

Accompanying the actors of the agroecological transition in Laos

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THE DRIVERS OF THE AGROECOLOGICAL TRANSITION IN LAOS

In Laos, the agrarian transition is characterized by rapid changes in agricultural production systems. Since the early 2000s, a transition has been taking place, away from subsistence agriculture, primarily based on rice cultivation, forest gathering and extensive livestock farming, and towards market-oriented agricultural production systems, with a significant and rapid increase in crops grown for export (Figure 5.1) to neighbouring countries, mainly China, Thailand and Vietnam. This transition has been facilitated by the implementation of successive public policies to limit the use of shifting cultivation and to modernize agriculture (Box 5.1), and by the result of the country becoming a member of the Association of Southeast Asian Nations (ASEAN) in 1997.

The rapid expansion of cash crops cultivation has undoubtedly led to an overall reduction in poverty but it has also weakened farming communities (75% of the total population of Laos), with growing inequalities between producers, a sharp rise in indebtedness, and an increased vulnerability of these communities. Increasing climatic hazards are now combined with growing economic risks (more frequent situations of local commercial monopolies, production contracts with terms and prices that are not respected, strong interannual price variations, etc.).

Furthermore, while these policies have encouraged the reduction of slash-and-burn practices and the adoption of more intensive farming practices, they have also disrupted the traditional methods of managing soil fertility, based on long fallows, and, ultimately, undermined the sustainability of farming systems. Indeed, the technical models being promoted are based on Green Revolution principles: hybrids and improved seeds, mechanized soil tillage, and increased and increasing use of external chemical inputs (fertilizers and pesticides). These practices, however, have a negative impact on natural resources and result in the degradation of agricultural land, pollution, and biodiversity loss (Figure 5.2).

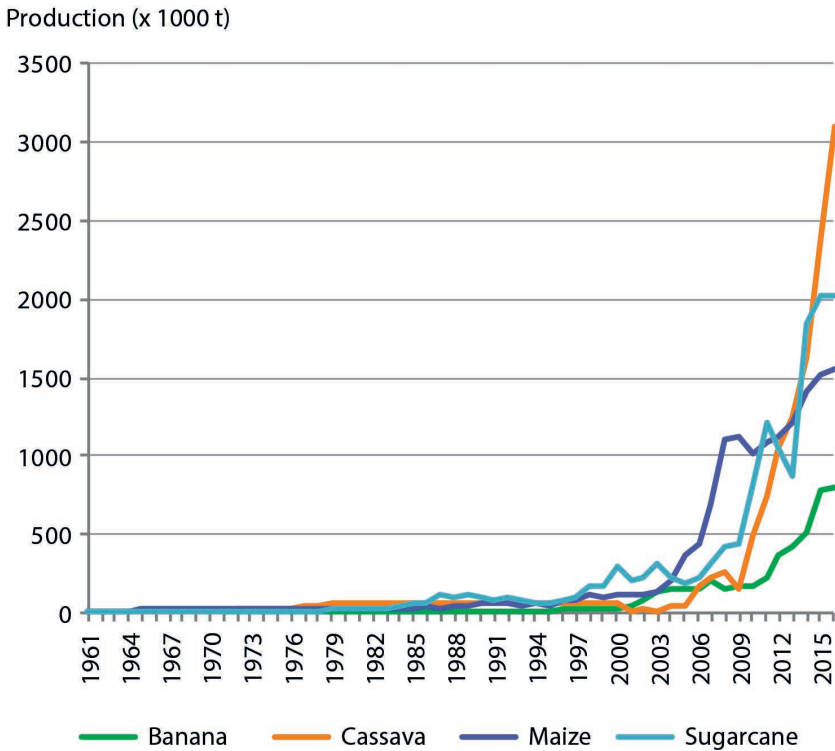


Figure 5.1. Changes in production of the main export crops in Laos over the 1961–2016 period (source: FAOstat).

Box 5.1. History of policies for limiting shifting cultivation and for modernizing agriculture in Laos

Based on Castella and Phimmasone, 2017

The 1980s

Ban (and criminalization) of shifting cultivation. This policy resulted in a massive process of resettlement of villages to more accessible areas, and an increase in agricultural pressure on land at the local level.

The 1990s

‘Three-plots’ land-use policy (no more than three plots in rotation per farm). Application of policies to reduce deforestation. Reducing fallow durations dramatically affected the sustainability of rotational cropping systems.

The 2000s

‘Turning land into capital’ policy aimed at modernizing agriculture through economic incentives that encouraged smallholder farmers to practise more intensive land management.

