying the domestic and international markets, there remains a set of problems to be overcome that have been limiting the positioning of ecological products in the market. (translated quote from the PLANAE)*

> *It is key to design programs that promote financial access, foster associativity and better access to market information systems... and that promote investment, giving priority and support to family farming under a demand-driven approach to their needs, with the aim of promoting business development for these small-holder producers that ultimately allows them to link advantageously to the markets. (translated quote from the ENSAN)*

"Ecological cultivation methods" is the third most frequent condition identified in the analyzed data. In this regard, diverse practices are promoted within public policies, acknowledging nature's limits of production in farming units. These include promoting the use of and access to biofertilizers and biopesticides (such as guano of the islands, biol, humus, and compost), the application of biological controllers, agroforestry, use of water quality standards for irrigation, use of agroclimatic and soil suitability information, dissemination of traditional crops, among others. However, although the proposed practices contribute to preserving biodiversity, they are often framed as a complement to the overarching goal of increasing productivity and competitiveness in agricultural activities rather than as goals in themselves. Some notable quotes from the policy documents that support this result are presented below.

> *(Priority Objective 3) seeks to adopt environmental sustainability in agricultural production, involving agricultural, livestock, including agroforestry activities, among others, through better management of natural resources in agricultural production... which will contribute to improving the competitiveness of the agricultural*

and irrigation sector, increasing production without depleting basic resources or degrading the environment. (translated quote from the PNA)

In the context of these challenges, the aim is to promote agroecological production as it is a sustainable agrarian production system, which includes ecological or organic production, for food security, economic dynamization, generating employment and profitability with priority given to family farming. (translated quote from the PLANAE)

A similar situation arises concerning the condition "multiple forms of knowledge." Although most public policies refer to the recognition of ancestral local knowledge, traditional practices, and cosmovision of native and indigenous communities as relevant for the future of agricultural activities, they frame such aspects as tools that must be revalorized to increase competitiveness or climate resilience among agricultural producers. Thus, while this appears to acknowledge the cultural and historical significance of other knowledge systems, their value is often framed instrumentally and not necessarily as alternative or autonomous. Some notable quotes from the policy documents that support this result are presented below.

Guideline 9: Knowledge management and innovation... This guideline aims to promote scientific research capacity, enhance knowledge, and increase the competitiveness of family farmers through better use of both individual and collective knowledge. To this end, it proposes to emphasize traditional knowledge, systematize and develop knowledge related to Family Farming. (translated quote from the ENAF)

Strategic Action 1.7... Revalue agrarian practices and ancestral knowledge... This strategic action consists of the identification, systematization, validation, registration, and dissemination of agrarian technologies (agricultural practices) as well as ancestral knowledge... The target population benefiting from the transfer of these technologies, aimed at counteracting the effects of climate change,... are primarily agricultural producers. (translated quote from the PESEM)

It is possible to expand the agricultural frontier not only through increased productivity via new agricultural technologies, but also through the recovery, reconstruction, and improvement of pre-Hispanic terraces, especially considering that expanding the agricultural frontier would help improve food supply and, consequently, enhance the population's well-being. (translated quote from the ENSAN)

When it comes to the condition "legitimized communities' rights," the analyzed public policies show a clear focus on achieving legal security over land, specifically by formalizing the property rights of agricultural producers' farming units. The formalization of farmers' water use rights based on water availability is another recurring aspect in these policies. Additionally, they mention the importance of guaranteeing cultural rights in the country, with an emphasis on respecting cultural diversity, traditional customs, and Indigenous languages. Some notable quotes from the policy documents that support this result are presented below.

As part of the proper management of agricultural land, actions related to the promotion of the formalization of rural plots are included... The sustainable use of this resource must take into account the legal formalization of property, as well as the land's maximum potential use capacity... (In addition,) the aim is to improve the formalization of water users for agricultural purposes and to strengthen the capacities of regional governments for the physical and legal regularization of agrarian property, thereby contributing to closing this gap. (translated quote from the PNA)

Guideline 1: Access to production factors... This guideline aims to promote access to and security over land and water, in sufficient quantity and quality to enable competitive production and improve livelihoods and productive activities. It also seeks to ensure the full exercise of property rights (collective or individual) over the lands they work, prioritizing the demarcation, titling, and registration of the rights of all officially recognized peasant and native communities under current legislation. (translated quote from the ENAF)

Strategic Action 2.9: Promote physical-legal regularization and the formalization of agrarian property... This consists of promoting and coordinating the development and updating of legal instruments, technical guidelines, and standards aimed at the physical-legal regularization and formalization of agrarian property, in-

> *cluding lands held by individual occupants, peasant communities, and native communities. (translated quote from the PESEM)*

> *Cultural rights must be guaranteed in the country, with an emphasis on cultural diversity, through an education system based on respect for cultural rights, customs, and Indigenous languages; likewise, culture and its expressions must be positioned at all levels of the State as a fundamental element for the country's development. (translated quote from the PEDN)*

In the case of the condition "strong governance structures," it is identified because the analyzed public policies refer to promoting associativity of agricultural producers. However, this is promoted with the aim of facilitating for farmers the acquisition of inputs at lower costs, access to credit, meeting the food demand volumes, consolidating market linkage processes, and strengthening the defense of their rights. Beyond this, the role of women in agricultural activities, particularly from a family farming perspective, is also highlighted in the policy documents, and their active participation in agrarian matters is promoted, along with the participation of indigenous communities, non-Spanish speakers, and vulnerable people. Some notable quotes from the policy documents that support this result are presented below.

