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How to measure agroecology? A rapid appraisal approach based on focus group discussions

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ABSTRACT

This study presents an approach to assess agroecology at village level through focus group discussions with village committees and district extension agents. This approach is intended as an alternative to resources-intensive assessment methods, covering larger areas and providing rapid yet empirical evidences for policy and practice. It is based on the translation of the 13 agroecology principles of the High-Level Panel of Experts (HLPE) into 21 contextualized indicators and questions that are relevant for the research area. They are grouped into four entry points for transformative action: land use and governance, farm management, social interactions, and socio-economic situation. This approach was tested in 16 villages and three districts in Xiengkhouang Province in Laos. The results show that villages are at an intermediate agroecological level. Comparable results and conclusions were achieved, regarding potential entry points for transformative action in specific villages, encouraging the reliability of the approach. It also showed to be promising in terms of the capacity to characterize the status of the 13 principles of agroecology, and to capture their changes in time. This approach may be further combined with other assessment methods to complement the aspects that require finer understanding or assessment over large territories.

KEYWORDS

Agroecology; participatory assessment; focus group discussion; entry points for transformative action; Lao PDR



SUSTAINABLE DEVELOPMENT GOALS

SDG 11: Sustainable cities and communities; SDG 12: Responsible consumption and production

Introduction

Assessing the advancement of agroecology

In Southeast Asia, the concept of agroecology is relatively new and often used interchangeably with terms like climate-smart, regenerative, or nutrition-sensitive agriculture. Agroecology and these associated concepts are seen as sociotechnical instruments or promising solutions for achieving the Sustainable Development Goals (SDGs) of the 2030 Agenda (United Nations

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2015), particularly those securing access to food and addressing adaptation to climate change and preservation of biodiversity. When we break these concepts down to their core elements, they cover farming practices, such as agroforestry, conservation agriculture, organic farming, integrated crop protection, integrated farming systems, low external input agriculture, permaculture, and more. Many of these practices have been promoted since the early 2000s by multiple projects and institutions in the region (Castella and Kibler 2015; Hett et al. 2023).

The concept of agroecology has evolved over time: from simply applying ecological principles to agriculture (Altieri 1983), it integrated dimensions beyond its original definition and included five ecological principles: (1) recycling biomass and balancing nutrient flows and availability; (2) securing favorable soil conditions for plant growth by enhancing the organic matter; (3) minimizing losses of solar radiation, water, and nutrients through microclimate and soil cover management, as well as water harvesting practices; (4) enhancing biological and genetic diversification on cropland; and (5) enhancing beneficial biological interactions and minimizing the use of pesticides (Altieri 2002). In 2018, the FAO proposed 10 elements of agroecology: diversity, co-creation of knowledge, synergies, efficiency, recycling, resilience, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy (Barrios et al. 2020; FAO 2018). Finally, the scientific community involved in the High-Level Panel of Experts (HLPE) on Food Security and Nutrition expanded the scope of agroecology to embrace the entire global food system and called for a sociotechnical regime shift away from industrial agrifood systems (Wezel et al. 2020).

Due to the evolving definition of agroecology over time, the indicators and methods used to assess the status of agroecology have also progressed (Mouratiadou et al. 2021). Research groups in America, Africa, Asia, and Europe have developed methods to measure the progress of social-ecological systems toward agroecology (Levard 2023; Mottet et al. 2020; Peeters et al. 2021). These groups have drawn inspiration from one another, resulting in combinations of methods that share elements and challenges. However, these approaches were designed for different contexts and underpinned with different intentions, which influenced their design (Blundo Canto et al. 2024; Ewert, Baatz, and Finger 2023). For instance, FAO uses assessment tools primarily to advocate agroecology with member countries, while NGOs use them to engage local farmers through participatory impact evaluation. Policy makers utilize these tools to measure the impact of policy recommendation in terms of dissemination of innovative practices. Some tools focus on monitoring the implementation of agroecological practices or the degree of adherence to agroecological principles, while others gauge the impacts and sustainability of agroecological system changes at multiple scales (Ewert, Baatz, and Finger 2023). All these evaluation approaches depend on the collection of

comprehensive datasets and corresponding data management capabilities to reach their goal of scaling up agroecology beyond success stories and pilot studies (Titttonell 2020).

The balancing act of agroecology assessment

In agroecology assessments – irrespective of their context and intention – there is a balancing act between the importance of being locally relevant for action and the desire to generalize findings to produce overviews that inform on the broader coverage of agroecology (Sachet et al. 2021). Accordingly, assessment tools tend to differ based on the degree of community participation and the scale of investigation (Ewert, Baatz, and Finger 2023).

Participatory, locally grounded approaches offer detailed insights into the local factors that drive transformative agroecology and the social-ecological benefits derived from this transformation, but they demand substantial facilitation skills and time to co-produce actionable knowledge and mobilize local communities. Additionally, such approaches may not be relevant to mapping agroecology status nor to track innovation dynamics and transformative changes over large territories. Multiplying the number of community-led, participatory assessments in time and space is constraining and transaction costs are high, which may preclude repeated campaigns allowing to monitor trends.

On the contrary, efforts to generalize locally specific agroecology assessments to derive national or global lessons for policy interventions require standardized methods, generic indicators, and extensive data collection across diverse situations and contexts. However, standardized models applicable to a large range of contexts may hinder the co-production of knowledge with local communities. Additionally, generating such data is challenging; unlike land use conversions, changes in cropping practices are not easily monitored using remote sensing techniques that would allow large coverage assessment at reasonable cost.

Finally, both the locally grounded and the generalized assessment approaches need to balance the description of observable and measurable cropping practices with the use of proxies to assess the intensity of agroecological dimensions that are not directly observable or that are strongly conceptual such as the co-creation of knowledge, fairness, or participation.

The importance of putting agroecology on the map in Southeast Asia

These difficulties might explain why, after decades of efforts and initiatives geared toward enhancing agroecology in Southeast Asia (Hett et al. 2023), it is still challenging to put agroecology on the map. Reports on the advancement of sustainable rice intensification (Uphoff et al. 2022), conservation agriculture

(Niino et al. 2022), organic farming (Travnicek, Schlatter, and Willer 2023) or agroforestry (Lin et al. 2021) oftentimes provide merely aggregated numbers from expert sources and are not grounded in systematic data collection and management. Using the TAPE approach, FAO and its partners have established agroecological profiles for thousands of farms worldwide (Mottet et al. 2020). These profiles help to distinguish between “agroecological” and “non agroecological” farms and facilitate the categorization of farms or case study sites into different types. The findings highlight the benefits of agroecology, using the 10 elements as a gauge for assessment. However, there are no corresponding assessments at provincial, national, or regional level in Southeast Asia. Yet, providing empirical evidence about the extent and intensity of agroecological transformations is crucial for donors, development practitioners, and policy makers in the region to adjust their intervention plans and resources investment in time and space.

Hence, the main goal of this study is to explore methodological options to overcome the challenges outlined above to enhance empirical evidence about agroecology in the Mekong Region as a basis for policy advocacy and support. To achieve this main goal, we designed and tested an approach based on focus group discussions (FGDs) with key witnesses of sociotechnical changes at village level, members of the village management committees, and district extension agents. Our approach builds on two main elements: (a) contextualizing agroecological principles to enhance their local relevance and ownership, and (b) proposing a rapid, participatory appraisal of the status of agroecology at village level. We tested this approach in three districts of the Xiengkhouang Province in Laos.

Methods

Study sites in Xiengkhouang Province

Xiengkhouang Province is selected owing to its diversity of agroecosystems and because of its long history of agroecological interventions. The province borders Vietnam on the east and is characterized by three main agroecosystems (Figure 1). The high mountains and savannah plateau of the Plain of Jars, with elevations above 1000 m, cover 70% of the province’s area. Middle and low mountain areas, with elevations between 700 and 1000 m and rough terrain on acidic or lime soils, cover another 20%, while the lowlands, below 700 m, account for the remaining 10%. Agriculture is the main activity for a diversity of ethnic groups, including Thai Phuan, Hmong, Khmu, and Tai Dam. The population density is low with about 15 inhabitants per km² and two-thirds of the inhabitants live in rural areas.