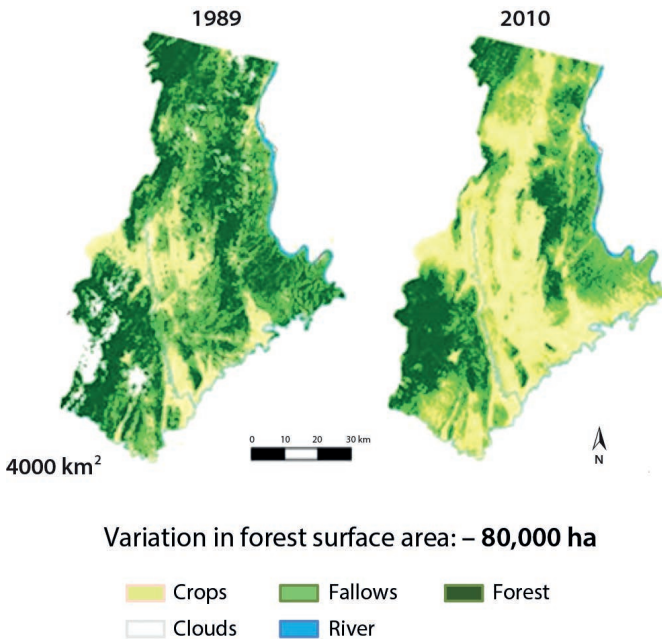
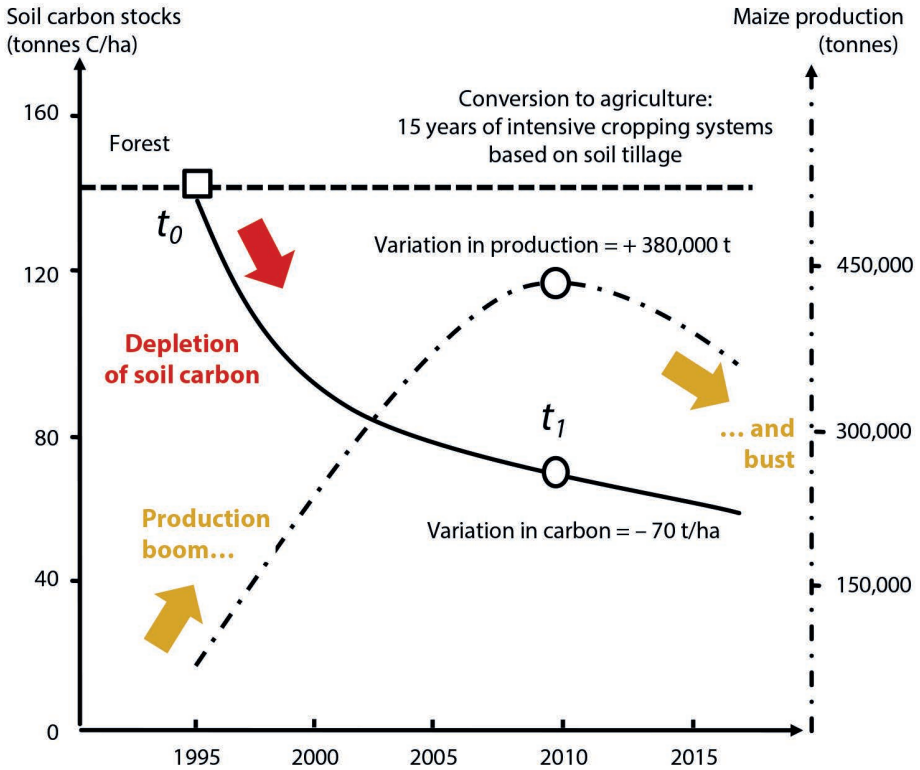


Figure 5.2. Deforestation and impact of conventional maize cropping systems on carbon stocks in the south of Sayaboury province in Laos (Tivet *et al.*, 2017).

Aware of the limitations of the current agricultural model, the Laotian authorities have been reflecting on an alternative national green growth strategy since the 2010s, but there exist competing visions on how to implement it. It is clear that agroecological practices (organic farming, conservation agriculture, agroforestry, integrated crop-livestock approaches, integrated pest management, system of rice intensification, etc.) promoted since the early 2000s by various governmental and non-governmental institutions (Table 5.1) have not been widely adopted and remain insignificant when compared to the conventional intensification model.

It is in this context that two complementary approaches are being tested since 2014 to promote an agroecological transition in Laos: action-research involving all the inhabitants of village communities located in the uplands of northern Laos (EFICAS project) and the creation of a regional network for the sharing of experiences in the field of agroecology (ACTAE project).

