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Participatory Guarantee Systems in Peru: Two Case Studies in Lima and Apurímac and the Role of Capacity Building in the Food Chain

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Abstract: Participatory guarantee systems (PGS) are an emerging strategy in the organic farming and agroecology movement for ensuring the sustainable origin of food. This study focused on the perspectives of stakeholders involved in PGS in Peru (Lima and Apurímac) in order to acquire a greater understanding of how these PGS operate and the context in which they are embedded. Qualitative and quantitative approaches were used for data collection in 2016. PGS in Peru have a fairly centralized pyramid structure, with non-governmental organizations and regional farmers' associations the main driving forces behind PGS implementation. Improved access to markets and additional commercialization channels are major motivations for farmers to participate in PGS, but major difficulties in these two areas are still being encountered in both regions. There is a high demand among farmers for technical training. Farmers acting as internal evaluators play a special role in their local nuclei and are crucial in the PGS process. The PGS in Lima and Apurímac are an important tool in the agro-ecological movement in Peru and offer considerable potential for the support of small-scale farmers. However, there is a need for official recognition and support together with improvements in internal organization and communication for PGS to be able to maintain their principles.

Keywords: certification; organic agriculture; organic farming; case study; stakeholder perception; agroecology

1. Introduction

Certification as a tool for reducing information asymmetry along the agri-food chain (Reference [1], p. 45) has become a major driving force in the global regulation of organic agriculture. In the last three decades, the third-party certification (TPC) system, in which an independent actor verifies a farmer's compliance with pre-established process-oriented standards [1,2], has emerged as the dominant certification system. TPC has been subject to criticism, however, and particularly in countries in the Global South (Latin America, South-East Asia and Africa) stakeholders have developed alternatives. Participatory guarantee systems (PGS) and internal control systems (ICS)—both group certification systems—are currently the two most widely known certification systems that are also recognised by the International Federation of Organic Agricultural Movements (IFOAM).

In ICS, a group of farmers initially establishes a quality management system with internal standards, and then within this group compliance of production and processing with these standards is evaluated, usually by trained internal inspectors. An external control body assesses the system's functioning and compliance with organic farming regulations in the relevant target market for group

members' products, for example through random inspections of a particular proportion of the farmers and processing sites [3,4].

Unlike TPC and ICS, PGS inspections are based on peer review alone and do not usually involve external control bodies. The ideal PGS includes various different stakeholders in the guarantee process who share a vision of mutual responsibility, integrity, horizontality, trust and ecological farming [5]. The first PGS in Peru were initiated by an non-governmental organization (NGO) and a farmers' association in Huánuco and Huancayo in 2005. Currently there are 12 PGS initiatives operating in 12 different regions of Peru and at different stages of development [6].

PGS have received considerable support and attention from IFOAM and other institutions in a number of publications [5,7–10], however scientific publications examining PGS are scarce.

The aim of the current research was to describe the operation, structure and organization of two PGS initiatives in two regions in Peru (Lima and Apurímac) against the backdrop of their sociopolitical environments. The results of this investigation provide greater insight into the practical realities of the two PGS initiatives, but primarily highlight the complexity of PGS and the difficulties encountered. This paper not only contributes to the limited scientific literature about PGS, but also provides a starting point for further empirical research on PGS.

2. Literature

First- and second-party certification systems in organic farming were set up in the 1920s. In contrast to TPC, standards and controls are determined within the same businesses or association of businesses [11]. With increasing demand and globalization, there has been a growing number of organic standards. Developing on different regulatory levels (regulatory fragmentation), the actors setting standards began to compete with one other, often leading to debates about the effects of such competition on their credibility and reliability. In response to increasing regulatory fragmentation in organic farming, there have been attempts to set standards globally (e.g., IFOAM Basic Standards, Codex Alimentarius) [12,13] and to harmonize the various existing standards. In the course of this development, TPC has been favoured by scheme owners, making it the dominant certification system for the past 30 years. TPC can be defined as control of the "[. . .] conformity of the producer's practices to the organic standard [. . .] by an independent body paid for by the farmer" [14], processor or exporter. However, the increasing codification of organic farming principles on different levels has led to discussions about global harmonization and local adaptability of standards and to a shift from farmer-owned standards based on traditional knowledge to rather rigid governmental norms that very often are not adapted to local circumstances [13].

For farmers, third-party certification of their products as organic can have social and economic benefits that have been discussed in a range of scientific studies (e.g., References [15–17]). However, there is growing criticism of TPC and discussions about their reliability and negative consequences on small-scale organic agriculture. The situation of farmers themselves usually choosing one of the many certification bodies for the inspection is also a source of debate. Silva-Castañeda [18] gives a summary of the existing discourse in the literature about potential partiality among audit personnel and reliability issues in TPC. Financial, bureaucratic and organizational barriers for small-scale farmers are also discussed as side effects of the widespread application of TPC [13,19–21]. Criticism levelled at TPC is often related to a general critique of the standardization and institutionalization of organic agriculture, which are seen by some actors as negative for the sector [22,23]. Both publications consider alternative agrifood initiatives as possible means of counteracting this development, and this is where PGS come in. PGS strongly challenge some of the underlying assumptions and principles of TPC. Unlike TPC, PGS are based on peer review and the broad participation of farmers, consumers and private and public institutions in the guarantee process. The standards are intended to be set and agreed by the stakeholders themselves and PGS are supposed to be better adapted to local circumstances and the livelihoods of small-scale farmers [10], as well as being included in the standard setting process.

Since 2004 PGS have featured on the global agenda of agro-ecological movements and their main international supporters (e.g., IFOAM, MAELA). Based on the Global PGS Survey conducted in 2015, there are an estimated 250 PGS initiatives worldwide [24]. Increasing attention has been paid to PGS in grey literature. Case studies by IFOAM, mostly carried out by stakeholders in the PGS initiatives investigated [7,8], and publications dealing with the principles of the system [5,10] prevail. PGS have also been considered in the policy debate on organic certification, as in Moschitz [25]. Here, the authors compare different certification systems and suggest several improvements that can be made to the European TPC system, such as "social network factors" and "capacity building and training" [25] (p. 36). These proposed improvements closely resemble the principles of PGS.

However, scientific publications based on empirical data dealing with PGS are scarce. To the best of the authors' knowledge, these are limited to sociopolitical debates on their implications for stakeholders [21,26,27] and economic discussions about purchasing behaviour [28]. PGS is also discussed as a governance mechanism and related to other concepts such as "food sovereignty" and "agroecology" [26,29,30]. Empirical research about PGS is available for case studies of PGS in Mexico [21,31] and Brazil [28,32]. A case study has recently been published of PGS initiatives in five countries, evaluating farmers' motivations for participating in PGS and the perceived benefits of this participation [33]. Based on a sample size of eight farmers per initiative, the authors conclude that PGS enhance social cohesion and diverse social processes that potentially benefit farmers [33].

To analyze the gap between ideals in theory and the actual situation on the ground, more case studies of PGS in practice are required. Nelson et al. [21] identify and describe the basic processes and structural composition of the Mexican Network of Local Organic Markets in order to analyze its reliability, participation and level of institutionalization. The ideal of equal participation of all actors is not really reflected in reality, and consumers in particular are barely involved and receive little information about PGS. The reliance on voluntary contributions poses a risk to the sustainability of PGS and makes it susceptible to low member participation [21,31]. There are other factors that influence the degree of smallholder participation in agricultural value chains, such as geography (proximity to potential buyers), as well as institutional factors including access to credit and land rights [34].