> *Guideline: Promote associativity among subsistence-level family farmers... This guideline seeks for subsistence-level family farmers to organize themselves under an existing organizational model that facilitates the acquisition of inputs at lower costs, access to technical assistance, and improved access to credit. (translated quote from the PNA)*

> *The associativity of family farming producers is highly recommended in order to meet the food demand volumes. (translated quote from the ACCIONAF)*

> *General Functions (of the AGRORURAL Program)... To contribute to the competitiveness of agricultural production by small and medium-scale producers, through the promotion of associativity. (translated quote from the AGRORURAL)*

> *As part of the characterization of Family Farming, it is important to highlight the role of women... Hence, their contribution to food security is key. Consequently, their active participation, both in the productive and reproductive spheres, enables millions of people to improve their quality of life in their territories and in society as a whole. (translated quote from the ENAF)*

> *Living conditions must be promoted and civic participation expanded for people living in rural areas and those belonging to Indigenous or native peoples, as well as for non-Spanish speakers, women, and populations in situations of vulnerability. (translated quote from the PEDN)*

Finally, although present, three conditions were less frequently identified. The "multisectoral networks" condition was identified when referring to the relevance and importance of working in an articulated, integrated manner with intersectoral teams, especially in matters of education and agriculture. The "local agents of change" condition was identified when referring to the training of local leaders to promote the associativity of agricultural producers. The "labor availability" condition was identified when referring to the increase of direct employment for farmers to diversify their income and sustain their productive systems.

Ideas in Public Policies Conflicting with Agroecology

Some ideas discordant with how agroecology is understood in the present research were identified in two of the public policies: the PNA and the PESEM. This included statements such as reducing the proportion of subsistence-level family farmers—who primarily allocate their production for self-consumption and have a net agricultural income per household member below the extreme poverty line defined in the country—by developing their technical, productive, and commercial capacities to enhance the level of agricultural

competitiveness and promoting a shift toward technology-intensive production systems. The documents emphasize reconversion projects intended to integrate family farmers into value chains, increase profitability, and adopt an entrepreneurial approach to farming.

As mentioned in preceding sections, practicing agroecology means prevailing an ecological rationality over an industrial-oriented approach. This implies freeing the concept of land from merely a raw material for productive appropriation, recalling the times when the soil was the support of life and the meanings of existence (Leff, 2002; Altieri and Toledo, 2011). Hence, the clear focus of the mentioned public policies on productivity and the reconversion of subsistence-level family farmers conflicts with agroecology's principles, which aim at challenging hegemonic agro-industrial models. Some notable quotes from the policy documents that support this result are presented below.

> *Priority Objective 2: Reduce the proportion of family farmers at the subsistence level. This objective seeks to reduce the proportion of family farmers who remain at the subsistence level by developing their technical, productive, and commercial capacities, generating value in their productive offerings that enables them to directly or indirectly serve a market, and improving their access to agricultural information. As a result, the subsistence-level family farmer will gain greater benefit and integration into the agricultural value chain, thereby improving the level of agricultural competitive development. (translated quote from the PNA)*

> *Guideline... Increase the technical capacities of subsistence-level family farmers. This guideline aims to develop the capacities of family farmers in conventional and trending production techniques that allow for greater output, improved quality, and a shift toward more technology-intensive agriculture. It also seeks to enhance their soft skills and commercial management, technical/commercial requirements, among other aspects needed for their participation in market linkage mechanisms. (translated quote from the PNA)*

> *Strategic Action 2.6... Improve the generation, availability, access, and adoption of agricultural technologies... This consists of developing and providing adequate and sustainable technological packages for farmers to adopt, in order to solve the main production problems that limit the increase in their levels of productivity and profitability. These nationwide interventions are directed at farmers facing issues of low productivity, profitability, and weak market linkage. (translated quote from the PESEM)*

Use of the Term Agroecology in Public Policies

The *term* "*agroecology*" or its derivatives were explicitly mentioned in only five public policies: the PNA, ACCIONAF, PLANAE, PLANAF, and PESEM. However, except for the PLANAE, agroecology was only mentioned either as an adjective without specific definition (e.g., "agroecological practices") or to refer to agroecological zoning, which is understood in such policies as a technical process to divide a territory into smaller units with similar limitations and potentialities, based on its physical and socio-economic suitability, and is unrelated to how agroecology is understood in this research.

Only the National Concerted Plan for the Promotion and Encouragement of Organic or Ecological Production 2021-2030 (PLANAE) uses the term "agroecology" repeatedly in its text. However, it provides ambiguous definitions, as it interchangeably uses the terms "organic," "ecological," or "agroecological." Moreover, the PLANAE considers organic or ecological production to be included within the agroecological production system; hence, it is understood that by promoting the former, it also promotes the latter.

> *Agroecological Production — It is a sustainable agricultural production system that includes ecological or organic production. The system integrates crops, animal husbandry, agroforestry, beekeeping, fish farming, small-scale artisanal agroindustry, valuing food cultures and traditions, properly managing natural resources, cultivated and wild biodiversity, sowing, harvesting and efficient water use, ecological pest and disease management, animal welfare, and environmental protection. It avoids the use of synthetic fertilizers and pesticides, as well as Genetically Modified Organisms (GMOs). (translated quote from the PLANAE)*

The PLANAE intends to promote agroecological production through actions such as launching academic programs in ecological production, creating regional initiatives and training modules, supporting producers in adopting agroecological innovations, and establishing Agroecology Units and events like the National Agroecological Production Week. However, it also emphasizes that sub-national public organizations lack structured units and face resource and personnel shortages, which hinder nationwide promotion of agroecological systems. These shortcomings are important to consider for the future consolidation of agroecology in Peru.

> *In the face of these challenges, the aim is to promote agroecological production as a sustainable agricultural production system, which includes ecological or organic production, to ensure food security, boost the economy, generate employment and profitability—prioritizing family farming—and because it is a type of agriculture that mitigates and is resilient to the adverse effects of climate change. (translated quote from the PLANAE)*

It is worth noting that, based on the complementary laws and regulations provided by MIDAGRI during the data collection, the PLANAE, enacted in 2021, highlights an evolution in the development of public policies in Peru oriented toward promoting organic or ecological production. This is because the plan, along with the creation of the General Directorate of Agricultural Development and Agroecology in 2021, represents a consolidated outcome of an ongoing process that began with the Technical Regulation for Organic Products enacted in 2006, followed by Law N.° 29196—Promotion of Organic or Ecological Production enacted in 2008, and Law N.° 30983—Development of certification of organic products produced by smallholder farmers enacted in 2019.