Traditional farming systems in the province are a combination of low-land rice cultivation in the valley floors and upland rice, forming a matrix

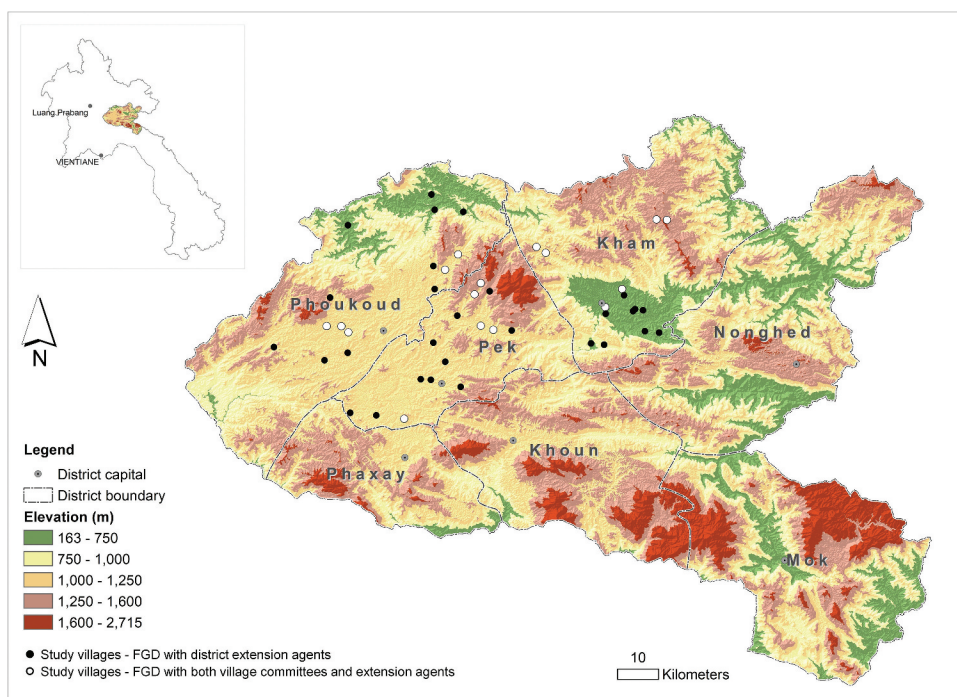


Figure 1. Map of Xiengkhouang Province with study site locations.

of regenerating secondary forests, on the mountain slopes. Large livestock, such as cattle and buffaloes, traditionally played an important role, both as labor force and as living capital for families in remote areas. These systems integrate crops, livestock, and forestry, but the rapid opening to the market economy in the early 2000s has induced radical changes. Commodity crops – first maize and more recently cassava – driven by high demand globally and in neighboring Vietnam and China, gradually replaced the forest and food crops. Fruit tree, tea, and coffee plantations are newcomers that are often planted instead of annual commodity crops on degraded land, or to avoid pesticide pollution. Finally, dairy and meat farm concessions owned by private companies play an important role in these new agricultural systems.

Several initiatives in Xiengkhouang Province have proposed agroecological alternatives to reduce the negative environmental and socioeconomic impacts of agricultural commodification. These include the system of rice intensification (SRI - Bourjac, Ferrand, and Castella 2018), conservation agriculture, and mixed farming (Lienhard et al. 2020), integrated pest management (IPM) in vegetable production, agroforestry, and agrobiodiversity based on the promotion of sustainably managed non-timber forest products (Rodericks 2020). Other initiatives promoted participatory land use planning, or value chains for high quality products, for instance organic and Good Agricultural Practice

(GAP) certifications, participatory guarantee systems (PGS), or geographic indication registration for indigenous species, such as the Khao Kai Noi rice variety (Lienhard et al. 2019; Rodericks 2020).

As the performance of these alternative production systems have been documented, the Lao National Government considers them as promising options and supports them via the Agricultural Development Strategy 2021–2025, the National Green Growth Strategy, and the National Nutrition Strategy (FAO, European Union, & CIRAD 2022). However, to reinforce their support, authorities request more tangible information on the adoption and expansion of these systems at a larger scale. They are requesting data on the villages and districts involved in agroecological practices, the number of farmers implementing them, and the extent of their livelihood benefits. Our study aims to develop an approach through which such information can be more easily generated and to avail it to other initiatives interested in capturing changes to inform their strategy of fostering agroecology in partnership with village communities.

Documenting and contextualising agroecology

We selected 16 villages in the three districts of Pek, Phoukoud, and Kham (Figure 1), aiming to capture the diversity and dynamics of landscapes and livelihoods as described above. We aimed to evaluate the agroecological intensity in these villages using an approach that is easily replicable, yields useful results, and enables coverage of a larger area than would be feasible with labor-intensive household surveys. By conducting an evaluation at village level, our approach differs from approaches such as TAPE that is conducted at farm level (FAO 2018). We selected a four-stepped approach to reach this objective: (1) contextualize principles of agroecology to develop a locally adapted “index of agroecological intensity”, (2) conduct focus group discussions at village level with village committee members, and at district level with extension agents, (3) conduct an expert-based visual interpretation of village landscape maps, and (4) analyze and compare results. These four steps are briefly described below.

Contextualising the concept of agroecology

We organized a two-day workshop involving a group of 13 international and national experts to collaboratively design indicators for evaluating agroecological intensity at village level. The indicators are based on the 13 principles of agroecology (HLPE 2019) used in the OASIS approach. This is different compared to approaches such as TAPE, which is based on the 10 elements of agroecology proposed by FAO (FAO 2018; Peeters et al. 2021). During the workshop, the experts critically assessed these indicators for each of the 13 principles, evaluating their relevance and practicality for the research area.

Next, they formulated a set of one to two questions for each indicator. These questions were then categorized into four potential entry points for transformative action (Table 1). This important exercise presented considerable challenges, as experts were tasked with transforming agroecological concepts that are sometimes abstract into relatable questions that villagers and extension agents in the three districts can understand and engage with. Additionally, the questions had to be crafted in a manner that allowed villagers and extension agents to rank their answers using a four-point scale encompassing the following levels of alignment with the agroecology principles: no agroecology (1), low (2), medium (3), and high (4) agroecology.

Measuring the intensity of agroecology principles in study villages

We tested the suitability of the questionnaires and practical aspects of the FGD facilitation in a few villages. Iterative improvements of the method included fine-tuning the formulation of questions, rearranging the order of questions, adapting the scoring procedure, and improving time management, as well as data management and reporting. These adjustments aimed to ensure that the FGD can be conducted in half a day or less, as we aimed to develop a rapid method that can be scaled out to larger areas and to a diversity of contexts while still adequately capturing the status of agroecology.

We collected data in 16 villages and 3 district offices in Xiengkhouang Province for 2 weeks from 21st November to 2nd December, 2022. We formed

Table 1. List of indicators used for the focus group discussions in relation to 13 principles and 4 entry points for transformative action in measuring the agroecological intensity of villages. See Annex 1 for the full list of indicators with their respective questions and responses.

HLPE – 13 principles	Entry points	List of indicators
1. Recycling	Farm management	Q4. Crop residues management Q8. Water management
2. Input reduction	Farm management	Q5. Use of chemical inputs
3. Soil tillage	Farm management	Q6. Soil tillage techniques Q7. Assessment of soil degradation
4. Animal health	Farm management	Q9. Animal welfare (vaccination)
5. Biodiversity	Land use and governance	Q1. Crop and tree species diversity Q2. Collection of NTFP products
6. Synergy	Farm management	Q10. Animal feed Q11. Animal manure
	Land use and governance	Q21. Multi-functional landscape
7. Economic diversification	Socio-economic situation	Q15. Income diversity Q16. Indebtedness
8. Co-creation of knowledge	Interactions	Q12. Social relationships
9. Social values and diets	Socio-economic situation	Q14. Gender equity Q17. Food sufficiency Q18. Diet (nutrition) awareness
10. Fairness	Interactions	Q20. Involvement in negotiations of external interventions
11. Connectivity	Interactions	Q19. Facing problems with traders
12. Land and natural resource governance	Land use and governance	Q3. Governance of land and natural resources
13. Participation	Interactions	Q13. Collective activities

two teams of five researchers and government staff each, thus allowing us to conduct FGD in parallel in two villages. Each team included facilitators, enumerators, and note-takers. The teams had to assign a “confidence level” (low, medium, high) to each question depending on the level of agreement they perceived among participants. When the whole group would spontaneously give the same answer to a question, the teams assigned a high confidence level. When the question would require lengthy discussions before the group could reach a consensus, the team would assign a lower confidence level.

The FGDs with village committee members were also structured into four entry points (Figure 2). Entry points 1 (questions 1 to 3) and 3.2 (questions 19 and 20) were conducted in the presence of the entire village committee, typically composed of 10 to 12 persons including the village head, vice heads, and representatives of the women union, youth union, and the committee of elders. The other entry points were covered with only half of the committee: one-half covered 2.1 (questions 4 to 7) and 3.1 (questions 12 and 13), while in parallel, the other half covered 2.2 (questions 8 to 11) and 4 (questions 14 to 18). This arrangement allowed to reduce the time required for the FGD and helped to keep the groups alert.