THE APPROACHES BEING TESTED

Eficas action-research project

EFICAS (*Eco-Friendly Intensification and Climate resilient Agricultural Systems in Lao PDR*) is a project that has been funded since 2014 by the French Development Agency (AFD) and the European Union as part of the Global Climate Change Alliance. It is being implemented by DALaM (Department of Agricultural Land Management) of the Laotian Ministry of Agriculture and Forestry (MAF) of Laos with the support of CIRAD. In each of the twelve project villages spread over the three provinces of Luang Prabang, Houaphan and Phongsaly, this project engages the entire village community in order to implement agroecological practices adapted to different landscape units: lowland rice paddies (e.g. system of rice intensification, off-season crops), home gardens (e.g. composting, integrated crop-livestock system), plots on slopes (e.g. conservation agriculture with legume crops in association with cereals, agroforestry, domestication of non-timber forest products, development of livestock-rearing areas or production of fodder).

The activities of the EFICAS project revolve around:

- the co-design of land use plans to meet the needs and demands of village communities and local agri-chains by incorporating innovative agroecological practices;
- the capacity building of extension agents, so that they can play the role of facilitators in negotiating processes (between farmers, local authorities and traders), and of producers (skill training in technical itineraries, conservation of planting material, making the best economic use of by-products from associated crops);
- the monitoring and evaluation of the resilience of agricultural communities to external shocks (economic, climatic) in order to assess the performance of technical and organizational innovations and, more generally, the territorial dynamics at village level.

The networking approach of the ACTAE project

ACTAE (Supporting the Agroecological Transition in Southeast Asia) is a project funded by AFD since 2015 and implemented by CIRAD and the French NGO GRET

Table 5.1. Overview of agroecology in Laos in 2013 (sources: Castella and Kibler, 2015a; Lestrelin, 2015; Lienhard *et al.*, 2014).

Agroecological practice	History of its promotion in Laos	Level of adoption (in 2013)
Organic farming	<p>Since the early 2000s</p> <p>Initiatives of local and international NGOs. For example Helvetas (Profil project), ASDSP, Saeda, PADETC, Oxfam, AgriSud, SNV, GAA</p> <p>Mainly concerning rice and vegetable production</p> <p>CIRAD is supporting the development of the organic coffee sector on the Bolaven Plateau (AGPC)</p>	<p>No aggregated data at the national level but still marginal (in terms of acreages and volumes produced)</p> <p>Local results seem to be encouraging: Profil (700 families), Saeda (2 groups), etc.</p>
Integrated pest management (IPM)	<p>Initiated in 1996 by FAO and MAF (plant protection service)</p> <p>Farmers' Field Schools (FFS) approach</p> <p>Complementary initiatives since 2000 supported by NGOs. For example ABP, AgriSud, SNV, Oxfam Belgium, ASDSP</p> <p>Mainly concerning lowland rice and vegetable sectors</p> <p>IPM national government network established in 2013 with the appointment of an IPM correspondent/expert at the agricultural services level for each province and for certain districts</p> <p>Promotion of the IPM and FFS approaches in all Laotian provinces for rice and in eight provinces for market gardening systems</p>	<p>No aggregated data at the national level</p> <p>Level of local adoption varies by province (and the size of the market garden sector and extent of lowland areas)</p> <p>The use of pesticides in agriculture is, however, still growing</p>
Agroforestry	<p>Since the early 2000s</p> <p>Three areas of intervention:</p> <ul style="list-style-type: none"> - protection and regeneration of endemic forests - development and protection of non-timber forest products - promotion of agroforestry systems associating commercial plantations (rubber, oil palm) with annual crops (rice, maize) or multi-year crops (ginger, galangal) <p>Northern Laos</p> <p>Main institutions/actors: Sida-Narc-FSRC, PADETC, SDC, GRET (bamboo), Agroforest Cie (benzoin), CCL and GDA (cardamom)</p>	<p>No aggregated data at the national level</p>
System of rice intensification (SRI)	<p>Started in 2006 through two initiatives: ProNet 21 and NCMI project</p> <p>MAF decree of September 2008 for the national promotion of system of rice intensification in all irrigated basins</p>	<p>No aggregated data at the national level</p> <p>Project data (2010): adoption by more than 10,000 families and for 3600 ha</p>
Conservation agriculture	<p>Since the early 2000s</p> <p>Pilot projects in two provinces, supported by CIRAD and MAF-Nafri/Dalam</p> <p>MAF decree and circular for the promotion of conservation agriculture at the national level (2005 and 2011)</p>	<p>Little dissemination outside pilot intervention areas</p> <p>Substantial abandonment in pilot intervention areas on the completion of projects</p>

ABP: Agro-Biodiversity Project; AGPC: Bolaven Plateau Coffee Producers Group Association; ASDSP: Association to Support the Development of Peasant Societies; CCL: Committee for cooperation with Laos; Dalam: Department of Agricultural Land Management (managed by the MAF); GAA: Welthungerhilfe, German Agro Action; GDA: Gender Development Association; Nafri: National Agricultural and Forestry Office; NCMI: National Community-Managed Irrigation network; PADETC: Participatory Development Training Centre; Profil: Promotion of Organic Farming and Marketing in Lao PDR; Saeda: Sustainable Agriculture and Environment Development Association; SDC: Swiss Agency for Development and Cooperation.