Discussion

Based on the analyzed data, it is evident that agroecology is not yet a central topic in Peruvian public policies. Current goals are oriented toward developing agribusiness and increasing the profitability of smallholder farmers and family farmers.This scenario suggests an expected future focused on the expansion of industrialized, technology-driven farming units, reaffirming the observations of Castillo (2021), Chamochumbi and Capoen (2022), and Zamora et al. (2022) regarding the Peruvian government's prioritization of industrial agriculture.

This marked political interest in improving the profitability of agrarian activities is evidenced by the predominance of public policies focused on facilitating market access for agricultural producers—helping them sell more and sell better—and on ensuring that their practices are economically viable—reducing costs and increasing revenues. Furthermore, the PNA (National Agrarian Policy)'s goal of transforming subsistence-level family farmers into producers with developed technical, productive, and commercial capacities further demonstrates the economic focus of Peruvian public policies in agrarian matters. At first glance, this may appear to be a flawless promise, and it is not being questioned here that certain benefits may arise, either for agriculture in general or for agroecological initiatives in particular, since the economic dimension is also relevant for them. However, this does not imply neglecting the need to critically consider how national policies tend to prioritize productivity over cultural aspects and traditional knowledge, especially in efforts to uniformly reshape how smallholder rural farmers engage with agriculture and their land.

This resonates with what González et al. (2021) emphasize regarding how the influence of certain institutional currents within agroecology promotes a purely technical vision of it, rather than viewing it as an alternative for social change in response to the unsustainability issues caused by the industrial agricultural model. The spread of the idea that economic aspects alone, without a socially and culturally informed foundation, can lead to more sustainable agri-food systems will only diminish the chances of agroecology becoming a genuine alternative to the current industrial model and, consequently, hinder its potential for scaling up. As Leff (2002) states, agroecology is a distinct productive paradigm rooted in rural spaces, shaped through the knowledge of communities and recalling the times when the soil was the support of life and the meanings of existence. Therefore, agroecology and its scaling up through political recognition are, above all, a powerful tool for

changing the hegemonic agri-food regime—that is, for redesigning the economic structures that govern it (Gliessman, 2011).

It can be argued that governmental efforts to scale up agroecology in Peru began in 2006 with the Technical Regulation for Organic Products, evolved with the enactment of Law N.° 29196—Promotion of Organic or Ecological Production in 2008, and reached their peak with the enactment of the PLANAE (National Concerted Plan for the Promotion and Encouragement of Organic or Ecological Production) in 2021, which stands out as the most promising public policy for scaling up agroecology in Peru. However, it cannot be overlooked that these public policies are more oriented—as their titles suggest—toward promoting organic agriculture rather than agroecology. This close association of the terms "organic" and "agroecology" is not surprising, as it is also reflected in academic research, as Mason et al. (2021) illustrated. Furthermore, this finding is not unrelated to the Latin American context, since Le Coq et al. (2019) also reported that political instruments conducive to the adoption of agroecology were introduced in countries such as Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Mexico, and Nicaragua through policies supporting organic production and/or family farming.

Despite this, it is important to acknowledge that agroecology and organic agriculture are not the same. Like organic agriculture, agroecology is averse to the use of chemical inputs and advocates for production systems based on approaches that conserve ecosystems. Nevertheless, organic agriculture is not based on agroecological principles. For example, organic farming systems can be managed as monocultures that are, in turn, dependent on external non-chemical inputs, which keep peasants and farmers reliant on corporate input suppliers, doing little to move them toward an agricultural system that would grant them autonomy (Altieri and Toledo, 2011). Furthermore, agroecology stands out for the political weight it carries, proposing a profound modification of the hegemonic agri-food system by supporting food sovereignty, being decolonizing, and defining an agrarian alternative opposed to the export-oriented business model (Le Coq et al., 2019; Rosset et al., 2022).

In this regard, the ecological rationality on which agroecology is rooted serves as a distinguishing feature of agroecology. Therefore, public policies that support practices acknowledging and respecting nature's capacity to supply food play an important role in the expansion of agroecology and, consequently, in its scaling up. However, in the case of the analyzed Peruvian public policies, although the promotion of ecological cultivation methods is prominent, it is ultimately driven by an economic motive. This is also evident in the promotion of organic/ecological production in the case of the PLANAE, whose vision is that by 2030, the ecological production sector in Peru achieves significant growth in the production and trade of ecological products, positively impacting the country's economy, the profitability of family farmers, and the environment.

Therefore, while the progressive development of public policies in the country that use terms related to agroecology and acknowledge the importance of the ecological dimension in cultivation can be seen as a progressive scaling up of agroecological practices in the Peruvian political arena, the mindset of "producing more, producing better" remains strongly present. This raises concerns about the potential risk of co-optation, which should be further explored in future research. As Giraldo and Rosset (2016) highlight, the eventual co-optation of agroecology may be a very sophisticated way to appease agroecological revolutions and serve as a tool used by the industrial agricultural system to perpetuate itself by disguising its true nature with a green discourse.

However, not all is lost for the future of agroecology's scaling up in Peru. On the contrary, although Peruvian public policies are not entirely designed to promote agroecology, several conditions that support its advancement were identified within them. These conditions include legitimizing communities' rights, strengthening governance structures and multisectoral networks among them, supporting the emergence of local leaders and agents of change, and recognizing the relevance of the coexistence of multiple forms of

knowledge in agricultural practices.