Our objective was to establish a “village score” for each of the 20 questions. To achieve this, we experimented with different scoring methods, wherein participants were asked to distribute red beans along the rating scale from 1 to 4 (Figure 3). After careful observation and feedback from the facilitators, we adopted two distinct approaches:

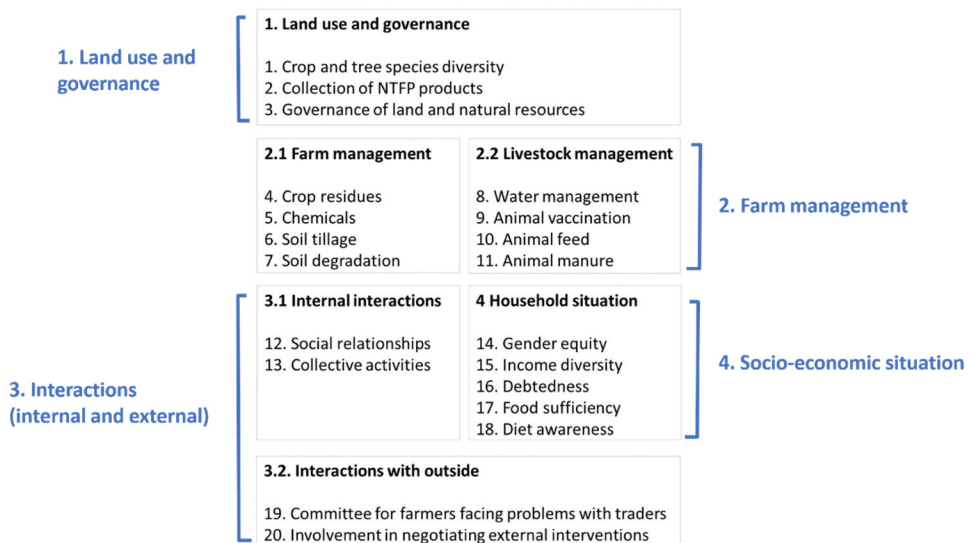


Figure 2. Structure of the focus group discussion with village committee members along four entry points for transformative action.

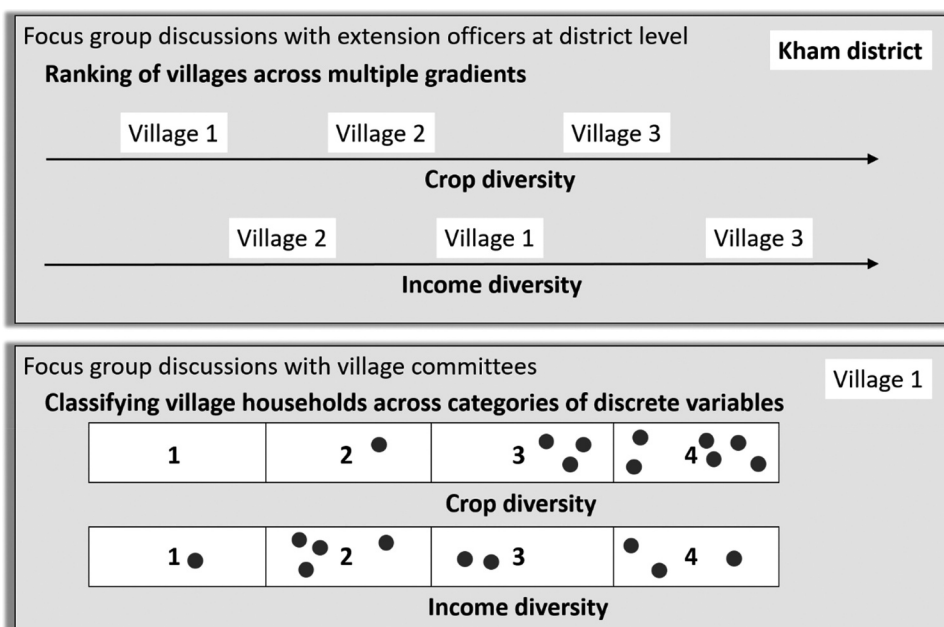


Figure 3. Schematic illustration of data collection methods through focus group discussions.

- (1) For questions that required individual voting (3, 19, and 20), each participant received one bean and was instructed to place it in one of the four goblets positioned along the rating scale.
- (2) For questions that necessitated a group consensus (all other questions), the facilitator encouraged participants to engage in discussions and collectively distribute ten seeds along the rating scale. Each seed represented 10% of the households in the village.

The score for each question was computed based on the number of seeds allocated to each point on the rating scale (Table 2).

We used the same questions during the FGDs with district extension officers, except for question 16, which focuses on household indebtedness and was omitted as district extension agents lacked knowledge on that topic. However, the extension agents are very familiar with other agricultural aspects in the villages, as they work there regularly through different projects. Seven to

Table 2. Scoring method based on the % of households in the village that fall in each point of the rating scale.

Question	No. of seeds	Percentage	Score
Point 1	0	0%	0
Point 2	2	20%	0.4
Point 3	5	50%	1.5
Point 4	3	30%	1.2
Total	10	100%	3.1

ten staff members of the district agricultural offices participated in the FGDs. We requested them to collectively rank 15 villages per district (totaling 45 villages across the 3 districts, including the 16 villages surveyed through the village committee FGD) in the same way and along the same gradient as the village committees used to rank the households within their villages. [Figure 3](#) shows the ranking approaches at village and district levels.

The ranking of villages with extension officers was conducted in two steps: first participants distributed the 15 villages along the four points of the ranking scale, then they ranked the villages within each point of the ranking scale. For instance, on the question of gender equity in the Kham district, participants placed 13 villages in point 3 (medium) and two villages in point 4 (high) ([Figure 4](#)). Subsequently, they discussed the differences among the 13 villages ranked as “medium” and concluded that gender equity in Song Village was slightly less advanced than in the 12 other villages. Thus, they created two levels within point 3 of the ranking scale. Decimals were used to differentiate villages in the same point but at different levels. In cases where participants identified two levels, villages in the lower level were given an x.33 and those in the upper level an x.66 value. In cases with three levels, the values assigned were x.25, x.50, and x.75 from bottom to top.

Classification of village landscape heterogeneity

The FGD described above covered 20 indicators on the level of agroecology. An additional indicator (question 21), the landscape multi-functionality of villages, was evaluated separately by the team involved in data collection through a visual interpretation of aerial pictures covering village territories.

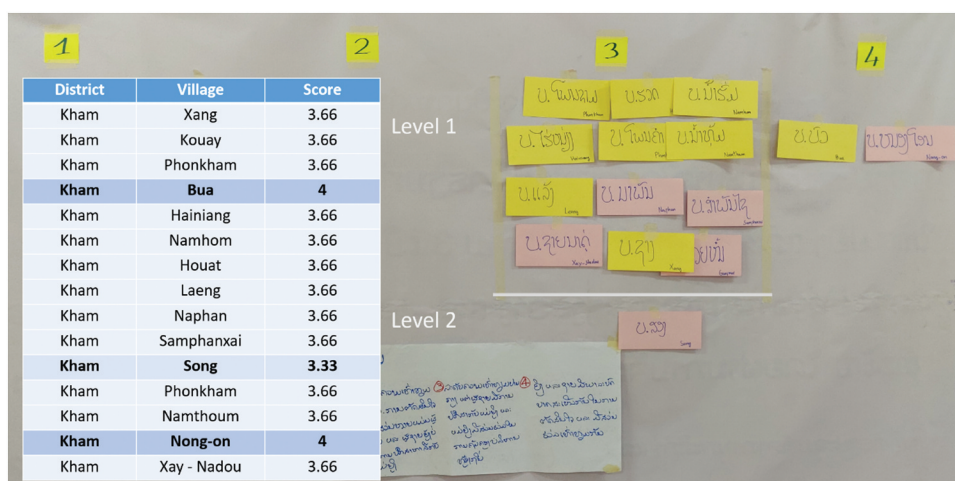


Figure 4. Illustration of how the intensity values are calculated for each question of the district focus group discussion method. Here, results of Q14 in assessing the level of gender equity in Kham district are demonstrated as an example.

This indicator belongs to entry point 1 (land use and governance) and to the principle 12 (land and natural resource governance) as shown in [Table 1](#).

The team used the same four-point scale as in the FGD to classify villages according to landscape heterogeneity, i.e., from simple to complex land use patterns (such as diversity of land cover types, patches geometry, or color composition). The visual assessment was conducted in two steps: first, all participants ranked the villages individually, then a collective ranking and consensus-building process took place for villages with differing individual rankings. Scores were computed based on the collective ranking using the same approach as in the FGD ([Figure 4](#)).