with national and regional partners in Cambodia, Laos, Myanmar and Vietnam. It supports and helps develop initiatives and foster networking of the different stakeholders of agroecology, from producers to consumers, including research, academia, civil society, policymakers and the private sector. The project is structured around two components: one led by CIRAD to strengthen the CANSEA network (Conservation Agriculture Network in South-East Asia), mainly focused on the promotion of conservation agriculture; the other, led by GRET, with the aims of establishing a multi-stakeholder regional platform for bringing together the different domains of agroecology in the Mekong region: the Agroecology Learning Alliance in South-East Asia (ALiSEA).

The ACTAE project's activities include the production of knowledge about agroecology through the accompaniment and co-financing of initiatives to encourage multi-actor collaborations and thematic studies, including the assessment of agroecological practices and of consumer perception, and institutional framework analyses (Castella and Kibler, 2015b). The dissemination and networking of experiences is made possible through an online knowledge sharing platform¹ and the organization of multi-actor thematic workshops at national and regional levels. A third area of intervention concerns the promotion and visibility of the agroecological movement among policymakers and consumers through the use of dedicated communication tools, with the objective of preparing future joint advocacy actions. The ALiSEA network disseminates the results of the many existing initiatives in the Mekong region through a quarterly newsletter, a web portal, a presence on social networks (Facebook, YouTube) and the organization of exchange workshops and promotional events.

The EFICAS project approach favours a territorial perspective and a change of scale from the plot to the village landscape. The ACTAE project networks like-minded national projects and local initiatives, and thus facilitates the exchange of experiences and the capitalization and dissemination of results at national and regional scales. It contributes in this way to forging an advocacy for agroecology with decision-makers in order to argue for a political impetus to the agroecological transition.

ACCOMPANYING AND SUPPORTING THE AGROECOLOGICAL TRANSITION

The ACTAE and EFICAS initiatives intervene in a complementary manner on eight levers identified during feasibility studies to accompany and support the agroecological transition in Laos (Figure 5.3).

Understanding the trajectories and drivers of change

Studies have been carried out on agrarian dynamics in three regions of northern Laos that have been producing hybrid maize for export for over ten years. The analysis of changes in land use and natural resources reveals (Lestrelin and Kiewvongphachan, 2017; Phaipasith, 2017):

- a process of deforestation driven by the expansion of cultivation of cash crops and the laying of rural roads;

1. <https://ali-sea.org>.



Figure 5.3. Levers identified to support the agroecological transition in Laos.

- a reinvestment of income from cash crops (maize) in terracing of rice fields, off-farm activities and the education of children (strategies for exiting from agriculture);
- a diversification of agricultural activities towards perennial crops (fruits), livestock husbandry (improved pastures) and, to a lesser extent, towards other annual crops (cassava, Job’s-tears [*Coix lacryma-jobi*], canna) when maize profitability declines;
- the leading role of the private sector in these dynamics, as much concerning access to markets (farming contracts), to inputs (seeds, pesticides), and to services (agricultural equipment) as the financing of investments needed for agricultural production (credit financing of secondary roads to expand production areas).

Identifying windows of intervention

The processes of agricultural transformation take place extremely rapidly and are spatially diversified. The challenge of designing innovative agroecological systems consists of intervening at the right time in the right place. The identification of windows of opportunity, i.e. key moments of intervention during the successive stages of intensification and degradation of agricultural land, has proven to be essential to promote the adoption of agroecological practices.

For example, we have shown that there exist two windows of intervention for the promotion of conservation agriculture in the context of a boom in the cultivation of hybrid maize in Laos (Lestrelin and Castella, 2011; Castella *et al.*, 2016c). The first window corresponds to the initial stage of the agrarian transition, when the producers begin to introduce cash crops into production systems still predominantly oriented towards food self-sufficiency. The second is after the cash-crop boom, in areas that

were long engaged in intensive agriculture and are affected by significant problems of land degradation. Farmers are then confronted by the environmental problems caused by cash monoculture and are more open to the diversification of production practices and systems. Conversely, technical interventions during the expansion-intensification phase of the cash crop are unlikely to succeed with producers in the absence of a strong incentive – or coercive – framework.