Trust and face-to-face interaction are identified as key components in PGS [21,32] and are crucial to preventing or mitigating personal conflicts between farmers, which pose a risk to the sustainability of PGS [31]. In their study of the pioneering Brazilian PGS initiative Rede Ecovida, Zanasi et al. [32] asked 18 farmers participating in PGS about the motivations behind their participation in this system. The small sample size and distribution of the sample mean that the case study is not representative, but it still contributes to the relatively scarce literature about PGS in practice. Zanasi et al. [32] discovered that the main motivations for farmers participating in the Rede Ecovida are its lower certification costs and being invited by fellow farmers to participate. It is not clear, however, whether the authors and farmers considered monetary and non-monetary costs (e.g., voluntarily invested time). One aspect not mentioned in any of the case studies is that PGS may be used as a stepping stone towards TPC, as is the case with the Sabeto Organic Producers Association (SOPA) in Fiji [9].

An assessment of stakeholders' perceptions of PGS on a national, regional and local level offers a holistic understanding of how the two PGS initiatives in Lima and Apurímac operate in practice and how they are influenced by and embedded in their environment. On every level, the focus of the evaluated data is on the current most pressing issues, as expressed in interviews with key informants on a national level. These include the legal situation of PGS in Peru, the sustainability aspect of PGS and capacity building among farmers. The way in which farmers perceive capacity building in their PGS and the general problems they identify may help stakeholders adapt their training more effectively to farmers' needs.

3. Materials and Methods

The information presented in this paper is based on an in-depth study [35] (pp. 49–50) of two PGS initiatives in Peru.

Phase one comprised a review of academic literature and of newsletters, institutional publications, reports and presentations about PGS in general and PGS in Peru in particular. The regulatory system of organic farming and certification in Peru was studied using legal documents and related references.

In **phase two**, eight extensive semi-structured interviews were conducted with key informants of PGS in Peru. All but one (technical issue) were audio recorded and transcribed verbatim. All eight key informants had been working or were still working with PGS and either represented NGOs (3, IDMA), universities (1, Universidad Nacional Agraria La Molina in Lima), consumer associations (1, ASPEC) or farmers' associations (2, ANPE). One representative from IFOAM Latin America was also interviewed. The information gathered during these interviews helped to contextualize the two initiatives by identifying the main elements, debates and actors in PGS and the Peruvian regulatory system. Guided by the information supplied by the key informants and previously established criteria, two regions were selected for more detailed investigations. The following criteria were applied: (a) The PGS initiative was actively implementing the guarantee process, (b) there were at least 50 farmers enrolled in the PGS initiative, (c) the two initiatives operated in different geographical contexts, and (d) the initiative was willing to cooperate with the researchers. With Lima and Apurímac, an urban coastal PGS setting and a rural Andean PGS setting were chosen.

In **phase three**, a total of eight members of the two regional councils (RC) took part in semi-structured interviews. In order to gain a more comprehensive perspective, at least one representative from a private institution and one governmental representative were also interviewed. The focus in these interviews was on the guarantee process on a regional and local scale, as well as the structure, organization and functions of the regional council. All but one of the semi-structured interviews were audio recorded and transcribed verbatim. The data on a national level were then analyzed using an inductive coding approach following Saldaña [36]. Five coding cycles revealed the main topics and debates about PGS on a national level and the key informants' perceptions of PGS. This conceptual framework was then used to prepare and subsequently code the eight semi-structured interviews in phase three with members of the PGS regional councils (three in Lima, five in Apurímac) using a deductive approach. Other activities in phase three were visits to farmers' markets and attendance of meetings and public events.

In **phase four**, 46 farmers (22 in Lima, 24 in Apurímac) were interviewed to complete the questionnaire interviews. The sample size was small due to unexpected time-consuming data collection. Farmers could not be interviewed directly at the markets, as planned, but had to be visited at their homes/farms and interviewed there. This small sample size has to be considered in the interpretation of the results. The farmers were selected based on the accessibility of their farms or their presence at weekly markets in the cities of Lima and Abancay (capital of Apurímac), hence a non-probability convenience sampling method was used. The one person who held the *constancia* (A *constancia* is a document issued by the regional council that serves as proof that farmers are cultivating organically. Since PGS are not officially recognised in Peru, farmers do not receive an official certificate.) for the farm was always interviewed. The 22 farms in the Lima region were all located within the Lima metropolitan area. The first contact was established with key members of each nucleus at a Lima RC event. These key members were of great help when contacting the other farmer members of their own PGS nucleus. In Apurímac, 24 farms within approximately a 50 km radius of Abancay were included. The farmers were mostly contacted at the markets (basically two weekly farmers' markets) and then visited with the help of the NGO IDMA (geographical and transportation issues). IDMA, an NGO dedicated to environmental issues and agroecology, assumed a strong role in facilitating the PGS process in both regions. IDMA itself is one of the great promoters of PGS on a national scale. The questionnaire interviews contained 63 questions to assess farmers' knowledge of PGS, their perceptions of capacity building such as the usefulness of certain information sources, the topics,

the main providers of training and farmers' participation of them. The identification of their role in the local nuclei (LN) helped identify possible correlations. Additional activities in phase four were visits to farmers' markets and participation in PGS-related events (e.g., external evaluation, technical training), with attendance at meetings and public events completing the data collection. Designing the questionnaire for phase four (based on the questionnaire of Reference [31]) was an iterative process in which integration of information from the literature, preliminary results from the interviews on a national level and a pilot test with eight farmers produced the final questionnaire. The questionnaires were then analyzed quantitatively in SPSS 24 and qualitatively in order to summarize and categorize the main problems identified by the respondents. Relative frequencies and distributions were used to depict the sociodemographic constitution of the data sample. A focus was placed here on gender, education, age and the financial and work situation (Table 1). In total, 37 women and nine men aged between 27 and 76 years were interviewed. The imbalance in gender distribution was greater in Apurímac than in Lima, and represented the generally higher rate of women in the two PGS initiatives. According to a member of staff of the NGO IDMA (Instituto de Desarollo y Medio Ambiente), this is due to the distribution of work in farming families where women are responsible for selling at market. The fact that it is often women cultivating the fields and men taking occasional construction jobs to increase household income also influences the gender distribution in PGS, with the *constancia* usually issued in the women's names. The level of education level was low in both regions, but farmers in Apurímac in particular only had a low (primary) to very low (incomplete primary) formal education. In Lima the number of farmers with higher education was double that in Apurímac. All the participants were small-scale farmers (Table 1).

Table 1. Overview of the sociodemographic characteristics of farmers in Lima and Apurímac (n = 46). F = female, M = male.

Region	Gender (F/M)	Educational Level: Low to Very Low	Educational Level: High	Area Cultivated in ha (Mean/Max/Min)
Apurímac	21/3	75%	25%	1.4/3.5/0.005
Lima	16/6	54.5%	45.5%	0.3/1.2/0.0015

Non-parametric methods were used to compare the two independent sample groups (Apurímac and Lima). For nominal variables, cross-tables were created, and a chi square test was used to test relationships. If there were fewer than five cases in any cell of the cross-tables, Fisher's exact probability test was applied instead of chi square. The Mann-Whitney U Test was run to analyze the Likert scales and assess the level of satisfaction with PGS in general.

In the triangulation process, the data assessed on the three levels were combined and two system maps created. As defined by Flick [37] (p. 230), triangulation is understood to be "[. . .] less a strategy for validating results and procedures than an alternative to validation [. . .] which increases the scope, depth and consistency in methodological proceedings." In this understanding triangulation helps to obtain a more holistic and complete image of the research object.

All the interviews were conducted based on the prior informed and educated consent of the respondents with anonymity assured. Each respondent cited in this article was therefore allocated an IP code and number (Table 2).

Table 2. Demographics of the interview partners (IP) cited. (UD = university degree).

Code	Region	Gender	Age	Institution	Education
IP 1	Lima	M	44	NGO and farmers' association	UD
IP 2	Lima	F	51	International association	UD (forestry)
IP 3	Lima	M	53	NGO	UD (agricultural engineer)
IP 4	Apurímac	M	n.a. *	Government	UD (agronomist)
IP 5	Lima	F	60	Government	UD (agronomist)
IP 6	Apurímac	M	50	NGO	UD (agronomist)

* not available. IP did not give his age.