Data analysis

Data analysis focuses on comparing scores at various levels: (1) along the 13 principles of agroecology between village committees and district officers at the district level, and (2) along the four entry points for targeted interventions at the village and district levels:

- (1) land use and governance (Q1 to 3 and Q21),
- (2) farm management (Q4 to 11),
- (3) social interactions within and outside the village (Q12 and 13 and Q19 and 20), and
- (4) socio-economic situation of the households (Q14 to 18).

For spatial representation of the agroecology, these resulted agroecology scores are then mapped to their respective administrative village boundaries of the three districts. The agroecological intensity index is presented using a 15-step color ramp of red to green from lowest to highest values (0 to 4.6).

Results

Overall agroecology scores

Upon analyzing the agroecology scores derived from both FGDs with village committee and district officers, it is observed that all 16 villages examined in the former and the 45 villages examined in the latter fall within a range of 2.60 (lowest average village score) to 3.80 (highest average village score). Predominantly, these scores cluster within the mid-range of 3.00 to 3.60. Notably, none of the villages, on average, register at the lower levels of the agroecology scale. Interestingly, the results obtained from the FGD involving district officers portray a more optimistic outlook, with a greater number of villages exhibiting higher levels of agroecology ([Figure 5](#)).

The outcomes of the spatial mapping also confirm these overall results of agroecology in villages. Maps (a) and (b) in [Figure 6](#) display the overall status

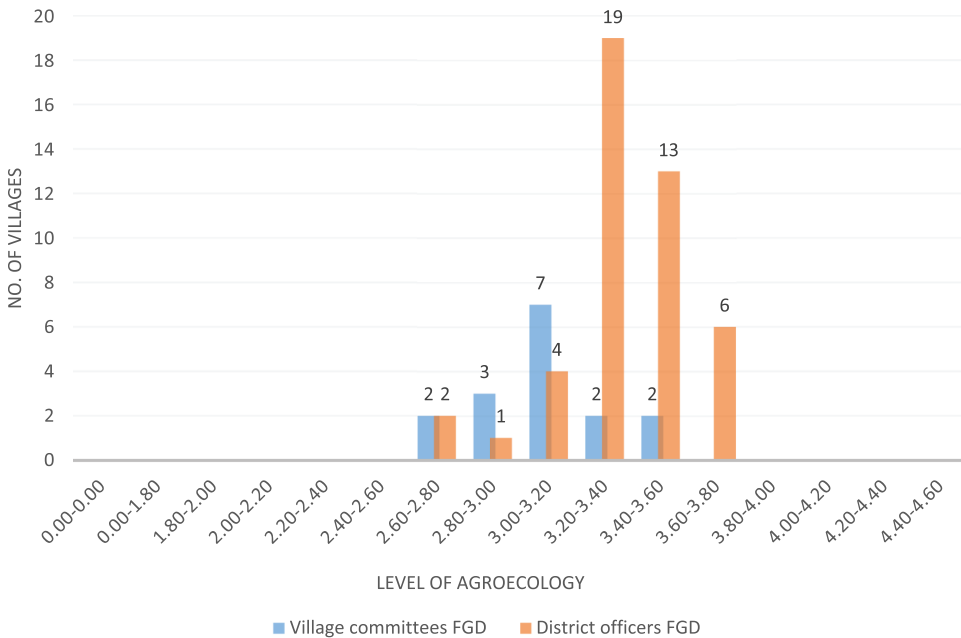


Figure 5. Distribution of villages, according to their total average scores of agroecology, for both FGDs with village committees and extension officers. The scores are presented using a 15-step scale from lowest to highest values.

and level of agroecology in the 16 and 45 villages assessed through the FGDs with village committees and district extension officers, respectively. The two maps show that most villages have medium to high scores of agroecological intensity. The scores given by district officers tend to be the same or higher than those given by village committees. In both maps, villages located next to each other tend to have similar scores, which might indicate consistency of results and/or similarity of conditions among neighboring villages, such as practices, crops, topography, and other environmental factors, or ethnicity. They might also have benefited from agroecological interventions in the area.

Results along agroecology principles

Agroecology principles 8 (co-creation of knowledge) and 13 (participation) have the highest overall scores in the ratings of the village committees (Figure 7, upper panel), while principles 2 (input reduction), 4 (animal health), and 11 (connectivity) have comparatively low scores. In all villages, there is a good collaboration and exchange of products and services within the community. Most of the villages, except some in Kham, have a good level of participation in networks, collectives, and organizations. Principle 2 (input reduction) gets the lowest average score, since most households use chemical fertilizers on paddy fields, even though they are sometimes mixed with organic

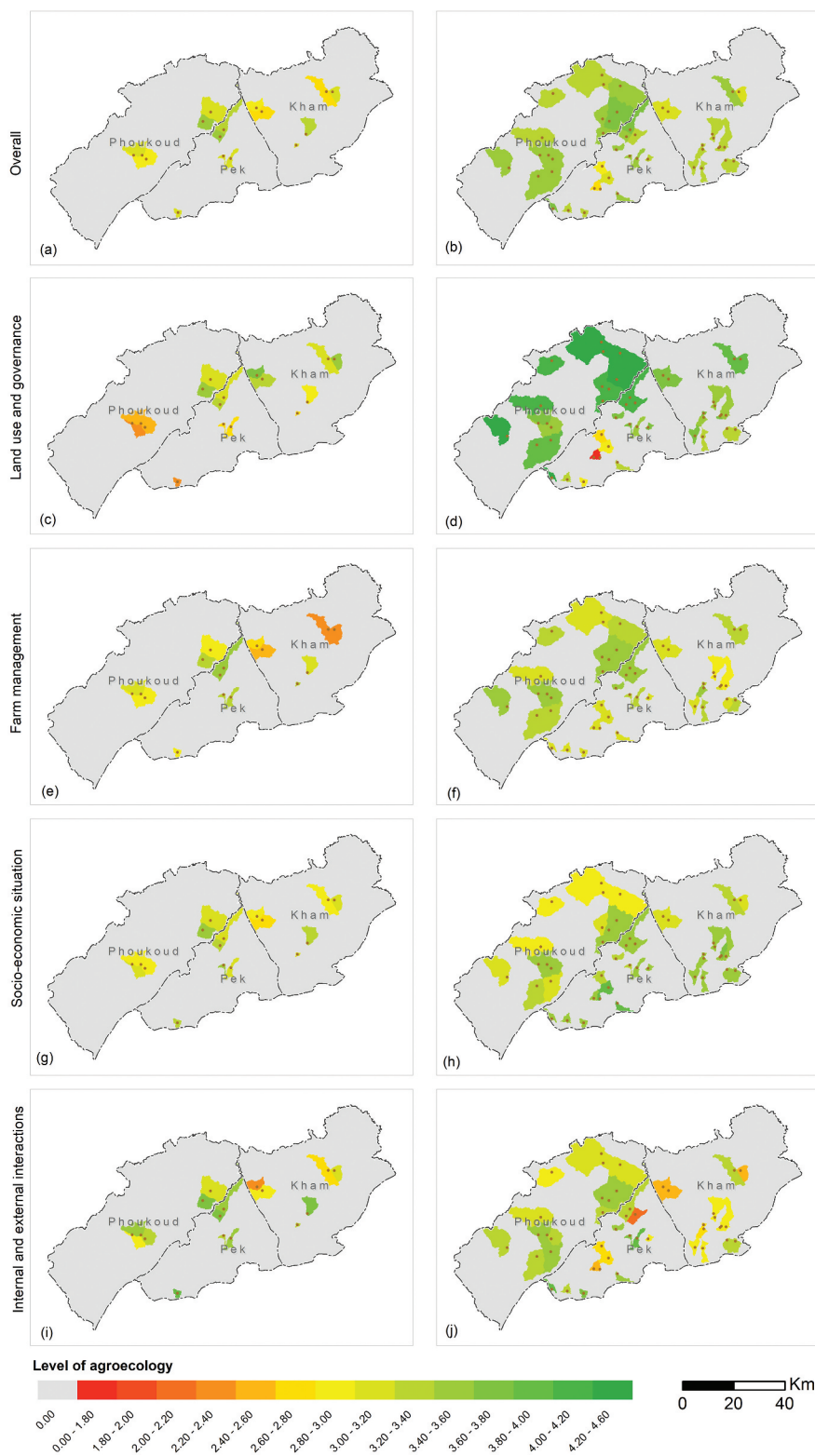


Figure 6. Mapping agroecology scores in three districts of Pek, Phoukoud and Kham. Maps (a), (c), (e), (g), and (i): results from focus group discussions with village committees (16 villages). Maps (b), (d), (f), (h), and (j): results from focus group discussions with district extension officers (45 villages).