Improving intervention mechanisms

The adoption of agroecological practices depends on the farmers' full participation in the planning and innovation processes (Castella *et al.*, 2016b; Lienhard and Lestrelin, 2016). Village communities have thus to be involved in the definition and implementation of territorial projects. The collective exercise leads to a shared vision of the desired landscapes in the medium and long term, which is then translated into an action plan with objectives, achievement indicators, and rules for the use of resources. Every year, the agroecological innovations tested as part of these action plans are evaluated collectively by the various actors (farmers, researchers, extension agents, local authorities, associated private sector). Activities for the upcoming agricultural season are modified and fine-tuned after discussions of the reasons for the successes and failures of the past year.

Researchers and extension workers play a facilitating role in negotiations between farmers and traders to forge more balanced contractual partnerships (for example organic coffee, locally processed soya beans, stick lack produced on the stalks of pigeon peas, value chains development for peas produced in managed fallows). Agricultural technical centres are also involved in the innovation process through the production of planting material and agronomic references (diversified cropping systems, varietal collections) and the provision of technical and training support services to producers.

Finally, monitoring and evaluation systems for the long-term evaluation of agroecological production systems' performance and impacts (quality of life of local populations, ecosystem services, resilience of agricultural systems in the face of climate change) are put in place to sustain the long-term commitment of all the actors of innovation, ranging from the local populations to donors.

Co-designing and co-evaluating practices

Different agroecological innovations are co-designed and tested with the producers according to the priorities defined in the village action plan. They pertain to different compartments of the village landscape:

- reconfiguration of the interactions between cropping and livestock systems, with negotiations of enclosures to better control ruminant roaming and improvement of livestock systems (fodder systems, animal health, improved access to water and stabling);
- support for the protection and intensification of lowlands (e.g. reinforcement of banks, small irrigation equipment, system of rice intensification, composting, off-season diversification);
- promotion of diversified rainfed cropping systems incorporating legumes (e.g. pigeon pea, soya bean, *Vigna* spp.) in association with partner projects, State services and the private sector, for the integration of legumes into local diets;

- conservation of genetic material;
- development of agri-chains (production and local processing of soya beans for cattle feed, production and marketing of stick lack);
- promotion of agroforestry systems (e.g. coffee, medicinal cardamom) in association with the private sector.

The performance of the innovations is analysed with the entire village community through an annual presentation of the results obtained by the farmers and technicians involved (Figure 5.4).

The project’s impact on the resilience of agricultural communities to external shocks is assessed through a monitoring mechanism that combines variables and indicators in order to assess the three identified components of resilience: village community vulnerability to climatic and economic hazards, the individual and collective capacities of adaptation, and agricultural and non-agricultural land uses. Data are collected at different scales (plot, farm and village), and according to a dual approach: diachronic (evolution over time of the variables and indicators for a given village) and synchronic (comparison between villages on a given date).

Building capacity of stakeholders

In the EFICAS project, emphasis is laid on the capacity building of local stakeholders: farmers and technicians in charge of agricultural extension, who are the main

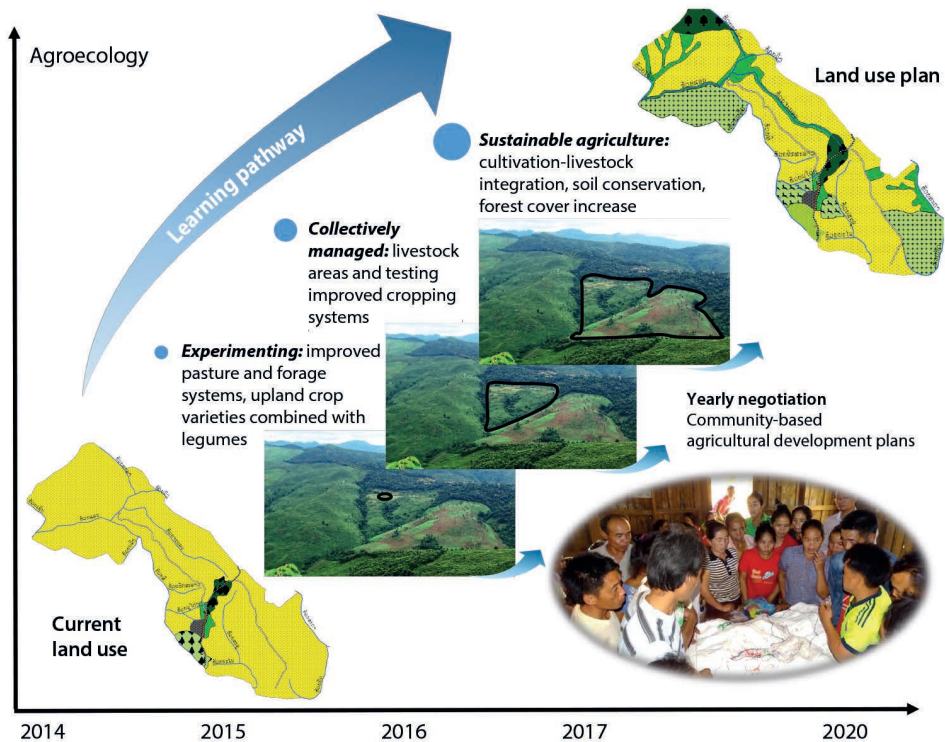


Figure 5.4. Example of a negotiated landscape trajectory (Pouthong village, Luang Prabang province).