At the start of data collection, the intention was to include consumers in the case study, but after 10 questionnaire interviews it was evident that none of them had any idea about PGS and hence the assessment of their perceptions of PGS was discarded. This allowed a greater focus on the farmers' perceptions.

Case Study Background

The following information is based both on the findings of the empirical case study and of the literature and legal documents where referenced. For the sake of a more complete description of the regulatory system and PGS in Peru, the empirical findings were combined with the existing literature.

The organic regulatory system in Peru is a complex network of institutions and shared competencies defined by the law for organic agricultural promotion (No. 29196) that was passed in 2008 (Figure 1). Since 2012, the regulation of organic products (Reglamento Técnico de Productos Orgánicos, RTPO) sets standards for the implementation of organic agriculture and its guarantee system. The top line (Figure 1) shows the ministries involved in organic regulation, with MINAGRI being the governing body. Implementation of the law lies with the three executive bodies: INIA, SENASA and DIGNA. CONAPO plays an important role in the organic sector, since it is more or less the connecting body between the institutions on a governmental level and the regional bases (COREPO). At the time this study was conducted, PGS was not officially recognised as a viable system for guaranteeing the organic quality of products by the responsible institution, the National Service for Agricultural Food Safety (SENASA). Although law No. 29196 mentions and gives a definition of PGS in Article 4 [38], PGS are not recognised by SENASA and hence on a national level. The consequence is that PGS farmers are not allowed to market their products as organic in Peru. Nevertheless, PGS initiatives have developed in different regions of the country since 2005 and some regional governments have adopted decrees recognizing PGS on a regional level. Regional governments usually try to follow the goals set by the National Plan for the Promotion of Organic Agriculture, which is formulated by the CONAPO.

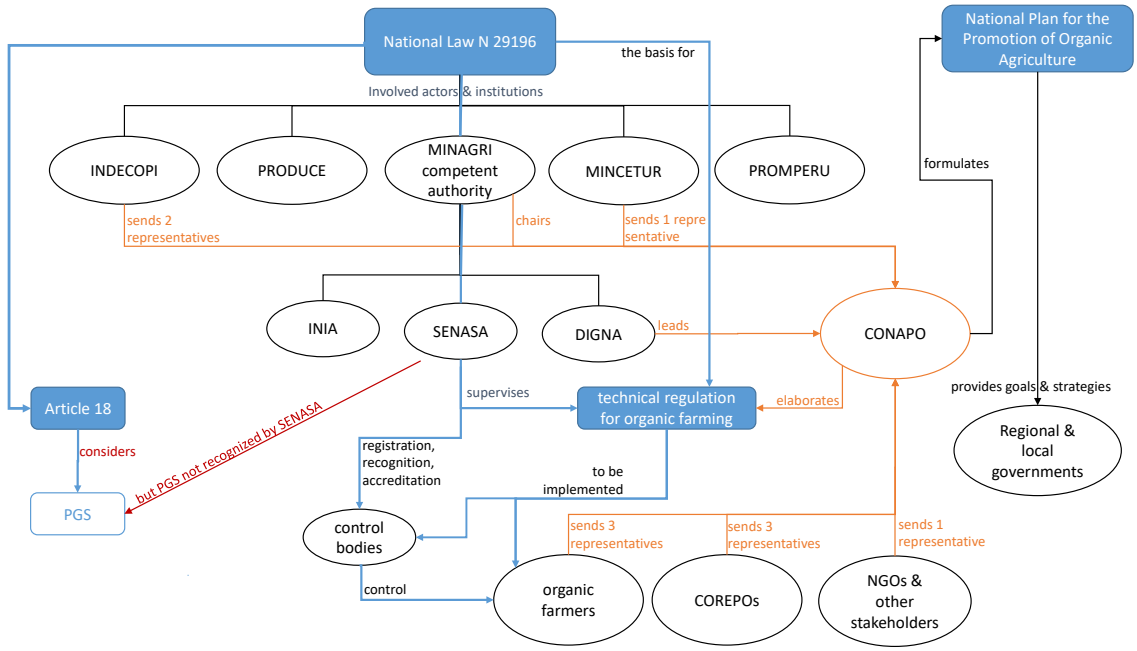

Figure 1. Map of institutions involved in the regulation of organic agriculture and certification in Peru (own illustration; INDECOPI: Instituto Nacional de Defensa de la Competencia y de la Propiedad Intelectual del Perú; PRODUCE: Ministerio de la Producción; INIA: Instituto Nacional de Investigación Agraria Peru; MINAGRI: Ministerio de Agricultura y Riego; SENASA: Servicio Nacionál de Sanidad Agraria; MINCETUR: Ministerio de Comercio Exterior y Turismo; DIGNA: Dirección General de Competividad Agraria; PROMPERU: Comisión de Promoción del Perú para la Exportación y el Turismo; COREPO: Consejo Regional de Productos Orgánicos; CONAPO: Consejo Nacional de Productos Orgánicos).

While Apurímac issued a regional decree about PGS in 2013, Lima does not yet recognize PGS. Compared to other countries such as Brazil and Colombia, the structure of PGS in Peru is fairly centralized (Figure 2). The pyramid-like structure is composed of one national council (NC), several regional councils (RC) and the local nuclei (LN). Their tasks and responsibilities, internal structure and functions are outlined in the *Manual de Procedimiento del Sistema de Garantía Participativo* (MPSGP) [39]. This manual was drafted by the national PGS council and is promoted—without being compulsory—in all regions as the basis of and guidelines for PGS. The manual itself does not lay down the organic standards, but refers to the RTPO [39] (p. 9).

The three institutions (ANPE, ASPEC, IDMA) comprising the NC represent farmers, consumers and NGOs. They are the owners of the official Peruvian PGS seal, which has existed since 2016. Due to the very recent announcement of the seal being registered in the name of the three members of the NC at the time of data collection, many questions about its concrete implementation remained open. The aim of this step, as expressed by the members of the NC, was to limit the use of PGS labelling only to those who comply with the MPSGP and therefore to ensure credibility. Furthermore, the NC are responsible for political lobbying on behalf of PGS at a national and international level. All three institutions work on a national scale, lobbying on behalf of PGS. ANPE and IDMA in particular have initiated and continue to support various regional PGS councils (e.g., References [6,39,40].

The RC is designed to accompany farmers throughout the guarantee process, provide technical training, ensure completeness of the documentation and perform the external evaluation. Depending on the region, the number of institutions in the RC varies. In 2016, 12 RCs participated in the national PGS meeting in Ayacucho, which was intended to bring all PGS RC together annually [39]. The RC in Lima is composed of 17 institutions, ranging from NGOs, farmers' associations and municipalities to governmental institutions and universities, while in Apurimac six institutions participate. Around 230 farmers in Lima and 600 in Apurímac participated in the guarantee process

in 2015 [40]. The required documentation is outlined in the MPSGP [39]. To be admitted, farmers need to provide personal information (age, family situation, living conditions, motivations for PGS etc.) and information about agricultural practices and land, as well as commercialization at the time of registration.

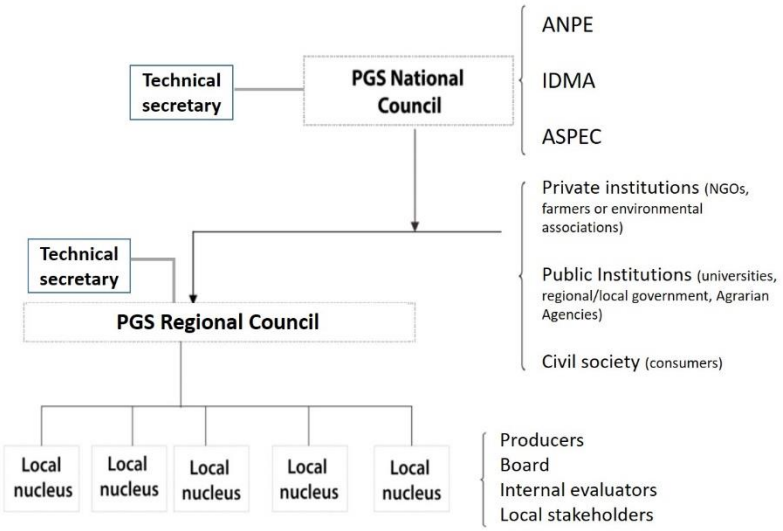

Figure 2. Structure of participatory guarantee systems (PGS) in Peru and the actors involved (adapted from Reference [41]).