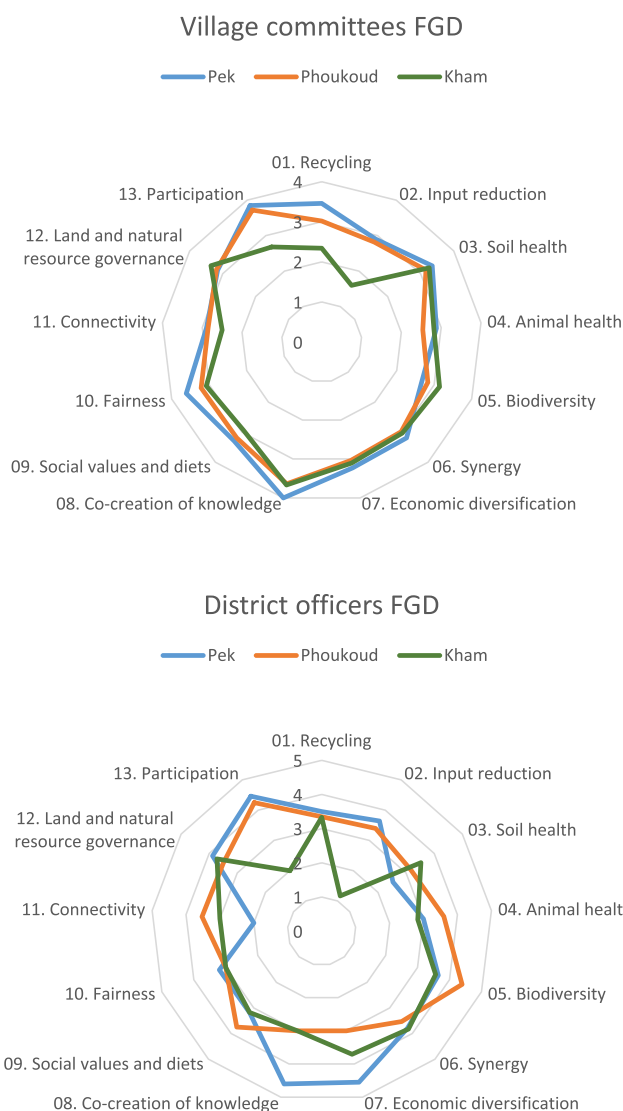


Figure 7. Agroecology scores along the 13 HLPE principles of agroecology. Upper panel: 16 villages of Pek, Phoukoud and Kham districts assessed through focus group discussions with village committees. Lower panel: 45 villages assessed through focus group discussions with district extension officers. The average village scores in each district are presented using a range from 1 to 4 from low to high level of alignment with agroecology principles.

fertilizers. The spraying of herbicides, particularly for maize cultivation in villages of Kham district, also contributes to the low score of principle 2. Principle 4 (animal health) has a low score because in most cases there is no systematic vaccination plan. Some farmers vaccinate their animals regularly by themselves or with the help of veterinary volunteers. But mostly, animals are medically treated and vaccinated only in case of a disease outbreak. Village authorities and production groups provide only limited support to farmers

facing problems with traders, which explains the low score for principle 11 (connectivity). Further, there are no support mechanisms to protect farmers in case of market failure (for example, crop insurance and compensation).

The village committees rated principles 3 to 12 very similarly, while principles 1, 2, and 13 have a larger variance among districts. There is a higher overall variance among the ratings by the extension officers in the three districts (Figure 7, lower panel) than among the ratings of the village committees in the 16 villages (upper panel). Variance in the ratings of district officers is particularly important for principles 2 (input reduction), 7 (economic diversification), 8 (co-creation of knowledge) and 13 (participation). Village committees and district officers agree on the lower score of Kham for principles 2 and 13.

Results along four entry points

We assessed agroecology scores along the four entry points for transformative action, i.e. (1) land use and governance, (2) farm management, (3) internal and external social interactions, and (4) socio-economic situation. Hereafter, we describe the results from the focus group discussions conducted with village committees (Figure 7, upper panel, and Table 3), those conducted with district extension officers (Figure 7, lower panel, and Figure 8), and the visual assessment of landscape diversity conducted with experts. We provide a spatially disaggregated illustration of the results in Figure 6, which we also comment hereafter.

Land use and governance

FGD with village committees reveal that villages of Pek and Phoukoud have lower scores in the land use and governance entry point than those of Kham.

Table 3. Agroecology scores of 16 village committees FGD by entry point in Pek, Phoukoud and Kham districts.

District	Village	Land use and governance	Farm management	Socio-economic situation	Interactions	Average total
Pek	Gnotpiang	3.02	3.44	3.06	3.50	3.26
	Ton-nua	2.24	2.94	3.38	3.93	3.12
	Khangvieng	2.75	3.23	3.42	3.35	3.19
	Khay	2.67	3.23	3.08	3.54	3.13
	Phon	3.35	3.59	3.40	3.63	3.49
Phoukoud	Poua	2.58	2.96	2.98	3.39	2.98
	Xong	2.34	2.95	3.20	2.93	2.85
	Ang	2.56	3.01	2.92	3.60	3.02
	Laethong	3.46	3.36	3.44	3.75	3.50
	Gnotphae	3.04	2.93	3.12	3.13	3.05
Kham	Kouay	2.76	3.34	3.20	3.34	3.16
	Xay-nadou	2.99	3.08	3.32	3.68	3.27
	Nong-on	3.20	2.33	2.82	2.63	2.74
	Song	3.54	2.31	3.16	3.03	3.01
	Samphanxai	3.63	2.63	2.82	2.40	2.87
	Naphan	3.23	2.41	2.72	2.81	2.79

This is due to the low diversity of products that people in Pek are sourcing from forests, particularly in Ton-Nua and Khangvieng villages, where the collection of non-timber forest products (NTFPs) is limited to mushrooms for self-consumption. Experts rated landscapes in Phoukoud as more uniform, particularly in Poua, Xong, and Ang villages. Despite these differences, average district scores in this area are very small. District extension officers gave relatively high scores to villages in Kham district for this entry point. Maps (c) and (d) in Figure 6 strongly contrast in Phoukoud district, where the extension officers paint a much more optimistic picture than the village committees, and in Pek, where they gave significantly lower scores to Ngoy and Li villages mainly because of a too strong focus on cropping and neglect of non-timber forest products.

Farm management practices

In the FGD with village committees, most villages in Kham got lower scores than those of Pek and Phoukoud districts. Crop residue management and the use of chemical inputs in crop production are the main causes for the low scores of villages in Kham in this entry point. Crop residues are mostly burnt in the upland rice, maize, and job's tears fields, and there is a heavy use of herbicides, pesticides, and chemical fertilizers in almost all villages in Kham. This is the entry point for transformative action with the biggest disparities among average district scores, particularly regarding the agroecology principles of recycling and

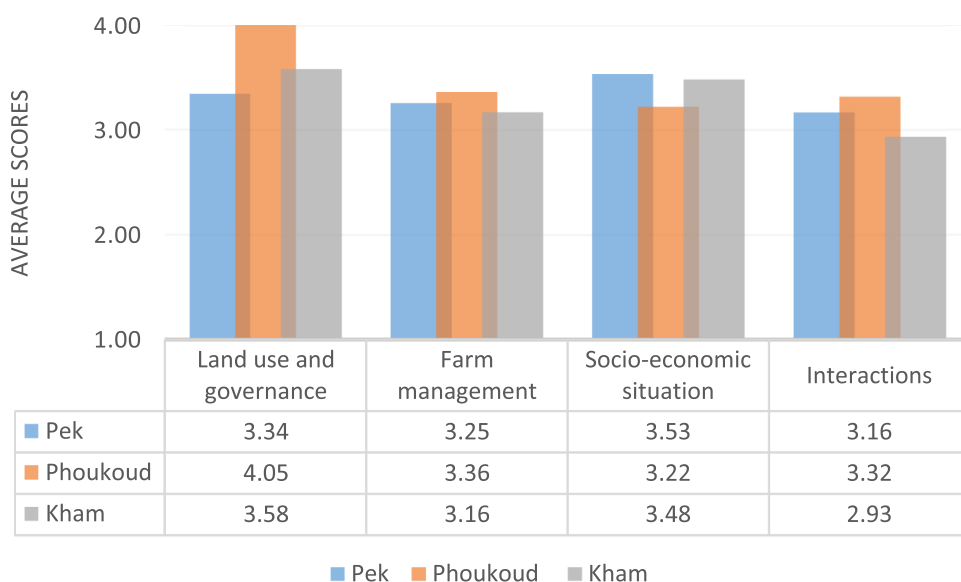


Figure 8. Agroecology scores of 3 districts FGD by entry point, representing 45 villages in Pek, Phoukoud, and Kham districts. The scores are displaying using a range from 1 to 4 from low to high level of alignment with agroecology principles.

input reduction. The ratings of district extension officers are like those of the village committees, but they tend to be more optimistic in Kham district as shown in [Figure 6](#) (maps (e) and (f)).