actors engaged in the planning, implementation, and evaluation of activities. Technical training sessions conducted by local trainers (composting, forage technologies, system of rice intensification, stick lack production, etc.) make it possible to enhance existing skills. Simulation games are used to explore scenarios of evolution of local practices, discuss issues concerning the sustainability of agriculture, and identify technical and organizational alternatives (for example, the Mahasaly game [Ornetsmüller *et al.*, 2018], the EFICAS game).

In the ACTAE project, the focus is on raising awareness among the wider public (decision-makers, consumers) and on academic training, on the basis of field experiences of research and development projects with, in particular:

- support for the production of teaching material on agroecology for undergraduate and master's level students (Cambodia, Laos) and farmers (e-learning modules in Khmer in Cambodia). In Laos, collaborative work supported by the ALiSEA network between the four main universities (NUoL, Soupanouvong, Savannaket and Champasak) has resulted in the production of four training manuals (agroecology, agroforestry, organic farming and integrated farming) that are now in use by students (bachelor's and master's, between 200 to 250 students per year);
- training in simulation games (Laos, Cambodia, Myanmar and Vietnam). Even though only two training programmes have been conducted so far, the first beneficiaries expressed a great deal of interest. Some partners have incorporated this approach and these tools in their research and development activities (for example, the NGO CISDOMA in Vietnam, CASC in Cambodia, etc.);
- training in using smartphones to record videos in order to document practices, share them among peers and use them as a communication and training medium. To date, 42 people have benefited from this training (innovative farmers, development agents, extension agents) and nearly 40 videos have been produced and disseminated (YouTube, village screenings). These videos help in building up the farmers' self-respect and pride, and encourage the sharing of experiences between actors.

Promoting access to resources and markets

In the EFICAS project, access to resources and markets is promoted through the networking of local and national actors around:

- village seed collections and banks to facilitate the conservation of genetic resources and their exchange with national technical centres and seed companies that are based in Laos (for example Lao Forage Seeds and its network of forage seed producers);
- agricultural equipment tested in the project villages (brush cutters, straw choppers, electric fences, etc.), available on local markets or sold by Laos-based companies;
- exchanges between producer groups and local businesses/traders (coffee, soya bean, stick lack).

In the ACTAE project, regional exchange networks are organized around:

- agricultural practices (production, conservation) and planting material. These networks bring together national technical centres (Laos, Cambodia) and private entities (for example, Echo Asia);

- markets, regional agri-chains (Laos, Cambodia, Vietnam), species that are currently neglected and under-utilized in agriculture but which are essential for the design of diversified cropping systems;
- pilot models of farmer organizations (agricultural cooperative for the production and marketing of natural fertilizers in Cambodia).

Adding value to agroecology products

As part of ACTAE, and more specifically of ALiSEA's Small Grant Facility, several initiatives have been supported to test and document participatory guarantee systems approaches (locally anchored quality assurance systems). This method of alternative certification by peers (which does not automatically lead to a paper certificate) is especially well-suited for agroecology products that target the domestic market (Georges and Ferrand, 2017). It is a low-cost method for creating trust between producers, consumers and other agri-chain actors. These initiatives are being undertaken by different types of actors (producer organizations in Myanmar, private sector in Cambodia, NGOs in Vietnam), with the vast majority of them concerning vegetable products (Cambodia and Vietnam), as also also coffee and fruits (Myanmar). The ultimate goal is to combine takeaways from the various experiments (ALiSEA's, of course, but also FAO/IFOAM and ADB) of participatory guarantee systems in Laos and in the region, in order to produce recommendations for policymakers.

Additional studies on consumer perceptions of agroecology products are under way in Laos, Myanmar and Vietnam (Kousonsavath *et al.*, 2018). These studies characterize consumer demand for these products and make recommendations to policymakers to support the development of the requested products.

Communicating about agroecology initiatives and actors

The agroecology web portal for the Mekong region, ALiSEA's communication and knowledge-sharing platform², offers free access to more than 510 resources, including 53 case studies of agroecological innovations (15 of which are from Laos). The website receives an average of 15,000 views per month. The Facebook page in English³ has 3150 followers and has links to Facebook pages in national languages (Lao, Khmer, Burmese and Vietnamese). ALiSEA's YouTube channel⁴ has 11 playlists and 48 videos. A quarterly newsletter has more than 1200 subscribers (from the Mekong region and beyond) and is a means for sharing and disseminating success stories, lessons learnt, case studies and upcoming events about agroecology in the Mekong region. Since most of these resources are in English, their main users are development practitioners or are from academia and the research community. This is why, in order to reach the producers themselves, a study is under way in Cambodia to better understand their means of access to information (information channels, nature of information sought, etc.). A similar survey has already been conducted in Myanmar where several initiatives have been launched to provide technical information to producers through smartphone apps (Greenway, Golden Paddy, etc.).