The LNs are composed of a minimum of ten farmers formally organized as an association, whose main responsibility is to carry out the internal evaluation annually and produce organic products. Within their group (or in coordination with the RC) they appoint at least one internal evaluator, who then receives special training to be able to perform the internal evaluation. Depending on the region and usually also the institution supporting the LNs, participation in training and capacity building may be compulsory.

In Peru the participatory guarantee process is carried out annually and comprises four general steps: The internal evaluation, validation of the evaluation by the board of the LN, the external evaluation and the award of the *constancia.* In the first phase, internal evaluators pay an evaluation visit to all their fellow farmers in the LN. The internal evaluators need to be well trained in the current organic regulation (RTPO) in order to complete the internal evaluation. Visiting every plot belonging to every farmer in their own LN, evaluators need to evaluate the current plan of crop and animal production (ideally prepared in advance by the farmers), the agricultural practices and the commercialization channel. In total, this usually comprises four sheets per producer signed by both the producer and the evaluator. The completed documents are then handed over to the LN board, which double-checks the completeness of the documentation. In the third phase the forms are submitted to the RC, which again revises the documentation and then visits a minimum of 20% of farmers in every LN, selected randomly [39]. The external evaluators are representatives of the member organizations who participate in the PGS RC. Whether the evaluators are paid greatly depends on the organization in which they are involved and their personal arrangements with these organizations. Representatives of government bodies tend to get paid, whereas members of NGOs and farmers associations volunteer. In Lima one person was designated to organize the RC evaluation visits to the LN for the rest of the team. In Apurímac, however, every organization "supported" their own LN. Hence, a representative of IDMA, for example, would carry out external evaluation visits to the LN accompanied by Caritas. In Lima, all the farmers in the LN had to pass this external evaluation for the whole LN to receive a *constancia*. In Apurímac, the *constancia* was issued individually.

4. Results

4.1. The National Perspective—Contextualizing PGS in Lima and Apurímac

The analysis of the eight interviews derived 72 codes (here in italics) grouped into 10 categories (underlined), which were then assigned to the two general themes of "system-evaluating statements" and "system-describing statements". The latter contains all statements about PGS that refer to its structure, genesis, legal framework or examples from practice that were classified as non-judgmental. The "system-evaluating statements" meanwhile include personal perceptions, estimations and critiques. The performance and sustainability of PGS was a leading topic in all the interviews. The interviewees identified several performance factors. External factors influencing the performance of PGS act on a meta level and are *family agriculture* and the *Andean culture*. The main internal performance factor identified was an *existing market for PGS products*. Relating this aspect immediately to the sustainability of PGS, one interviewee stated: "The PGS that are linked to a market are generally those PGS that continue [working]" (IP 1 5 September 2016). Demand and *various commercialization channels* were not only crucial to the sustainability and resilience of a PGS initiative, but also incentivized actors to initiate a PGS. The start-up of a PGS in Peru was perceived to be heavily driven by NGOs or the national organic farmers' association (ANPE). Those interviewees in particular who had been working in the field with the farmers described a relatively *top-down implementation of PGS*. This *top-down implementation* was characterized by a strong dependence of the functioning of PGS on the NC and respective RC. This went hand in hand with the importance of *technical training* and capacity building of farmers, which were the main drivers in a sound implementation of PGS. NGOs and other institutions involved in PGS had much more of a role to play than merely carrying out external evaluations. The many responsibilities ascribed to the NGOs by the interview partners were reflected in the strong sense of ownership of PGS among the NGO representatives interviewed. As two interview partners explained, the RCs and sometimes also the NC continually provided farmers with support throughout the annual guarantee process, offering them training, organizing meetings (e.g., annual National PGS Encounter, which was attended by the author in 2016) and PGS-related events, and disseminating the concept among farmers. Although interviewees described this strong dominance on an institutional level, they considered *empowered farmers* and *strong farmers' associations* as the most important aspects for a sound and sustainable functioning of PGS. The ability to "face intellectual challenges in a reflective and analytical way so that they find their own solution [. . .]" (IP 26 September 2016) characterized *empowered farmers*, as one interviewee explained. Capacity-building measures for farmers were considered a necessary tool for empowering farmers, especially the intensive training received by internal PGS evaluators.

Governmental support and the *legal framework* and status of PGS were discussed in depth on a national level. All the key informants longed for *legal recognition of PGS by SENASA* in order to facilitate access to the organic label for PGS farmers. At the start of this research a PGS working group, comprising representatives from the Ministry of Agriculture and Irrigation (MINAGRI) and PGS actors, was formed to discuss the terms for possible recognition. The debate was mostly limited to the general structure of PGS, which was not acceptable to the ministry at that time. The key informants mentioned several consequences of the non-recognition of PGS. The limited government support and consequently *financial bottlenecks*, the difficult *inclusion of farmers in the local (organic) markets* and hence often a low reward for farmers participating in PGS were the most severe consequences described. Not having access to the local organic market (mostly the case in Lima) or a low demand for organic products (mostly the case in Apurímac) dampened the farmers' enthusiasm for participating in PGS. This was partly reflected in the relatively high fluctuation in the number of PGS farmers in Lima and Apurímac.

Bureaucratic effort was only mentioned in passing, but could have either a stimulating or a restraining effect on PGS performance, depending on its extent. The two interviewees who took part in the development of the documentation and the *PGS regulation* claimed that PGS in Peru chose the

"middle way" in terms of bureaucracy. This means that the required documentation was sufficiently exhaustive to eventually prepare farmers for other certification systems, such as TPC, without placing too much of a burden on them.

4.2. The Regional Perspective—Structure, Operations and Motivations

The structure and basic functions of the two RCs in Lima and Apurímac were very similar, therefore only the system map from Lima (Figure 3) will be used to describe and—where necessary—contrast the two initiatives (PGS-RC-Lima, PGS-RC-Apurímac). The system boundary was set at the regional level, hence the NC was considered an external element.