Socio economic situation

In the rating of village committees, Kham district has the lowest score, followed by Phoukoud. For example, gender equity scores lowest in Samphanxai and Naphan villages, while food sufficiency and nutrition awareness scores are particularly low in Nong-on and Naphan villages. District extension officers explain the low scores of villages in Phoukoud by the fact that they have fewer or less profitable income sources than those in other districts. District officers also observed that while women are participating in committees in all villages, fewer women have been elected as village chiefs in Phoukoud district and in some villages, women who are members of the village committee never attend the committee's meetings. Finally, district officers gave high scores to villages in Pek. Map (h) of [Figure 6](#) reveals that, according to the district extension officers, the higher lying areas of Phoukoud district might be potential entry points for transformative actions, while map (g) with the village committee ratings, does not show a clear pattern.

Interactions (internal and external)

In the rating done by village committees, Kham and Phoukoud rank lowest for entry point. The principle of participation is the one with the largest gap, with Kham scoring considerably lower than the two other districts ([Figure 7](#), upper panel). This is due to the low level of active participation in collective activities, mainly in Nong-on and Samphanxai villages, in which only few households participate in activities such as village saving funds and production groups. According to district extension officers, Pek scores lowest for this entry point owing to the low level of support provided by village committees to farmers facing problems with traders. For example, some contract farmers reported difficulties with investors to the district authorities yet received only informal advice from the latter instead of concrete support. Additionally, there are no farmer groups or agricultural networks in one-third of the villages of Pek district. Social interactions also have a low score in Kham district, due to the lack of agricultural production groups and the limited assistance provided by the village committee to its members in the case of problems with traders. Maps (i) and (j) in [Figure 6](#) show that both the village committees and extension officers identify a potential entry point for transformative action in the two villages at the north-western boundary of Kham district. Additionally, extension officers identify several potential areas of intervention in Pek district.

Discussion

Comparison of two focus group discussion methods

Comparable results and conclusions regarding potential entry points for transformative action in specific villages were achieved using the FGD with village committees and with district extension officers, even though the latter tend to make a more optimistic overall assessment of the situation. This good match between both methods is encouraging in terms of the reliability of the approach. This is further backed by the fact that the FGD facilitators attributed high levels of confidence to more than 80% of the questions asked to extension agents in Phoukoud district, around 50% of the questions asked in Kham district, and between 75% and 100% of the questions asked to village committees in the 14 villages for which reliability was recorded. None of the questions earned a low level of confidence, neither in the FGD with village committee nor in those with district extension officers. We did not record the confidence level in Pek district since we introduced this indicator only after conducting the FGD with the extension officers in this district. However, our study did not include a comparison of the FGD approach with more intensive assessment tools such as household surveys. Thus, the overall validity of the results presented here may require additional scrutiny.

Practicability of the approach

Around twice as many persons are involved in FGDs with village committee than with district extension officers, since the village committee is split into two groups for some questions. Therefore, at least two facilitators and two note takers are needed for FGDs in villages, while only one moderator and one note taker are required for FGDs with extension officers. However, extension agents might have difficulties ranking more than the 15 villages per district that we selected for our test. A larger number of villages might require several rounds of ranking iterations or the clustering of villages.

We conducted both types of FGDs within a half-day visit to villages and district offices. Thus, in the case of FGDs with village committees, villagers must invest around 5 person-days and facilitators around 1 person-day to assess the agroecological intensity of one village. In the case of FGDs with extension agents, the latter must invest 0.3 person-days per village (5 person-days per district divided by 15 villages), and the facilitators less than a tenth of a person-day. Thus, FGDs with district officers are significantly faster than those with village committees while yielding comparable results, albeit with fewer insights and details. Hence, to achieve a quick agroecological assessment in a larger area, such as a province, the FGDs with district officers might be more suitable.

Factors affecting usability of the approach

During our fieldwork in Xiengkhouang Province and the subsequent analysis of the data, we noticed three challenges that can influence the outcomes and interpretation of the assessment: (1) Attendance bias due to the sensitivity of ranking results and the composition of the group participating in the FGD; (2) Level of adaptation of the questions to the local context and to the consensus-building process during the FGD; (3) Capturing differences between villages and diversity within villages.

Attendance bias

We sent invitations to village heads several days before our meetings in the villages, but we had no control over the final composition of the group attending the FGD. Members of the village committees sometimes had competing meetings on their agenda, which impacted the attendance. In turn, the composition of the village committee groups had a strong incidence on the quality and liveliness of the discussions, as well as the reliability of the ratings. Some villagers are more knowledgeable than others and thus in a better position to assess the agroecological topics addressed during the FGD. Similarly, some villagers are more conversant with concepts such as percentages and ratings, and thus understood the aim of the exercises faster than others.

These attendance biases cannot be ruled out, but a good preparation of the meetings helps to minimize their impacts on the quality of the rating. Firstly, the invitation of participants needs to be carefully thought through and monitored. Support from partner organizations in the region might be required to secure a good mix of participants. Second, we systematically registered participants at the beginning of the FGD to have a better understanding of the group members' backgrounds and to adjust the facilitation process accordingly. This also helped the facilitators to gauge the participants' responses in terms of positive bias (overly optimistic ratings) or negative bias (overly negative ratings). Third, unavoidable differences among participants in terms of knowledge and agency need to be carefully addressed and mitigated by the facilitators, particularly when some participants monopolize the discussion.

Level of adaptation to local context and consensus building

Some questions, such as those on crop and livestock diversity, yielded straightforward and rapid rankings. However, participants found it challenging to comprehend the rationale behind questions related to qualitative and abstract agroecological principles, such as synergy, connectivity, fairness, and participation. Despite the team's efforts to formulate meaningful and concrete

questions for these principles, some participants struggled to grasp their significance. This raises broader concerns about the appropriateness of utilizing general frameworks with strong normative elements originated in areas with different sets of values to fully capture local perspectives, priorities, and needs. The 13 principles of agroecology reflect to a large extent the perception of the 15 HLPE steering committee members who drafted them, i.e., a perspective of academic, UN, and CGIAR institutions.

This reinforces the importance of local community engagement in identifying indicators and designing questions. We severally refined the questions asked to the FGD participants to make them as relevant to their context as possible. Additionally, we had to make sure that participants could answer such questions by assigning discrete values representing a rating of agroecology at the village level. However, the capacity to capture, with one or two questions, the essence of the principle, and the skills of the facilitators to explain these questions with simple words are key for getting a good consensus among the participants, which determined the quality of agroecology assessment on the ground. Furthermore, we had to make it clear to the participants that the assessment process was not a project request and did not influence funding and the prioritization of project activities, as it may have introduced a bias in the respondents' ratings. Lastly, the use of a confidence index to gauge all ratings according to the quality of the consensus within the group is a useful asset to guide the analysis and interpretation of the results.

Capturing differences between villages and diversity within villages

Typically, there is a high diversity within and across the assessed villages in terms of practices, crops produced, topography, ethnicity, off-farm income options, etc. For example, farmers have different ways of managing crop residues in their rice or maize fields, on flat land (tilled) or on hillslopes (burnt). Additionally, Lao Lum, Khamu, or Hmong ethnic groups have different farming practices: Hmong farmers leave their animals to roam in the forest and do not collect manure to fertilize their plots, while other ethnic groups park their animals on harvested rice fields during the night and use their manure as fertilizer. In some cases, this diversity made it difficult for participants to estimate percentages of households and assign them to the four levels of the rating gradient. Thus, the final rating rather resembles a rough estimate than an accurate assessment. One way to overcome this challenge would be to organize an event for all the villages of a district to brief one committee member per village prior to organizing the FGD. This would allow this committee member to gather village information that would be helpful in the context of the FGDs. Another way may be to calibrate results using household surveys conducted in a few villages in addition to the focus group discussions. Depending on the assessed indicator, the data may be collected at

household level through individual surveys or at village level through focus group discussion.

Lastly, we generated a single value for each question based on a distribution of response values. By averaging these values, we lose information about the diversity within the villages or the districts (Figure 9). Thus, the impression might arise that practices in villages are homogeneous among the different households when, in reality, there are big differences. It may be interesting to valorize this diversity and present it as a coexistence of multiple systems within one village or a district and as an asset for agroecology. The interactions between different farming systems are especially important to consider when engaging in transformative agroecology.

Lessons learnt and perspectives

Below, we reflect on the potential of our approach for wider implementation in line with our initial objective, which was to propose a method capable of reducing the time, workforce, and financial costs typically associated with household surveys, while yielding data of comparable usefulness on measuring agroecological intensity at village level.