2. <https://ali-sea.org>.

3. #AgroecologyLearningAlliance.

4. #ALiSEAMekong.

Video is the preferred medium for the ALiSEA platform to document agroecology initiatives and share the experiences of practitioners (farmers, technicians), and is also the primary means to deliver educational resources. To this end, all the coordinators of the national secretariats have been trained in the use of smartphones to produce videos. The aim is to be able to document the initiatives funded under the Small Grant Facility and the other notable agroecological activities in the region. Ultimately, innovative farmers should be able to themselves document their practices and share videos on social networks.

An online survey of users of the ALiSEA portal (112 responses) indicates that the two most popular uses are to access case studies and training content (technical manuals) and for communications.

Raising awareness amongst the wider public

Public events organized around agroecology have reached a broad audience, including policymakers. Thus, as part of the Luang Prabang Film Festival, the ALiSEA network organized a short-film competition on 'Youth and Agroecology', which received more than 20 entries from the five countries of the Mekong region. The films selected for the competition were made available on Facebook and have had more than 370,000 views, reached more than 1.3 million people and resulted in nearly 20,000 comments and shares.⁵ The screening of the short films selected for the competition was accompanied by an agroecological products fair, a photo exhibition on agroecology in Laos and a public discussion on agricultural production models and their impacts on the food we consume⁶. This public event was part of efforts to raise awareness on agroecological issues among different categories of people in Laos and elsewhere in the region.

Consumer surveys conducted in Vietnam and Myanmar (Asian Development Bank study on perception of agroecology products among 1300 urban consumers) indicate an increased need for awareness-raising campaigns and public events (festivals, fairs, etc.) to promote agroecology and to encourage changes in consumer habits towards agroecological products.

The issue of the role of young people and their relative lack of interest in agriculture has reappeared in the official documents of the Laotian Ministry of Agriculture and Forestry, and discussion groups have been created at the highest level of government on this topic. During the preparatory meetings for the Lao Uplands Conference, held in Luang Prabang from 12 to 14 March 2018, this issue aroused transversal interest and led to the production of various communication material (for example videos, posters, participatory theatre, orientation notes).

5. The selected films are available on a dedicated playlist of Alisea's YouTube channel: <https://bit.ly/2CzuMqV>.

6. The panellists of the public discussion included a representative from the Laotian Ministry of Agriculture and Forestry, a director of the activist think-tank Focus on the Global South (<https://focusweb.org>), the regional network director of The Field Alliance (www.thefieldalliance.org) and a documentary maker specializing in environmental issues. The discussion can be viewed in its entirety at: <https://bit.ly/2CAm6Ai> (accessed 27 February 2019).

Promoting policy dialogue

Two initiatives were jointly conducted by the EFICAS and ACTAE projects to capitalize knowledge and contribute to the formulation of public policies in favour of the agroecological transition.

The Lao Uplands initiative

This effort of capitalization of knowledge initiated by the EFICAS project and its partners⁷ helped:

- reflect on recent transformations and their impacts on upland populations;
- take stock of the main lessons learnt from past and on-going interventions;
- review policy options for a green growth;
- develop a road map with the Laotian Ministry of Agriculture and Forestry and other partners of rural development towards the UN's Sustainable Development Goals.

This collective process has involved most of the national projects and institutions that are interested in agroecology and has raised awareness amongst those who do not use this concept explicitly but refer to the same principles. A forthcoming book will showcase these collective efforts.

LICA: Lao Initiative on Conservation agriculture and Agroecology

The goal of the LICA initiative by Laos is to encourage agriculture ministries in ASEAN member countries to define and adopt a common position about agroecology.

It is a matter of agreeing upon:

- a common definition of the agroecological transition;
- flexible and low-cost institutional mechanisms to mobilize and build up existing expertise in agroecology in the Asean region;
- tools to foster cross-sector initiatives and policies (in the areas of communication and education, agriculture and agro-processing, financial and commercial mechanisms, marketing and labelling of products of agroecology, etc.) based on partnerships between the public and private sectors, producers and consumers.

Finally, in order to facilitate the appropriation by all concerned parties, this initiative supports extension approaches in four areas in particular: agroecology, agro-entrepreneurship, participatory approaches, and territorial approaches.