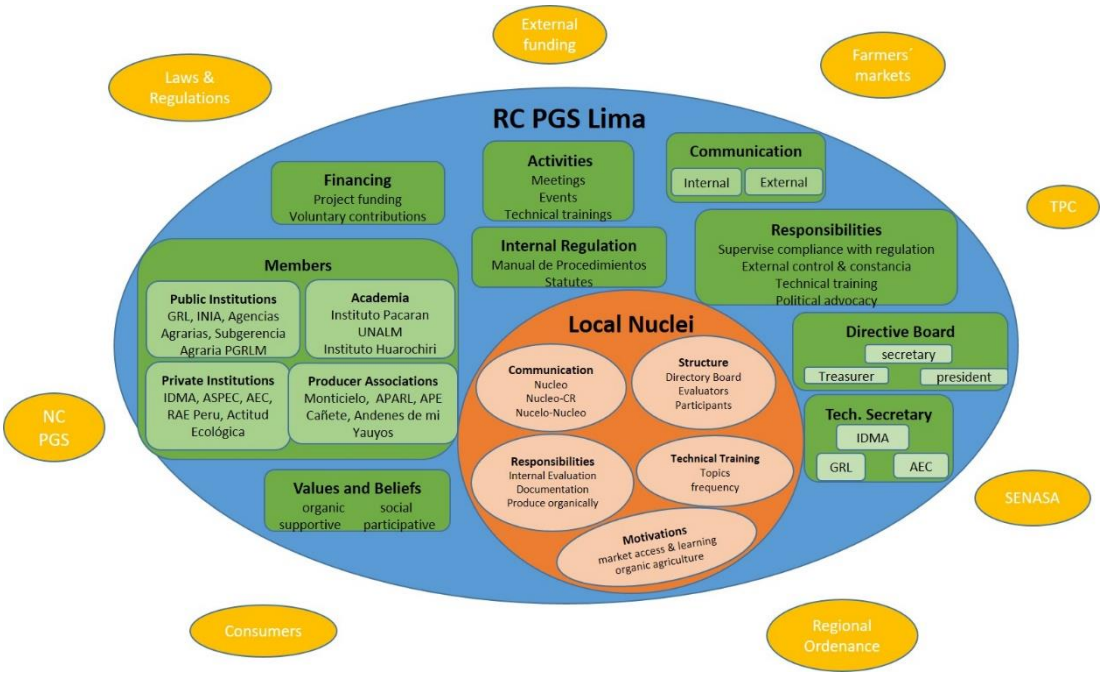

Figure 3. System map of the PGS regional council (RC) in Lima (blue = system boundary, green = subsystems and their elements (light green) on a regional council level, red = subsystems and their subsystems and elements (light red) on a local level, orange = the external influence factors on the regional council) (own illustration AEC Asociación Ecológica Cieneguilla, APE Cañete—Asociación de productores ecológicos de Cañete, APARL—Asociación de productores ecológicos de la cuenca del rio Lurin, GRL—Gobierno Regional de Lima, PGRLM—Programa de Gobierno Regional de Lima Metropolitana, RAE Peru—Red de agricultura ecológica Peru, UNALM—Universidad Nacional Agraria La Molina).

The system's external elements were those that indirectly influenced the functioning and sustainability of the PGS system, but were not part of it. The external influence factors slightly differed in both regions, which will be discussed below.

In both regions, the main aim of the RC was to guarantee annually the organic quality of agricultural products through a participatory and social process in order to support small-scale (future) organic farmers. PGS was seen as a "tool that helps to visualize and certify small-scale farmers, which in a way contributes to promoting equality between them" (IP 3 14 September 2016).

According to the interviews at a regional level, improving market access, adding value to small-scale farmers' products and promoting organic agriculture were major goals for RC members in Lima and Apurímac. At the time of the investigation the PGS farmers in Lima were selling their products directly from the farm, at several local markets and primarily at four different markets in and around Lima, with all these markets being organized by private individuals or institutions. Lima was an attractive market due to the demand for organic products, according to farmers and stakeholders.

In Apurímac, PGS farmers used to collectively sell at the *Parque centenario* market, which provided them with some benefits (e.g., the sharing of stall fees), but due to disagreements between them and the owner of the market place collective marketing had to be abandoned.

The MPSGP served as the basic guideline for the implementation of PGS in Lima and Apurímac. The PGS-RC-Apurímac has developed its own manual, which is heavily based on the MPSGP. Like the national council, the regional councils in both regions were advised by a technical secretary who was responsible for, among other things, the organization of external control visits and the final evaluation of the farmers' documentation. Both RCs were presided over by an NGO, although in the PGS-RC-Apurímac there was an acting president following the president's resignation. Their boards were elected annually (Apurímac) or biannually (Lima). The decision was taken by vote in the monthly general assembly of the members of the RC in both regions. Usually institutions voluntarily presented themselves as candidates.

In Lima, as in Apurímac, the RC was of utmost importance for the implementation of PGS, and both acted as promoters, facilitators and organizers of most of the PGS-related activities. Technical training, regular meetings and the organization of events were considered the main activities by members of both RCs. Each organization nominated one or two people to participate in the council and organize events. The NC was not involved in the guarantee process or in most of the RCs' PGS activities.

In Lima, 17 institutions, including NGOs, academic institutions, farmers' associations and government representatives, were officially registered as members of the PGS-RC-Lima. According to the acting president of the PGS-RC-Apurímac, six institutions were actively involved, although the number of officially registered institutions was higher (14 in 2015).

In both regions, the private institutions were the main actors in maintaining regular contact with PGS farmers and recruiting new ones. In the PGS-RC-Lima, a representative of IDMA held the presidency and in the PGS-RC-Apurímac, among others, the NGOs IIDA (Instituto de Investigación y Desarollo Andino) and IDMA supported various LNs. They were the ones providing farmers with technical training, workshops and guidance about the guarantee process. In Apurímac, the regional base of ANPE was important for bringing farmers together, while in Lima the Agrarian Agency of Lurin provided training for the farmers visited. Consumer associations were officially members of the RC in both regions, but their actual participation in the process was very low. The participation of government institutions and/or municipalities in both regions could be traced back to invitations from the participating NGOs and was considered an important step in gaining more support for PGS from federal political actors. The representative of the Regional Agrarian Directory in Apurímac (DRA) even claimed that DRA's participation would make PGS sustainable in the long run because "the DRA is never going to die" (IP4 8 November 2016) and hence would be able to support farmers continuously and independently from external project funding.

In Apurímac, the regional government already recognised PGS through a regional decree, while recognition in Lima was still a work in progress. Since there was no membership fee or any other kind of payment from members of the PGS, the guarantee process and related activities were based on external funding and voluntary contributions. PGS are mostly part of projects and collaborations carried out by NGOs or farmers' associations, with the former outweighing the latter. Multilateral and bilateral cooperation with the Food and Agriculture Organization of the United Nations (FAO), the European Union, national governments and other entities were mentioned by the president of the RC in Lima as the main sources of financing. According to some representatives of the two RCs, the strong dependence on external funding posed a major threat to the sustainability of both initiatives. A technician in one NGO in Apurímac mentioned that one year the RC was not able to certify any farmers because a major project was coming to an end and a new one could not be set up in time. This indicated not only a strong dependence on project funding, but also the dominance of that particular NGO in the implementation of PGS in Apurímac. Voluntary contributions, such as the

provision of venues for PGS events and the contribution of unremunerated time, were mentioned by several interview partners on a regional level (IP 3 2016, IP 4 2016, IP 5 2016, IP 6 2016).

The external factors influencing PGS-RC-Lima were its *legal situation*, *commercialization* and *financing* of the PGS initiative. With SENASA not recognizing PGS nationally, PGS farmers cannot access the organic label and face a difficult situation when marketing their products (e.g., entry barriers to organic markets in Lima). To bypass *national non-recognition*, the PGS council in Lima has invested a lot of energy in achieving legal recognition on a regional level, as in Apurímac. In Apurímac PGS farmers were allowed to call their products organic, but they lacked an organized marketing strategy and differentiated markets. In both regions, interview partners from the RCs called for more support from the authorities. The attitude towards TPC was ambivalent. For some interview partners, PGS may serve as a *stepping stone towards TPC*, while others saw it as a completely different concept serving different purposes (e.g., mostly intended for export markets). Fraud and misuse of the PGS seal posed a challenge for the PGS in Apurímac, whereas in Lima this seemed less of an issue.

4.3. The Local Perspective—Capacity Building and Learning Experiences

The local nuclei were the core of the entire PGS. In the Lima region, there were 20 nuclei registered at the PGS-RC-Lima, with a total of 293 farmers participating [40]. Twenty-two farmers from six LNs were visited in Lima. Two LNs (AREPA and ECOSUMAC) had already participated in PGS for several years, although not all the farmers interviewed had been members from the outset. The other four LNs were in their second year of participation and were organized in the network of urban farmers (Red de Agricultores Urbanos Huertos en Linea-Lima Sur), where a central coordinator, employed by the member of the PGS-RC-Lima IPES (Promoción del Desarollo Sostenible), was installed. She was the connecting link between all the different nuclei in the network, as well as between the PGS-RC-Lima and the nuclei. She organized meetings, informed members of upcoming events related to PGS and agroecology, and was consulted if there were questions about organic agricultural practices. The main reasons for participating, as indicated by farmers, were the hope of better access to local markets, technical training and improvement in their knowledge of organic agriculture.