The two proposed FGD methods capture the status of agroecology at the village level within a short time and thus have potential for out-scaling assessments at regional level. Our results reflect the agrarian diversity described by other studies conducted in Xiengkhouang Province (Lestrelin et al. 2012; Lienhard et al. 2020). For example, intensive maize-based cropping systems lead to heavy use of chemical herbicides in Kham district and lower agroecology scores as compared to villages in the two other districts. Individualistic

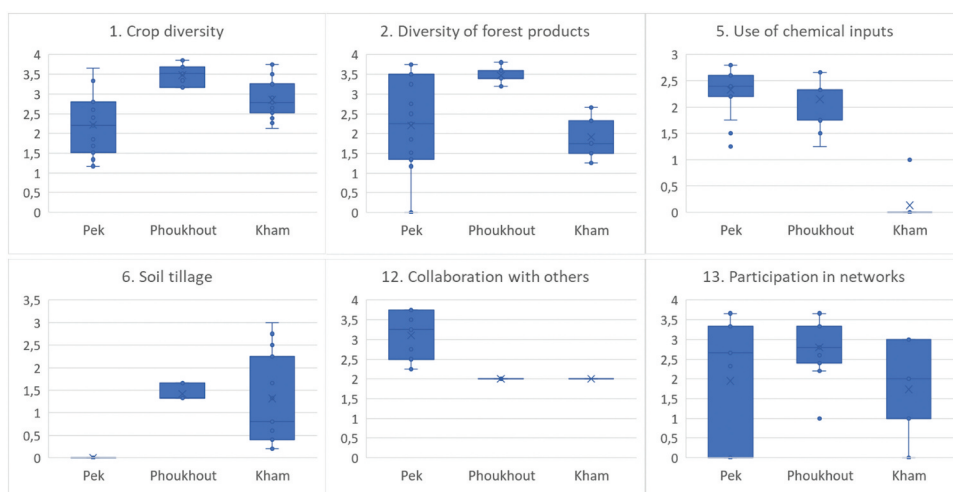


Figure 9. Range of variation across villages for some questions asked to the district extension agents in 15 villages in each of the three study districts.

behavior described in relation to intensive agriculture translates in lower scores in “cooperation” along a gradient of agricultural intensification. Our test also demonstrates that the FGD approach helps going beyond mere reporting on the status of agroecology and interpreting agroecology scores literally. It is particularly useful, when used in a comparative manner (where the situation is particularly bad or particularly good?), even if biases and differences in the interpretation of the different respondents might lead to differences that do not necessarily exist.

Mixed methods to balance resource use and usefulness of results: Particularly, the FGD with district extension officers helps to save time, budget, and human resources, and to achieve a rapid yet promising assessment of the status of agroecology. Results can be used to identify entry points for targeted interventions in many villages. Depending on the objectives of the assessment, it may be possible to combine FGDs with household surveys and other participatory methods (Sachet et al. 2021) to achieve a higher accuracy and a finer granularity of the assessment. Inversely, it might also be possible to combine results from FGDs with other assessment tools at a larger scale, such as the spatial assessment of landscape characteristics or soil degradation using visual interpretation or more complex remote sensing methods (Mishra et al. 2023; Wang, Gao, and Zhang 2022).

Adaptation to local contexts and engagement of local communities: When assessing agroecology at local level, it is necessary to adapt global frameworks (such as the 13 principles of agroecology) to local contexts to ensure that they are effectively captured, and their indicators are relevant and useful to the local community (Anthonioz 2021, Namirembe et al. 2022). We co-designed the indicators and questions in a participatory manner with international and national experts, and fine-tuned the questionnaire iteratively through tests in a few villages. Adaptation to local contexts through co-design of the questions and their responses, particularly related to farm management practices, allowed them to remain relevant in villages characterized by a high diversity in farming practices and ethnic-cultural traditions. To reflect the actual situation on the ground, FGD participants should therefore be allowed to negotiate the questions and responses based on their local knowledge. Mobilizing the local community also ensures that the participants co-produce actionable knowledge, rather than following the perspectives of the international community. As participants get a better overview of the agroecological practices in their villages and districts, they gain power and legitimacy in collectively planning agroecology interventions wherever needed (Hett et al. 2023).

Mapping the extent of agroecology: Using FGD at village and district levels, we systematically collected data and provided evidence about the extent and intensity of agroecological transformations, which is crucial for donors, development practitioners, and policy makers in the region. Beyond mapping agroecology at the village level, we opened the possibility to upscale the

approach to the provincial level. This approach goes beyond providing aggregated numbers from different sources of information, with uncertainty about how, when and where data has been collected and processed. Additionally, it can help to track changes and monitor trends in time and space, with an efficient use of time, human and financial resources. In combination with other methods and sources of information, the FGD approach has the potential to provide quantitative assessments that are more accurate than the ones reported in this paper. For example, it may account for the number of farmers involved in different agroecological practices and the extent of territories concerned by the agroecological transition. It may be possible to quantify changes through additional questions to village committee members or rapid surveys conducted by extension agents. Percentage of the total land area or number of households in villages may be recorded to get more accurate data than the current estimates.

Conclusions

In agroecology assessment, there is a balancing act between the desire to generalize findings and the importance of making the assessments locally relevant for actionable insights. To tackle this challenge, we developed and tried out a new approach. We conducted focus group discussions involving village committee members and district extension officers. Our aim was to create a quick and participatory appraisal method that could effectively capture the state of agroecology in numerous villages within a short period.

Our results are promising in terms of the capacity to characterize the status of the 13 principles of agroecology and to capture their changes in time. We found that categorization of indicators according to four entry points for transformative action are closer to local reality, i.e., land use and governance, farm management, social interactions within and outside the village, and socio-economic situation of the households. It was more conducive to discussions with local people and enhanced their ownership of the overall assessment process.

Reconciling the characterization of agroecology status over large areas with the operationalization of the co-produced knowledge to guide local interventions requires grounding abstract agroecology principles into concrete, context-sensitive questions and responses. Our experience shows the importance of engaging local communities in co-designing the agroecology assessment method.

Since not all aspects of the 13 principles can be captured with a few indicators only, our FGD approach could be combined with other assessment methods, such as household surveys, to complement the aspects that require finer understanding of farm management practices and household-level decision making. On the other hand, for an assessment over large territories, this approach may be combined with remote sensing methods to assess the spatially explicit proxies of

agroecology principles such as landscape heterogeneity, biophysical characteristics of the terrain, or diversity of land use patterns. For example, Bégué et al. (2018) have shown the potential of applying remote sensing techniques in capturing cropping practices. These approaches are still exploratory at local scale and rely heavily on local knowledge and ground data. They may therefore benefit from mixed assessment approaches, articulating FGD and household surveys with remote sensing and spatial analysis methods using socio-economic data such as national agricultural and population data, which are to be further researched and explored.

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Appendices

1. Annex List of indicators and questions used for the two focus group discussions with village committees and district extension agents in relation to 13 principles and 4 entry points in measuring the agroecological intensity of villages

HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
1. <i>RECYCLING</i> Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass	Farm management	Residue management	Q4. Group households in your village according to their crop residue management practices. <ul style="list-style-type: none">• All crop residues are burnt and the soil is left uncovered• 25% of crop residues covering the soil after harvest• 50% of crop residues covering the soil after harvest• 100% of crop residues covering all agricultural production land after harvest	Q4. Rank villages according to their crop residue management practices from burning all residues to the complete cover of soil with crop residues after harvest.
	Farm management	Water management	Q8. Group households in your village according to their water collection and conservation practices for family consumption, fish raising or irrigation. <ul style="list-style-type: none">• Do not store water• Store some water in the dry season, however, not enough• Store water in a good and sufficient condition both in the dry and rainy seasons, or has water for use throughout the year• Store water in a systematic and modern way	Q8. Rank villages according to their water conservation regulations from no regulation to clear and well-practiced regulations in the management and maintenance of water sources.
2. <i>INPUT REDUCTION</i> Reduce or eliminate dependency on	Farm management	Use of chemical inputs	Q5. Group households in your village according to their use of chemical inputs in crop production.	Q5. Rank villages according to their dependency on chemical inputs from no use to complete use of organic inputs in