This suggests that the Peruvian political context, whether consciously or unconsciously, is creating a window of opportunity for agroecological initiatives across the country to strengthen and for agroecology to scale up. Since scaling up agroecology involves policy and legislative change, public policies that contemplate conditions favoring agroecology's expansion provide a fertile ground for this to happen. Furthermore, as Nicol (2020) points out, scaling up agroecology requires resource flows and the expansion of institutional capacity at the governmental level, and the Peruvian political context shows potential in these areas. This includes the AGRORURAL Program, which manages a budget aimed at financing investments in rural agrarian settings, particularly in territories considered as those with lower levels of economic development; the ACCIONAF Plan, which outlines strategies for directing budget from public procurement to the purchase of locally sourced food from family farming; and the recently created General Directorate of Agricultural Development and Agroecology under MIDAGRI, which is tasked with promoting strategies and plans related to agroecology.

Thus, the agroecological grassroots initiatives emerging in the country can take advantage of this situation to consolidate themselves at the national level, further demonstrating their benefits to decision-makers and civil society as an alternative to hegemonic agroindustrial models and, consequently, continue scaling up. For this path to succeed, the work of peasant communities, farmers' associations, non-governmental organizations, and national and international coalitions is crucial, as it has been throughout the evolution of agroecology in the country over the past decades.

Conclusion

The comprehensive analysis of public policies in Peru reveals a complex landscape marked by both opportunities and challenges for the scaling up of agroecology. An examination of key policy documents from the Ministry of Agricultural Development and Irrigation (MIDAGRI) shows that, while there is growing recognition of the importance of promoting agricultural practices rooted in local knowledge and less harmful to the environment, the overarching narrative remains predominantly focused on enhancing productivity and competitiveness.

Peruvian public policies tend to prioritize the transformation of agriculture through technology-intensive methods, as well as smallholder farmers' access to markets and sources of income, often sidelining alternatives that diverge from the dominant industrial agriculture model. For example, the National Agrarian Policy to 2030 (PNA) aims at elevating agricultural competitiveness by promoting the vertical integration of agricultural producers into the value chain and transforming subsistence-level family farmers into producers with advanced technical, productive, and commercial capacities. This reflects a broader trend of favoring economic metrics over the preservation and dissemination of agricultural practices rooted in local knowledge, a connection with nature, and autonomy. This approach is further reinforced by broader national public policies, such as the Twenty-Third State Policy: Agricultural and Rural Development Policy (23rd Policy), and the National Strategic Plan for Development to 2050 (PEDN).

Moreover, despite the explicit mention of agroecology in the National Concerted Plan for the Promotion and Encouragement of Organic or Ecological Production 2021-2030 (PLANAE), most other public policies largely overlook the promotion of this practice. Although organic agriculture and family farming have gained momentum in the Peruvian policy arena, the absence of an agroecological approach highlights a gap in advancing toward farming systems that are ecological, culturally sensitive, socially just, and where local producers have greater autonomy from global markets.

When evaluating the combined contribution of Peruvian public policies to laying a foundation for advancing agroecology, it becomes clear that, since none of the current policies in Peru have been explicitly designed

to promote agroecology, they cannot be expected to fully support its scaling up. Nevertheless, the institutionalization of the Directorate of Agricultural Development and Agroecology under MIDAGRI, along with the conscious or unconscious promotion of enabling conditions—such as legitimizing communities' rights, strengthening governance structures and multisectoral networks among them, supporting the emergence of local leaders and agents of change, encouraging cultivation methods aware of nature's limits, and recognizing the relevance of multiple forms of knowledge—represents a window of opportunity. These openings can be leveraged to facilitate the expansion of agroecological grassroots initiatives and to support the broader scaling up of agroecology in Peru.

Finally, it is worth noting that while the growing emphasis on market access and economic viability may benefit the livelihood of smallholder farmers and family farmers, the detrimental environmental and social consequences of the industrial agriculture model make it imperative for public policies to embrace agroecology as a means of reconceptualizing land as a productive agroecosystem decoupled from a hegemonic economic rationality. Advancing research on the political dimension of agroecology, along with the influence of peasants' movements and the role of both international and national non-governmental organizations, can contribute to supporting this transformative path.

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Appendix A: Peruvian public policies collected for analysis

Table A.1: Description of Peruvian public policies collected for analysis

Name of the Public Policy	Regulation for approval	Year of enactment	Length of the document (pages)	Description
National Agrarian Policy 2021-2030 (PNA)	D.S. N.° 017-2021-MIDAGRI	2021	273	This policy serves as the cornerstone of agrarian sector strategies in Peru, guiding government actions based on a prioritized problem: the low level of agricultural competitiveness. Accordingly, the main objective of this policy is to improve the level of competitive agricultural development by 36% by 2030, in terms of an increase in the level of vertical integration of farmers into the value chain, a reduction in the proportion of family farmers at the subsistence level, and an improvement in the management of natural resources for sustainable agricultural production. The target population are agricultural producers, both in family farming and corporate agriculture.
Twenty-Third State Policy: Agricultural and Rural Development Policy (23rd Policy)	D.S. N.° 105-2002-PCM D.S. N.° 029-2018-PCM	2002	2	Despite being enacted in 2002, the Agricultural and Rural Development Policy remains in effect, serving as a significant framework for the formulation of the PEDN and being referenced in MIDAGRI policies such as the PNA and the ENAF. It aims to promote the agrarian and rural development of the country, including agriculture, in order to foster the economic and social development of the sector. Furthermore, it aims to promote the profitability and market expansion of agrarian activities, boosting their competitiveness with an export-oriented focus and seeking social improvement for the rural population.
National Strategy for Family Farming 2015-2021 (ENAF)	D.S. N.° 009-2015-MINAGRI	2015	126	It primarily seeks to guide and organize the State's comprehensive intervention to achieve positive outcomes for family farmers, within the framework of a commitment to the social and economic inclusion of the rural population. It recognizes the contribution of Indigenous peoples, local communities and farmers to the conservation and development of biological diversity and plant genetic resources, which form the foundation of food and agricultural production in the country.
National Strategy for Food and Nutrition Security 2013-2021 (ENSAN)	D.S. N.° 021-2013-MINAGRI	2013	118	It aims to ensure food and nutritional security for the Peruvian population by addressing the five pillars of food and nutritional security: availability, access, utilization, stability and institutional framework. Its vision is that the Peruvian population consistently meets its food and nutritional needs through access to and consumption of safe and nutritious foods.
Action Plan of the Agrarian and Irrigation Sector for the implementation of public procurement of food of origin from family farming (ACCIONAF)	R.M. N.° 377-2022-MIDAGRI	2022	40	The objective of this plan is to establish the short and medium-term strategy for public procurement of locally sourced food from family farming, with the aim of promoting its consumption, improving the economy of family farmers, and contributing to healthy nutrition. With this objective, it is expected that at least 30% of the budget for government social programs will correspond to the purchase of locally sourced food from family farming. Accordingly, this plan states that public procurement can be used as an instrument to promote the development of family farming, even referencing local experiences where the type of family farming that uses agroecological practices has been promoted.