In Apurímac in 2015, 624 producers from four provinces (Abancay, Andahuaylas, Aymaraes, Grau) participated in the PGS process. They were organized into 50 nuclei, of which five were included in this case study. The formal organization of the local nuclei was mostly through the impetus of institutions and organizations such as IDMA, IIDA and other NGOs. Farmers tended to be organized in *comunidades* (communities), but usually only part of the community was part of PGS. Hence, the formal structure of the LNs visited in Apurímac seemed to be less strong than in Lima. Improved market access and better prices were indicated as the main reasons for enrolling in PGS by 10 farmers. It should be noted however that more than 50% of the farmers interviewed made no mention of improved market access. Technical training and assistance were also mentioned as important motivating factors, as well as achieving an official *constancia* in order to differentiate their products from conventional ones.

4.3.1. Technical Training—Practices, Perceptions and Knowledge

All 46 farmers interviewed in phase four indicated that capacity-building measures were available in their LN, with 44 farmers also making use of them. The frequency of technical training, workshops and seminars differed not only between the regions, but between the farmers in the same LN as well (σ = 0.5–2.08). Around one third of farmers in Lima participated in training four to six times a year and one third more than six times a year. In Apurímac, 14% and 33% received training four to six times or more than six times a year respectively.

The main providers of the capacity-building measures in Apurímac were NGOs. In Lima, both NGOs and governmental institutions, such as the INIA (Instituto Nacional de Innovación Agraria) or the Agrarian Agency Lurin, were mentioned as the main knowledge agents. Training given by fellow farmers was rare in both regions. When asked to rate the usefulness of different sources of knowledge, the farmer-to-farmer knowledge exchange was rated as very useful by almost 40% and

quite useful by 41% of the respondents. This high score came directly after training given by external professionals from NGOs or other institutions, which was rated as most useful. Participation in the external PGS evaluation was fairly important. Although farmers in Lima gave the internet a higher value of usefulness than the farmers in Apurímac (df = 2, X^2 = 9.413, p = 0.094), it still played a minor role in the learning process in both regions.

Farmers were also asked to select from a list of given topics the ones in which they already received training and, if relevant, to add topics not covered by the six categories (Figure 4). In both regions, *organic agricultural practices* dominated in training (>90%), followed by *principles of organic agriculture* and *principles of PGS*. The paramount importance of topics related to organic agricultural practices was supported by the high number of farmers (40) who gave examples of the knowledge they had acquired and put into practice. Crop rotation, production of organic fertilizer and yellow traps for pesticide control were some they mentioned. Training in *post-harvest and transformation* in Lima included the making of cheese and yogurt, whereas in Apurímac farmers mostly learned about packaging. Eight farmers added topics such as climate change, apiculture, group dynamics and motivational workshops, subsumed under the category *other topics*. A follow-up question assessed whether farmers implemented something of what they had learned from their training. Here, 40 farmers mentioned organic agricultural practices such as organic pest control, the production of organic fertilizer and crop rotation.

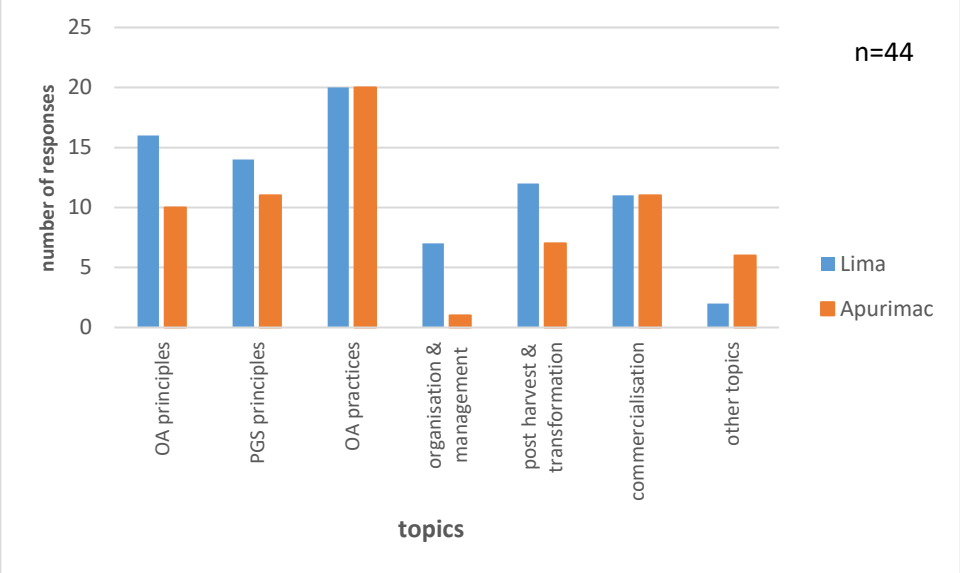

Figure 4. Topics of technical training in the regions of Lima (n = 22) and Apurímac (n = 22) (absolute frequencies, multiple response, n = 44 = 100%; OA—Organic agriculture).

Farmers were asked in several sections of the questionnaire about their participation in different PGS activities. The activities were clustered into the two groups of "PGS-related activities" and "LN-related activities." This was in order to show the extent to which PGS-related activities were present in the day-to-day life of farmers and to identify any patterns according to the role they had in their LN. The first group included the activities "technical training", "PGS control visit" (including internal and external), "PGS evaluator", "regional council" and "PGS evaluator workshop." LN-related activities were "farm visits", "member of LN board", "LN assemblies" and "LN working group" (Figure 5).

The major difference in the participation in "PGS control visits" and the "PGS evaluator workshop" between Lima and Apurímac could be traced back to the higher proportion of evaluators interviewed in Lima (PGS evaluator bar). Almost all the farmers participated in technical training, but other PGS-related activities were mainly performed by the evaluators. Control visits, for example, were

almost exclusively carried out by PGS evaluators (Lima: df = 1, X^2 = 14.673, $p < 0.001$; Apurímac: df = 1, X^2 = 15.338, $p < 0.001$).

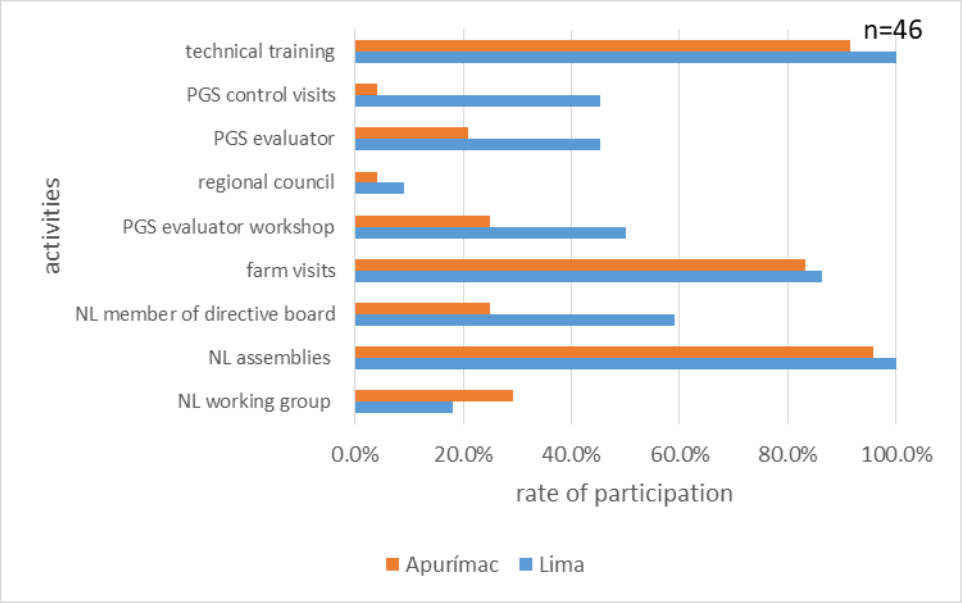

Figure 5. Participation in PGS and local nuclei (LN)-related activities as indicated by farmers (absolute frequencies).