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HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
purchased inputs and increase self-sufficiency.			<ul style="list-style-type: none">● Use of 100% chemicals● Use of about 75% chemicals● Use of about 25% chemicals● Do not use chemicals at all	crop production.
3. SOIL HEALTH Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity.	Farm management	Soil tillage techniques	Q6. Group households in your village according to their tillage techniques. <ul style="list-style-type: none">● Till 100% of the area● Till about 75-50% of the area● Till about 50% of the area● No till	Q6. Rank villages according to their soil tillage techniques from complete tillage to no tillage of the total production area.
	Farm management	Assessment of soil degradation	Q7. Group farms in your village according to the soil quality. <ul style="list-style-type: none">● Poor quality soil that cannot grow crops at all● Low-quality soil that can grow about 25% of crops● Medium quality soil that can grow about 50% of crops● Good-quality soil that can grow crops	Q7. Rank villages according to the soil quality from poor to good that can grow crops.
4. ANIMAL HEALTH Ensure animal health and welfare.	Farm management	Concern of farmers and households for animal health	Q9. Group households in your village according to their attention to animal health. <ul style="list-style-type: none">● Do not vaccinate and do not use veterinary services● Use veterinary services only when sick with fever● Vaccinate, however, there is no systematic plan● Vaccinate with a systematic plan and animals are regularly checked by a veterinarian	Q9. Rank villages according to their animal health behavior from no use to systemic use of vaccination and veterinary services.
Crop and tree crop diversity				

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HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
5. BIODIVERSITY Maintain and enhance diversity of species, functional diversity and genetic resources and thereby maintain overall agroecosystem biodiversity in time and space at field, farm and landscape scales.	Land use and governance		Q1. Group farms in your village according to their crops and tree crops diversity. <ul style="list-style-type: none"> • Monoculture farms with single crop cover on more than 80% of the land • Farms with 2–3 types of crops • Farms with 4–6 types of crops • Farms with more than 6 types of crops 	Q1. Rank villages according to their cropping practices from monoculture to highly diverse cultivation of crops and species.
	Land use and governance	Diversity of products sourced from forests (NTFP)	Q2. Group households in your village according to the level and diversity of NTFP collection for food security and income. <ul style="list-style-type: none"> • Do not collect NTFP products • Collect 1–3 types of NTFP products • Collect 4–6 types of NTFP products • Collect more than 6 types of NTFP products 	Q2. Rank villages according to the level and diversity of NTFP collection for food security and income from no collection to highly diverse collection.
6. SYNERGY Enhance positive ecological interaction, synergy, integration and complementarity amongst the elements of agroecosystems (animals, crops, trees, soil and water).	Farm management	Crop-livestock integration (Animal feed)	Q10. Group households in your village according to their practices in terms of animal feed utilization. <ul style="list-style-type: none"> • Purchase the whole feed • Purchase about 80% of the feed • Purchase about 50% of the feed • Do not purchase at all (use feed produced by themselves) 	Q10. Rank villages according to their practices in terms of animal feed utilization from only use of external inputs to no use of externally purchased animal feeds.
	Farm management	Crop-livestock integration (Animal manure)	Q11. Group households in your village according to their practices in terms of animal manure utilization. <ul style="list-style-type: none"> • Do not use animal manure as fertilizer for crops • Use animal manure as fertilizer for about 25% in crops 	

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HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
7. ECONOMIC DIVERSIFICATION Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.	Land use and governance	Multi-functional landscape	<ul style="list-style-type: none">● Use animal manure as fertilizer for about 50% in crops● Only use animal manure as fertilizer in crops <p>Q21. Classify your village landscape according to their level of heterogeneity.</p> <ul style="list-style-type: none">● Uniform agricultural landscape with very little diversity of various land cover types● Mostly uniform landscape with some patches of diversity● Landscape with many patches of multiple land cover types● Very diverse landscape with different land cover types fulfilling a range of complementary function	<p>Q21. Rank villages according to their diverse landscapes from very homogeneous to heterogeneous landscape.</p>
	Socio-economic situation	Diversity of income generating portfolio	<p>Q15. Group households in your village according to the diversity of their income generating activities (crops, livestock, NTFPs, salary, trade business, and off-farm activities).</p> <ul style="list-style-type: none">● Single source of income● 2–3 sources of income● 4–6 sources of income● 6 or more sources of income <p>Q16. Group households in your village according to their financial independence measured as debt dependency.</p> <ul style="list-style-type: none">● Heavily in debt and has trouble paying back	<p>Q15. Rank villages according to their diversity of incomes from different sources (crops, livestock, NTFPs, salary, trade business, and off-farm activities) from low to high diversity of income generating activities.</p>

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HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
8. CO-CREATION OF KNOWLEDGE Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.	Interactions	Collaboration with others and exchange of products and services	<ul style="list-style-type: none"> • In debt and has limited ability to repay • Little debt and can pay it back in one year • No debt <p>Q12. Group households in your village according to their social relationships within the village.</p> <ul style="list-style-type: none"> • Individual practices, hire labor but no interaction with other people in the village • Individual practices and mainly interact with outsiders • Relatively good relations, but mostly only with relatives, friends, and neighbours • Well connected and harmonious within the community <p>Q12. Rank villages from individualistic to cooperative behaviors based on farmer-to-farmer exchange of goods, knowledge and services.</p>	
9. SOCIAL VALUES AND DIETS Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally, and culturally appropriate diets.	Socio-economic situation	Level of gender equity	<p>Q14. Group households in your village according to their level of participation and decision-making of men and women in local governance events.</p> <ul style="list-style-type: none"> • Women do not participate in meetings, trainings, and do not have the opportunity to make decisions • Most decisions are made by men and do not consult with women • Most decisions are made by men, but men consult with women and women participate in local governance • Women and men have equal roles in decision making and participation <p>Q14. Rank villages according to the level of participation and decision-making of men and women in local governance events from no equity to high level of gender equity.</p>	
	Socio-economic situation	Food sufficiency, appropriate diet and nutrition awareness	<p>Q17. Group households in your village depending on their food sufficiency and diet quality.</p> <ul style="list-style-type: none"> • Not enough foods • Lack of foods for some periods • Enough foods, but lack of varieties • Enough foods with diverse varieties <p>Q17. Rank villages according to their food sufficiency and diet quality (healthy and diversified foods) from having not enough foods to abundant foods with a diversity of varieties.</p>	

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HLPE – 13 principles		Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
10. FAIRNESS Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment, and fair treatment of intellectual property rights.	Socio-economic situation	Interactions	Food sufficiency, appropriate diet and nutrition awareness	Q18. Group households in your village depending on their awareness about nutrition. <ul style="list-style-type: none">• No knowledge• Low knowledge (i.e., eat only rice and meat)• Intermediate knowledge (i.e., cook a variety of foods)• Good knowledge (i.e., know the amount, type, and needs of people at each age)	Q18. Rank villages according to their level of awareness about nutrition from having no awareness to a good level of awareness.
				Q20. Classify your village depending on how the village committee and community members are involved in negotiations related to external interventions. <ul style="list-style-type: none">• No involvement• Village committee participated in negotiations, but did not have the power to make decisions• Village committee participated in negotiations, but only had the power to make some decisions• Village committee and community members participate in negotiations and make joint decisions	Q20. Rank villages according to their level of involvement in negotiations related to external interventions from no to high level of involvement.
11. CONNECTIVITY Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies.	Interactions	Networks of producers, relationship with consumers		Q19. Classify your village depending on the level of responsibility that the village committee is taking, when farmers are facing problems with traders (delayed or no payments, breach of contract, etc.)? <ul style="list-style-type: none">• Do not consider this to be their responsibility• Give villagers advice on where they could get help and encourage them, but cannot do much more than that• Report the case to higher authorities to solve the problem	Q19. Rank villages according to the level of extent that village committees are ensuring trust, proximity and confidence between farmers and other actors in the value chain, from no to high level of protection, accountability and trust.

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HLPE – 13 principles	Entry points	Indicators	Questions for the focus group discussion with village committees	Questions for the focus group discussion with district extension agents
12. LAND AND NATURAL RESOURCE GOVERNANCE Recognize and support the needs and interests of family farmers, smallholders and peasant food producers as sustainable managers and guardians of natural and genetic resources.	Land use and governance	Institutional arrangements for empowering local community as managers and guardians of sustainable land and natural resources	<ul style="list-style-type: none"> Report the case to higher authorities, and the village has social insurance for agricultural production and compensation from the organization or production group to the affected farmers <p>Q3. Classify your village depending on the existence of regulations for the governance of land and natural resources.</p> <ul style="list-style-type: none"> No regulation Has regulations, but is not followed with farmers, but only in some cases Has regulations and put in place mechanisms to foster compliance with these rules 	<p>Q3. Rank villages according to the way that village committees manage their land and natural resources, from having no regulation to well-established regulations fostering compliances.</p>
13. PARTICIPATION Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems.	Interactions	Active participation in networks, collectives, organizations	<p>Q13. Group households in your village according to their level of engagement in networks, collectives, organizations.</p> <ul style="list-style-type: none"> Do not join production groups or networks About 20-30% joined production groups or networks, but less active About 50% joined production groups or networks and are active About 80% joined production groups or networks and are strongly active 	<p>Q13. Rank villages according to their level of engagement in networks, collectives, organizations from no participation to high level of active participation.</p>