Name of the Public Policy	Regulation for approval	Year of enactment	Length of the document (pages)	Description
National Concerted Plan for the Promotion and Encouragement of Organic or Ecological Production 2021-2030 (PLANAE)	D.S. N.° 011-2021-MIDAGRI	2021	24	It aims to improve the competitiveness and sustainability of organic production, prioritizing family farming, with the vision that: "By 2030, the organic production sector in Peru will achieve greater growth in the production and trade of organic products, positively impacting the country's economy, the profitability of family farmers, and the environment". The plan highlights a growing trend in organic production, with an 85% increase in the number of organic family farmers over the past nine years, creating opportunities for small and medium-sized family farmers engaged in this practice. It shows that organic production occurs in all regions of Peru, led by over 80,000 small and medium-sized family farmers, with a focus on products like coffee, cocoa, bananas, quinoa, chestnuts and avocados.
National Plan for Family Farming 2019-2021 (PLANAF)	D.S. N.° 007-2019-MINAGRI	2019	29	Its main objective is to sustainably improve the incomes of family farmers, both men and women, in alignment with the National Strategy for Family Farming.
Multiannual Sectoral Strategic Plan of the Agriculture and Irrigation Sector 2015-2021, extended to 2027 (PESEM)	R.M. N.° 461-2015-MINAGRI R.M. N.° 166-2022-MIDAGRI	2015	101	It is a management instrument that defines the objectives and strategic actions of the agrarian sector, with the aim of improving its intervention and focused on achieving results and generating positive impacts for agricultural producers.
National Plan for Food and Nutrition Security 2015-2021 (PNSAN)	D.S. N.° 008-2015-MINAGRI	2015	33	Its objective is to guarantee that the population is able to meet its nutritional requirements at all times, with the vision that the Peruvian population consistently satisfies its food and nutritional needs through access to and consumption of safe and nutritious foods.
National Strategic Plan for Development to 2050 (PEDN)	D.S. N.° 103-2023-PCM	2023	530	It is oriented towards the vision that by 2050, Peru will remain as a democratic country, respectful of the rule of law and institutional framework, while actively engaging with the global community to secure a future that safeguards human dignity across the entirety of its national territory. Furthermore, that Peruvians will be proud of their identity, and that the country has achieved inclusive, competitive and sustainable development with equal opportunities, allowing to eradicate extreme poverty. As a more recently enacted policy, it is deeply influenced by contemporary global frameworks such as the UN 2030 Agenda.
Operations Manual of the Rural Agrarian Productive Development Program (AGRORURAL)	R.M. N.° 137-2021-MIDAGRI	2021	47	This program aims to promote rural agrarian development by financing investments in rural settings, particularly in territories considered as those with lower levels of economic development. It also manages a Rural Infrastructure Unit responsible for strengthening the capacities of small and medium-sized farmers in irrigation and drainage infrastructure, production and storage. It manages a considerable budget and has succeeded in assisting over one million families engaged in small-scale agriculture and livestock farming. Additionally, by the year 2024, it aimed to invest more than 350 million soles (equivalent to 87 million euros) to benefit around 300,000 small-scale farmers, who supply 70% of the food consumed by Peruvians.

Table A.2: Description of complementary laws and regulations provided by MIDAGRI

Name of the Public Policy	Regulation for approval	Year of enactment	Objective of the Law or Regulation
Technical Regulation for Organic Products	D.S. N.° 044-2006-AG	2006	Its objective is to define and regulate the production, processing, labeling, certification, and marketing of products referred to as organic, ecological, or biological, including all their variations and derivatives.
Law N.° 29196 Promotion of Organic or Ecological Production	Law N.° 29196	2008	The specific objectives of the law include: fostering and promoting organic production to contribute to poverty reduction, food security, and the conservation of ecosystems and biological diversity; developing and advancing organic production as one of the alternatives for the country's economic and social development; defining the roles and responsibilities of the institutions in charge of promoting and supervising organic production; and, strengthening the National System for the Supervision and Control of Organic Production.
Regulation of Law N.° 29196 Promotion of Organic or Ecological Production	D.S. N.° 010-2012-AG	2012	To regulate the provisions established in Law N.° 29196 through specific procedures.
Law N.° 30983 Development of certification of organic products produced by smallholder farmers	Law N.° 30983	2019	Its objective is to promote the organization, operation and development of agricultural producers' markets, with the aim of encouraging market integration of peasant and Indigenous communities, facilitating direct sales between producers and final consumers, and improving the rural economy by promoting sustainable agriculture.
Regulation for the certification and control of organic production	D.S. N.° 002-2020-MINAGRI	2020	Its objective is to establish the procedures and requirements for the authorization of certification entities, as well as the oversight by the National Agrarian Health Service in its role as the competent national authority, along with other necessary aspects for the proper operation of the certification and supervision of organic production. The aim is to guarantee the organic status of products labeled as organic, biological or ecological in both domestic and international markets, thereby contributing to the sustainable and competitive development of organic production in Peru, from producer to final consumer.
Creation of the National Seal of Organic Production	D.S. N.° 008-2022-MIDAGRI	2022	The creation of the seal aims to enhance the competitiveness of the organic production sector in Peru by enabling the identification of organic products through a national seal that guarantees their organic status. This will have an impact on the inspection, control, traceability and promotion of Peruvian organic products in both domestic and international markets.
1st Annual Monitoring of Pesticide Chemical Residues in Organic Produce	R.D. N.° 0060-2022-MIDAGRI-SENASA-DIAIA	2022	Its objective is to disseminate the results of 2022 monitoring, aimed at detecting the presence of pesticide chemical residues in organic products, as part of the State's surveillance and control actions, in order to verify compliance with national organic production regulations and determine the organic status of the inspected products.
Manual of Use of the National Seal of Organic Production	R.D. N.° 0001-2023-MIDAGRI-SENASA-DIAIA	2023	Its objective is to ensure that certification entities authorized by National Agrarian Health Service and certified organic operators correctly use the National Organic Production Seal on product packaging labels for the commercialization of organic products.
2nd Annual Monitoring of Pesticide Chemical Residues in Organic Produce	R.D. N.° 0020-2023-MIDAGRI-SENASA-DIAIA	2023	Its objective is to disseminate the results of 2023 monitoring, aimed at detecting the presence of pesticide chemical residues in organic products, as part of the State's surveillance and control actions, in order to verify compliance with national organic production regulations and determine the organic status of the inspected products.