Finally, farmers' knowledge about PGS was assessed by two questions asking about the existence of an internal regulation and an exercise in which farmers needed to put the four basic steps of PGS in the correct order. A significant difference in the level of knowledge between the farmers in Lima and Apurímac was detected (U = 137.5, $p < 0.05$). In Lima 50%, and in Apurímac 25%, of farmers were able to put the four steps in the correct order. In addition, more farmers were aware of the internal PGS regulation, the MPSGP, in Lima than in Apurímac.

4.3.2. PGS Evaluators

PGS evaluators were found to play a special role in PGS in both regions where the election of evaluators was based on their capacity to read an write (an issue mostly in Apurímac) and their willingness to perform the evaluations. In the NL in Lima, evaluators were voted in and in Apurímac they were mostly determined together with the RC. Their work was mostly voluntary (apart from one NL, which collected some money for the evaluator). When categorizing the five educational levels into the two of "primary and lower" and "secondary and higher", a slightly positive correlation between educational level and the probability of being an evaluator was detected (df = 1, X^2 = 3.37, $p = 0.06$). Evaluators also tended to be those who provided training for their fellow farmers (df = 1, $p < 0.05$, Fisher's exact) and tended to indicate a higher participation in PGS-related activities, since all of them participated in the workshop for evaluators. This may also explain their greater knowledge of PGS compared to their fellow farmers ($p < 0.01$, X^2 = 10.189, df = 1). All, but one evaluator, were able to put the PGS process in the correct order. However, the imbalance between the numbers of evaluators and non-evaluators needs to be taken into consideration when interpreting these results.

4.3.3. Problems Identified by Farmers

Farmers were asked whether they faced any kind of problem with PGS currently and, if so, to specify them. Forty-five percent of participants in Lima and 58% in Apurímac stated that they were facing problems with PGS. However, the examples the farmers gave were mostly problems related to their LN rather than directly to PGS. In Apurímac, internal LN issues, such as a lack of president or

even a lack of a board, lack of participation in the community and/or PGS tasks and mistrust among members were frequently mentioned. The problems external to the LN identified were difficulties in marketing their products, fraud, tendencies to centralize through forced membership of one of the institutions of the RC, and a lack of communication between the RC and farmers. The farmers in Lima generally identified fewer problems. Apart from the lack of a market and few opportunities to sell their produce, the problems were mainly found within the LNs, with low participation in community tasks among LN members, financial problems and low productivity (not a problem in Apurímac however).

5. Discussion

In contrast to other PGS in Latin America (Brazil, Chile, Colombia), PGS in Peru are centralized nationally [39]. The extent to which this central structure opposes the principle of horizontality, as outlined by IFOAM and PGS promoters (e.g., Reference [5]), depends on the influence the NC aims to exercise on the regional and local levels of PGS. The recent development of the national PGS seal being registered in the name of the three member institutions of the NC adds a new dimension to the role of the NC. It may pose challenges for local and regional initiatives interested in starting a PGS, as well as other trademarks that included PGS in their regulations, such as the collective trademark Frutos de la tierra [42]. Closer analysis of this aspect was not possible due to the very recent announcement concerning the PGS seal and the lack of information available on its implementation. The guarantee process is based on two evaluations per year, whereas other PGS such as the Rede Ecovida in Brazil, work with one evaluation annually [43].

Empowerment (the term empowerment has its origins in the feminist women's rights movement, but nowadays is frequently used in (system-critical) economic, social and political literature in the field of international development and, here especially, in debates about development cooperation. It is often associated with increasing participation of certain marginalized groups in decision-making processes and improving their self-organization [44,45]. Critical voices claim however that the term empowerment has lost its real meaning and provocation, and has become a nice label used by neoliberal economies [44]) of farmers is frequently mentioned as a benefit of PGS in the literature [21,29,30]. On a national and regional level, key informants stressed that they aimed to facilitate empowerment for farmers. The approach in itself has to be viewed critically however, since nobody empowers anybody else [46]. Measuring empowerment is definitely a question of whether it is seen as a process or an outcome [47]. An outcome would be the national recognition of PGS by SENASA, but this was not the case at the time of the research and to date. Although during this research sufficient scientific evidence could not be provided to evaluate the extent of empowerment, several factors and processes that might foster empowerment could be identified. Capacity building and knowledge are viewed as important mechanisms in the empowerment process [47,48] and data (high rate of satisfaction and participation in capacity-building measures) support the findings that PGS in both regions promoted these mechanisms. The positive effect of PGS on capacity building and knowledge exchange among farmers has also been stressed by Villanueva/Sanchez [49] in their study on a PGS initiative in Peru, and by Sacchi [27] following her analysis of the Italian PGS CampiAperti. She states that PGS has created "[. . .] opportunities for knowledge and resource exchange" [27] (p. 4), which, as a consequence, have improved the quality and quantity of products. The fact that farmers claimed to have implemented various organic agricultural or other practices learned on their farms can be interpreted as an indicator of individual empowerment, since it shows a certain kind of "experiencing oneself as an effective and capable person. " [46] (p. 283). On an individual level, an increased feeling of autonomy and self-confidence among many farmers was noted, expressed for example in the knowledge of organic agriculture and the high value they attributed to their products, as well as the role of the evaluators as providers of knowledge to their fellow farmers (their role will be discussed in more detail below). The fact that the RCs in both regions are the absolute main driving forces in PGS and the low grade of self-managed LN (high drop-out rate when RC stops working directly with farmers, no certification in Apurímac one year due to financial cutbacks in a leading NGO) weakens

the level of empowerment significantly. Nevertheless, although in its very beginning, processes of individual empowerment were observed and ultimately these form an important part of the process of community empowerment [47].

The high proportion of women involved in PGS in Lima and Apurímac is a very interesting finding, which was also identified by Nigh/Gonzalez [30] in their research on alternative food networks in Mexico and France. The strong gender bias might go back to the traditional work distribution, where women are responsible for most of the farming and the commercialization of the products and men are in other (in)formal work situations [50]. In fact, women in Peru "[. . .] have the major share of responsibility in assuring the survival, welfare and health of their families." [50]. For women, the participation in PGS in some cases also opened up new market areas, such as the breeding of guinea pigs or the sale of prepared food at the markets. Further investigations are necessary however to establish a deeper understanding of the gender dimension.

PGS are said to be built on a foundation of trust fostered by the engagement of all kinds of actors, including consumers in particular [5,8,33]. The low participation of consumers observed in the PGS in Lima and Apurímac was also found by Nelson et al. [21] and Kaufmann/Vogl [31] in the Mexican Network of Local Organic Markets. While the consumers in the Mexican PGS knew less about PGS than the producers, consumers at the one and only PGS market in Lima were not aware of the existence of PGS at all. This was observed after interviewing 10 consumers on a random basis. Participation among farmers, however, was high, as indicated by the level of attendance of technical training (>90%). The premise of PGS (or at least a key component of it) is to serve as a guarantee to the consumer of organic quality. Nevertheless, the process of establishing trust and elements that ensure or weaken trust have not been studied in this project.

The main responsibility for the sound implementation of PGS in Lima and Apurímac lies with the RC and internal evaluators. The finding that evaluators tended to have a higher level of education than their fellow farmers, and that almost all of the interviewed members of the RCs had a university degree, indicated that education is relevant in the sound implementation of PGS. This is supported by Zanasi et al. [32], who found the same in the PGS in Brazil. The importance of external professionals in the implementation of PGS was also identified in studies of the Mexican Network of Organic Agriculture, where farmers did not feel adequately trained to carry out certain tasks in the PGS [21,31]. A similar observation could be made in the case of PGS members in Lima and Apurímac. The transition of these "outside agents", as Laverack and Wallerstein [47] call them, from experts who evaluate and judge (technical training, external evaluation) to internal facilitators who enable the group to gain decision-making power from within, is still a work in progress in Lima and Apurímac. Nevertheless, in Apurímac some farmers were already acting as facilitators of knowledge, giving workshops to their colleagues and being supported by the NGOs in the RC. Most of these facilitators of knowledge also played the role of evaluators, for which they received special training and/or they held a great amount of local knowledge and were often highly thought of in their community. The high dependence of (especially young) LNs on external resources and actors expressed by members of the NC and the RC, especially in Apurímac, poses a great risk to its sustainability. The fact that one year the PGS process could not be carried out in Apurímac due to financial cutbacks affecting IDMA characterizes the donor-recipient structure of RC and LN.

The absence of legal recognition of PGS in Peru was perceived by national and regional actors as a major factor influencing the performance and development of PGS. At the time this study was carried out, PGS was not officially recognised as a viable system for guaranteeing the organic quality of products by the responsible institution, the National Service for Agricultural Food Safety (SENASA). Although law No. 29196 mentions and gives a definition of PGS in Article 4 [38], they are not recognised by SENASA and hence on a national level. The importance of legal recognition is also stressed by other studies [21,33], but also viewed critically since stakeholders fear that with the increasing codification and regulation of PGS, often required in order to be recognized, PGS may come down to the same TPC structures [31]. In particular PGS actors saw the commercialization of products at risk due to the lack

of state support. Profound market analysis and/or establishing direct links (neither was present in Lima or Apurímac) before starting PGS may provide more stability in the long run [33]. Here, other approaches such as the *Participatory Market Chain Approach* might be interesting for PGS initiatives. The case of Papa Andina showed that this approach can lead to the development of new products, new commercial relationships and greater trust and cooperation among small-holder farmers and retail actors [51].

Various studies claim that PGS is not only based on but also enhances social cohesion and diverse social processes that can benefit farmers [27,32,33]. The formal organization of farmers in LNs in the two initiatives under investigation helps bring them together and enhances collective action, since regular meetings are held in which people exchange knowledge, experience, organize their (often long-distance) travel to sell at the market, as well as facilitating bureaucratic procedures (many farmers cannot read, so others help them fill out the forms). The increase in interaction between farmers and the newly created alliances and links between farmers and NGOs support the social cohesion theory of Zanasi et al. [32]. Consideration needs to be given to the fact that the causality of new alliances is not explicit. It was not possible during this research to establish the extent to which PGS increases the attention paid by NGOs to small-scale farmers.

6. Conclusions

The aim of this research was to reveal the structure, functions and basic dynamics of two PGS initiatives in Peru.

For many years, the discussions about the structure per se and lobbying for official recognition of PGS have been the most pressing issues in the debate about PGS on a national level. Consequently, stakeholders and promoters of PGS are rather exhausted and find themselves going around and around, debating the same thing over and over again. This consumes resources that could be dedicated to improving the implementation of PGS. Nevertheless, PGS implementation in both regions is fairly top down, since it relies heavily on project funding acquired by the members of the RC. The dependence on external resources and the tendency to have donor-recipient structures makes PGS in both regions vulnerable. Once the institution's project ends, many LNs tend to drop out of PGS. Since capacity building is heavily linked to the institutions' financial capacities, a major motivating factor for farmers to participate in PGS falls away. Recently formed LN, in particular, are vulnerable to dropping out. The strong management position of a few institutions in both RCs might also hamper the possibility of collective decision-making for other stakeholders. Further research is required to fully understand the underlying motives and dynamics behind their dropping out.

The fact is that PGS is still a confusing and complex concept for many farmers and that LNs are rather weak indicate that there is still a lack of transmission of PGS values in Peru. This may also relate to the findings that evaluators tended to participate more frequently in PGS-related activities and received special training in PGS. Better training for all farmers in PGS should be considered, since the sustainable operation and most of all the reliability of PGS greatly depend on farmers knowing how it works. However, institutions need to find a way of allowing the development of bottom-up and grassroots initiatives, rather than centralizing the system (such as registering the PGS label in the name of the three NC institutions, as occurred shortly before the end of this study). Infrastructure problems complicate implementation, especially in Apurímac, and other sociodemographic factors such as structural poverty (structural poverty is understood to be a long-term, persistent type of poverty caused more by structural external factors (economy, infrastructure etc.) than by personal behaviour) also represent a challenge to PGS.

By giving the farmers the opportunity to express their views and perceptions on PGS, it became evident that they are eager to improve their knowledge about organic farming and require improved access to local markets. In Lima and Apurímac, the PGS definitely helped to create more opportunities for knowledge exchange and knowledge acquisition. Although capacity building was considered important, effective and desired by farmers, institutions should be more aware of adapting the training

to farmers' needs. Organizing farmers, getting them to associate and creating a link, albeit a weak one, with local markets were positive consequences of PGS in Lima and Apurímac. Access to market and differentiated market channels was observed to still be in its infancy and needs considerable attention from the stakeholders involved, since the drop-out rate (as mentioned above) and the discontent among farmers are still rather high.

This study has revealed the importance of local internal PGS evaluators. They often act as links between the farmers and the RC, and are potential knowledge facilitators for their fellow members. Special attention should be paid to them by regional stakeholders when implementing PGS, since they have considerable potential to make the PGS sustainable in the long run. Although there are still many aspects of PGS requiring improvement in the Peruvian context, they are an instrument for drawing attention to the manifold needs of small-scale organic farmers and helping make them more visible to consumers, as well as to the Peruvian state.

This study worked with three sampled groups: (i) Eight key informants at national level, (ii) eight key informants who are members of the two regional councils studied, and (iii) 46 farmers from the groups studied. The information within the sampled groups was checked for consistency, and contrasting data were actively sought. Data allowed for triangulation between the sampled groups. The authors are confident that the sample size is appropriate for the conclusions drawn. Nevertheless, data might have been biased by the sampling procedure applied and additional studies on other PGS of Peru are recommended for contrasting or confirming these statements.

PGS need to be dynamic and to evolve in order to respond to the various challenges they face. These challenges differ, depending on the environment in which PGS are embedded and the actors involved. It is important to face reality, go beyond a mere analysis of the theoretical implications of PGS and look in greater depth at how PGS actually operate in practice, not only to learn from their mistakes, but most of all from their achievements. The scientific external viewpoint provided by this research may help all PGS stakeholders reflect on their current actions and perceptions, as well as enrich debates about PGS in Peru and elsewhere.

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Conflicts of Interest: The authors declare that there are no conflicts of interest.

Abbreviations

ANPE	Asociación Nacional de Productores Ecológicos Peru
ASPEC	Asociación peruana de consumidores y usuarios
ICS	internal control system
CONAPO	Consejo Nacional de Productos Orgánicos
Constancia	a document issued by the regional council that proves farmers are cultivating organically. Since PGS are not officially recognised in Peru, farmers do not receive an official certificate.
DIGNA	Dirección General de Competitividad Agraria
IDMA	Instituto para el Desarollo y Medio Ambiente
INIA	Instituto Nacional de Innovación Agraria
IFOAM	International Federation of Organic Agriculture Movements
LN	local nucleus
MAELA	Movimiento agroecológico de América Latina y el Caribe

MPSGP	Manual de Procedimientos del Sistema de Garantía Participativo Peru
NC	national council
PGS	participatory guarantee system
RC	regional council
SENASA	Servicio Nacionál de Sanidad Agraria
TPC	third-party certification

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