Appendix B: Proposal for conditions to scale up agroecology

Table B.1: Description of proposed conditions that support the scaling up of agroecology

Name of the Condition	Motivation	Convergences with other proposals	Key words
Strong governance structures	Steglich et al. (2022) showed that solid institutions promoting local participatory processes were associated with successful agroecological transitions. They concluded that regions with such institutions exhibit more initiative and innovation in shaping the regional socio-economic and policy environments to their livelihood advantage and are more successful in advancing agroecology. Altieri and Nicholls (2017), Villafuerte (2017), Barrios et al. (2020) and Wezel et al. (2020) also agree that successful agroecological experiences are based on community organization (procedures, division of responsibilities, roles, values), transparent and accountable mechanisms, and active social participation especially of women and youth. Participatory processes are a particularly strong driver for civil society engagement (Steglich et al., 2022), hence adequate policy frameworks aware of this can contribute to enabling agroecology's expansion. Furthermore, enabling strong governance structures not only support local agroecological initiatives but also create empowering environments for their institutional recognition and political legitimization, which is essential for scaling up agroecology.	This condition converges with the elements of agroecology of *Synergies* and *Responsible Governance* proposed by FAO (2018), which emphasize that strong, transparent and inclusive governance structures in agroecological contexts enable cooperation across actors and scales. Furthermore, this condition converges with the principles of agroecology proposed by the High Level Panel of Experts on Food Security and Nutrition (HLPE) report (Wezel et al., 2020). Specifically, similar aspects emerge with the principles of *Participation.*	Participatory processes, Community organization, Civil society engagement.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Multisectoral networks	Actors outside the agricultural sector have an important influence on advancing agroecology (Steglich et al., 2022). Specific non-farm sectors such as tourism, gastronomy, renewable energy, among others, have shown to function as important allies for agroecology (e.g., through income diversification, education, raising awareness) (Steglich et al., 2022). Beyond this, alliances between communities and external agencies (NGOs, universities, extension services) are also relevant for agroecology's expansion (Altieri and Nicholls, 2017; Alvarado et al., 2017). Additionally, networks between local communities and the government play an important role in scaling up agroecology (Chamochumbi and Capoen, 2022; Zamora et al., 2022). These networks help embed agroecology into broader societal systems, enhancing its visibility and credibility. As a result, they facilitate its adoption across policy domains and contribute to positioning agroecology within institutional agendas.	This condition converges with the element of agroecology of *Circular and Solidarity Economy* proposed by FAO (2018), which emphasizes social and institutional innovations as key for local economic development. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principles of *Connectivity*.	Cross-sector alliances, Awareness building, Institutional integration.
Local Agents of Change	Agroecology emerges through site-specific processes rooted in local cultures and ecosystems (Altieri and Nicholls, 2017; González et al., 2021). Therefore, agroecological innovations are born in situ with the participation of local agents of change and leaders in a horizontal manner within the community (Altieri and Toledo, 2011). There is evidence that agroecological transformation occurs due to the actions of local pioneers (either private sector or dispersed individuals) expanding their farming enterprises, who then engaged the community and connected it to regional markets (Steglich et al., 2022). Supporting these local pioneers fosters grassroots momentum, which, when recognized at policy level, can translate into institutional backing. This dynamic is encouraging for scaling up agroecology from isolated practices to recognized political frameworks.	This condition converges with the element of *Human and Social Values* proposed by FAO (2018), which emphasizes grassroots action in agroecology and recognizes local people as key agents of change.	Grassroots leadership, Context-based innovation, Community mobilization.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Shared Aspirations	Determined policy frameworks and strategies promoting sector linkages within a local context based on common aspirations are strong factors bringing actors together that can benefit the scaling up of agroecology (Steglich et al., 2022). When numerous peasants are involved and they share common aspirations for the future of the local agri-food system, the agroecological transformation is easily promoted (Steglich et al., 2022). However, these common aspirations are different according to communities and territories. In this regard, Rosset et al. (2022) argue that northern ways of practicing agroecology mostly share a market-driven transition of family farmers to organic production to meet the demands of the healthy food market, while Latin-American ways of practicing agroecology mostly share a way of being, living and producing since they carry historical, social and political weight. In any case, when shared aspirations are acknowledged and incorporated into policy frameworks, they become a basis for collective identity and action. This unity enhances the political strength of agroecology as a social movement advocating systemic change.	This condition converges with the element of agroecology of *Human and Social Values* proposed by FAO (2018), which emphasizes to put the aspirations and needs of those who produce, distribute and consume food at the heart of food systems.	Collective identity, Local vision, Common future.
Market Access	The stability of some agroecological initiatives depends on the market and on the producer-consumer codependency (Soliz, 2022). Access to local markets has proven to be beneficial for agroecology initiatives (Steglich et al., 2022). However, it is only successful when there is not a significant price differentiation between non-conventional and conventional farmers products in markets that can turn into a reason for abandonment of agroecological practices (Chamochumbi and Capoen, 2022). Unfulfilled and unfair business contracts are one of the reasons that contribute to some agroecological farmers making a loss or not making the profits they expected (De La Cruz and Dessein, 2021). Successful agroecology experiences have occurred in the presence of equitable market opportunities with mechanisms that link more directly peasants and consumers and generate a price fair to peasants (Altieri and Nicholls, 2017). Therefore, equitable and stable markets help retain commitment to agroecology and reduce the risk of return to conventional practices. Moreover, they demonstrate the economic feasibility of agroecology, a key argument in gaining broader institutional and political support. It is worth noting that connection between rural and urban populations is also a relevant factor for market access. The enhanced appreciation from the urban population towards the value of healthy and sustainable food and rural farming increases their willingness to pay a higher price for locally produced food, benefiting agroecological systems (Steglich et al., 2022). On this matter, certified farm practices are also one important driver of market positioning (Steglich et al., 2022).	This condition converges with the element of agroecology of *Culture and Food Traditions* proposed by FAO (2018), which emphasizes that fostering closer rural–urban connections and valuing traditional food systems enhance market access and consumer appreciation. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principles of *Social values and diets* and *Fairness*.	Fair pricing, Producer-consumer ties, Healthy food demand.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Economic viability of the practices	The cost associated with new methods to be adopted by farmers, such as stocking of alternative inputs (e.g., bio-fertilizers), transportation, reorganization of the production system (e.g., avoiding monocropping), are influential factors when transitioning to agroecology (Chamochumbi and Capoen, 2022; De La Cruz and Dessein, 2021). Notwithstanding this, the balance between the use of internal and external resources is a strength in agroecology practices since the available local resources are recombined in order to allow the resource base as a whole to function with as few external inputs as possible (Van der Ploeg et al., 2019; Quispe et al., 2022). Moreover, when the costs of environmental degradation are included in calculating profitability of conventional agriculture, agroecological practices shape up to be competitive (Altieri and Nicholls, 2017). Beyond this, advancing agroecological practices entails reconfiguring perceptions about productivity in the long-term. Agroecology involves extending beyond mere economic purposes and encouraging agroecosystem management that is more socially and environmentally efficient (De La Cruz and Dessein, 2021). In economic terms, agroecological farmers seek to maximize the Value Added from a given Gross Value of Production, as opposed to seeking to expand the latter as conventional agriculture does; and rarely assess efficiency at the level of an individual component but at the level of the whole farm (Van der Ploeg et al., 2019). Therefore, advocating the economic viability of agroecological practices at policy level helps not only advancing agroecological initiatives but also its inclusion in agricultural development agendas and public investment.	This condition converges with the elements of agroecology of *Diversity*, *Efficiency*, *Recycling* and *Circular and Solidarity Economy* proposed by FAO (2018), which emphasize that agroecological practices promote cost-effective, resource-efficient systems that reduce input dependency, enhance value-added through diversification and recycling, and foster economic resilience via local circular economies. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principle of *Economic diversification*.	Cost-efficiency, Resource optimization, Long-term profitability.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Labor Availability	Adopting agroecology can be labor intensive and can pose a challenge to peasants or smallholder farmers' management capacity (De La Cruz and Dessein, 2021). Migration from rural areas play a key role on this since peasants move to cities in the need of combining non-farm activities with farm activities to increase their income (Chamochumbi and Capoen, 2022). However, when it comes to waged labor it is important noting that there is a difference between agroecological and conventional farming. In the former, the total payments for wage workers are far lower since scale is not its main carrier of economic size, while the latter needs to continuously expand and to take on new debts in order to do so (Van der Ploeg et al., 2019). Furthermore, agroecology implies a return to the centrality of labor in farming since it requires a very particular type of know-how and way of working (Van der Ploeg et al., 2019). This does not imply retreat to individualism but a cooperation at different levels and many exchanges (with other farmers, consumers, processors, etc.) (Van der Ploeg et al., 2019). Therefore, recognizing the unique labor dynamics of agroecology underscores the need for labor-supportive policies. Supportive policy frameworks of that kind benefit agroecological initiatives and, at the same time, enable agroecology to be framed as a sustainable livelihood strategy and strengthens its claim for institutional and financial support.	This condition converges with the element of *Human and Social Values* proposed by FAO (2018), which recognizes the labor-intensive nature of agroecology and the role of rural migration and off-farm work, and highlights the need to support smallholders farmers through policies that value their labor and foster cooperation. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principle of *Fairness*.	Skilled labor, Cooperative work, Rural migration.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Ecological Cultivation Methods	Practicing agroecology entails the application of cultivation methods based on peasants' knowledge and on an ecological rationality (Altieri and Toledo, 2011; González et al., 2021). From an economic perspective, the maximization of yields and profitability cannot be achieved without considering the ecological limits of production (Altieri and Nicholls, 2017). The more structurally and functionally similar an agroecosystem is to the natural ecosystems of its biogeographic region, the more likely it is that the agroecosystem will be sustainable in time (Gómez et al., 2017). Some examples of these methods include inter-cropping, replacing chemical pesticides with organic pesticides, encouraging natural enemies of pests, use of animal manure to increase soil quality and fertility, implementing a drip irrigation system with recycled material, agroforestry, diversifying plant species and genetic resources, use of native seeds and local breeds of livestock, among others (De La Cruz and Dessein, 2021; Van der Ploeg et al., 2019; Quispe et al., 2022; Wezel et al., 2020). However, the key when referring to these ecological cultivation methods is to understand that agroecology is not just a toolbox to be applied by farmers. Agroecology reconceptualizes land and nature as a productive agroecosystem. This means freeing the concept of land from the limited economic rationality, which has led to converting nature into merely a raw material for productive appropriation (Altieri and Toledo, 2011). Thus, redefining farming through ecologically grounded methods becomes one of the ways for agroecology as a movement to challenge dominant agro-industrial models. Public policies that promote and support such methods not only directly strengthen agroecological initiatives in the field but also reinforce the political recognition of agroecology's motions.	This condition converges with the elements of agroecology of *Diversity*, *Synergies*, *Efficiency*, *Recycling* and *Resilience* proposed by FAO (2018), which emphasize that by aligning farming practices with natural ecosystems, agroecology fosters sustainability while reducing dependency on external inputs and strengthening ecological and socio-economic resilience. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principles of *Recycling*, *Input reduction*, *Soil health*, *Animal health*, *Biodiversity*, and *Synergy*. Moreover, the core of this condition converges with all the principles of agroecology pointed out by Altieri and Toledo (2011) which aim at developing agroecosystems with minimal dependence on high agrochemical and energy inputs. These principles include *recycling nutrients and energy on the farm; enhancing soil organic matter and soil biological activity; diversifying plant species and genetic resources in agroecosystems over time and space; integrating crops and livestock;* and *optimizing interactions and productivity of the total farming system*. Similarly, what this condition advocates converge with the proposal of principles for agroecology as a science of Gómez et al. (2017). Such proposal includes *systemic*, *biomimicry*, *agroecosystem specificity*, *biodiversity*, *sustainability*, *species governance*, and *ecosystem governance* principles.	Ecological rationality, Alignment with nature, Land reconceptualization

Name of the Condition	Motivation	Convergences with other proposals	Key words
Multiple Forms of Knowledge	Cultural practices and indigenous and traditional knowledge offer a wealth of experience that inspire agroecological initiatives (Steglich et al., 2022; Rosset et al., 2022; Huambachano, 2018). Agroecology is highly knowledge-intensive, hence the cultural and community conditions in which peasants are immersed, their local identity and their ancestral knowledge are central elements for the realization of agroecological practices (Altieri and Toledo, 2011; Villafuerte, 2017). Furthermore, agroecology recognizes different kinds of knowledge as equally relevant and benefits itself from this variety (Steglich et al., 2022; Barrios et al., 2020). It also calls for an exchange of experiences and interdisciplinarity, and formal and non-formal education play a fundamental role in sharing agroecological innovations resulting from co-creation processes (Barrios et al., 2020). Then, in a prosperous environment for agroecology practices, the traditional and scientific knowledge are recognized as not exclusive but complementary between each other (Steglich et al., 2022), and a horizontal dialogue of knowledge is in place (Chamochumbi and Capoen, 2022). Besides this, the improvement in scientific knowledge becomes relevant since it can boost agroecology practices through research focused on facing technical obstacles in farm yield (Chamochumbi and Capoen, 2022). According to Altieri and Toledo (2011), a major constraint to the spread of agroecology has been that powerful economic and institutional interests have backed research and development for the conventional agriculture approach, while research and development for agroecology and sustainable approaches has in most countries been largely ignored or even ostracized. Therefore, recognizing the equal relevance of multiple forms of knowledge through policy contributes to institutionalizing this pluralism benefiting the scaling up of agroecology. Beyond this, it encourages the co-creation between diverse knowledge systems and fosters horizontal learning among agricultural farmers.	This condition converges with the elements of agroecology of *Co-Creation and Sharing of Knowledge* and *Culture and Food Traditions* proposed by FAO (2018), which emphasize the importance of recognizing and integrating diverse forms of knowledge—traditional, indigenous, practical and scientific—in the development of agroecological practices. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principle of *Co-creation of knowledge*.	Knowledge pluralism, Horizontal dialogue, Co-creation processes.

Name of the Condition	Motivation	Convergences with other proposals	Key words
Legitimized Communities' Rights	The choices of peasants, and the ability of people to take part in agriculture in the first place, are constrained by the social, economic and political systems in which they exist (Mason et al. 2021). Land tenure security, as well as access to seeds, water, and other elements of natural ecosystems, have been shown to be of vital importance to the livelihoods of smallholder farmers and for investment in agroecology (Valdivia-Díaz and Le Coq, 2021). Therefore, improving the productive self-management conditions of peasants' communities engaged in agroecological practices is closely tied to the recognition and legitimization of their rights over land and resource patrimony (González et al., 2021). Furthermore, agroecology farming is carried out in territories where multiple actors are present, with their own visions and interests, possibly generating territorial disputes (Soliz, 2022). Specifically in Latin America, agroecology has been constructed in a context of struggles for land, gradually becoming a tool of resistance to the domination of territories promoted by neoliberal globalization (Rosset et al., 2022). Equity in access to land is a relevant issue since most women and young people do not own it (Dorrego et al., 2022). In this regard, agroecology is highly linked to achieving food sovereignty, which implies that communities can decide on the healthy products they eat, on the way to prepare them, on their production systems and on how they organize to obtain them (Dorrego et al., 2022). Therefore, securing territorial and resource rights empowers peasants' communities to practice agroecology autonomously and sustainably. Moreover, institutional recognition of these rights strengthens agroecology's political standing and supports its advancement as a movement for sovereignty and systemic transformation.	This condition converges with the elements of agroecology of *Responsible Governance* and *Human and Social Values* proposed by FAO (2018), which highlights the importance of dignity, equity, inclusion, and justice in shaping sustainable food and agricultural systems. Furthermore, this condition converges with the principles of agroecology proposed by the HLPE report (Wezel et al., 2020). Specifically, similar aspects emerge with the principles of *Social values and diets*, *Fairness*, and *Land and natural resource governance*.	Land tenure, Equity, Resource sovereignty