TWO ACCOMPANIMENT APPROACHES: WHAT LESSONS LEARNT?

Both the approaches described in this chapter are intended to promote the agroecological transition in Laos. They are clearly complementary, but nevertheless each has its own limitations in terms of implementation and medium-term impacts.

In the EFICAS project, the landscape and participatory approach promoted is difficult to implement in the socio-economic conditions of the ethnic minorities of northern Laos and the potentially conflicting interests of the government and

7. <https://laouplands.org> (accessed 27 February 2019).

agricultural communities (support for foreign investment through the allocation of agricultural concessions *vs* support to family farming). This approach is also complex to implement since it relies heavily on facilitation skills, in which extension agents are not yet trained for the most part. However, it remains the best way to build up skills and to strengthen the decision-making and management capacities of extension agents and the farming communities concerned.

In the ACTAE project, the transaction costs associated with its regional management are significant and raise the question of the financial sustainability and governance of such tools after the end of project funding.

The resources mobilized to act on the different levers of the transition (Figure 5.3) and the actual duration of the interventions (three years) remain largely inadequate given the challenges.

In Laos today, the agroecological transition still corresponds to a sum of initiatives whose impact is yet difficult to measure. To engage in a real transition, it is necessary to continue the activities undertaken at the various levels of intervention by concentrating on the following objectives.

A territorial approach

Participatory land-use planning, the promotion of innovative agroecological practices, and the negotiation of rules related to the use of resources and the marketing of agricultural products must be combined in a common framework in order to overcome the difficulties faced by these approaches when they are implemented independently of each other. For example, the promotion of more diversified cropping systems, incorporating the cultivation of crops after the main crops (i.e. relay crops), is more likely to be successful if it includes village-level negotiations to better control animal roaming (Castella *et al.*, 2016a).

Learning loops in a collective engineering process

Development does not follow a linear trajectory. Village development plans should be discussed and renegotiated regularly (ideally annually) by the entire community in order to be able to adapt to:

- unpredictable events (climatic hazards, pest attacks or market opportunities);
- behaviour that deviates from initial plans (for example, opening up of cultivated plots on protected forest areas, crop damage caused by the roaming of domestic animals despite the adoption of collective rules, etc.);
- the evolution of local policies (for example promotion by local authorities of goat farming, coffee or rubber plantations).

Diversified and multifunctional agricultural landscapes

A diversified landscape is more resilient to external shocks than a uniform one. The capacity of the entire production system to resist economic or climatic shocks, or to recover from them, is strengthened by the diversity of agricultural activities, the use of agroecological practices, and the diversification of income-generating activities.

The diversification of landscapes and income will require:

- a revision of the indicators used to assess agronomic performance (currently measured on purely economic criteria: area × production × production per unit), in order to include ecosystem services (e.g. biodiversity, quality of life) in agricultural production objectives;
- policies promoting the recognition and preservation of, and access to, diverse genetic material through mechanisms involving farming communities, government services and the private sector;
- the provision of subsidies, the tax exemption of equipment and agricultural inputs required for the diversification of agricultural practices (for example, direct seeding drills, legume inoculants, tools for biological pest control).

Building up the capacity of extension agents

For an effective agroecological transition, extension agents have to play a facilitating role in the processes of innovation and negotiation between actors. The use of simulation games makes it possible to better support the actors in the participatory definition of agroecological scenarios, and subsequently in the evaluation and the implementation of these transformations. Extension agents have to be important interlocutors of the private sector in the development of agroecological value chains and the production of ecosystem services: increasing social entrepreneurship, private-sector funded vocational training programmes, with a particular focus on training of and support for young farmers. It is therefore a matter of investing in the creation of educational materials for different categories of actors (farmers, extension workers, students) based on new technologies (e-learning, smartphone apps).

Creating a favourable institutional environment

To innovate is to take risks. Actors who commit to agroecology take on significant risks, since future returns remain hypothetical expectations. It is therefore necessary to support farmers and traders confronted by uncertainties and risks through original mechanisms of financing, incentives and insurance (Figure 5.5).

Finally, it is essential to make consumers aware of the benefits (health, environmental and economic) of consuming products from agroecology because it is ultimately they who will accelerate and finance the agroecological transition once the process reaches its tipping point. Agroecology can become a key element of sustainable development only when consumers create a demand for its products. To this end, it will initially be necessary to create certification and value-addition methods for these products, adapted to the Laotian context (such as the participatory guarantee system). An important prerequisite – necessary but not sufficient – for setting up such funding mechanisms is a strong political message in favour of agroecology.

Only the implementation of a wide-ranging and coordinated package of measures for farmers, agricultural extension services, the private sector, consumers and policymakers will allow the goals we have outlined to be achieved on a scale sufficient enough to bring about the hoped-for agroecological transition in Laos.

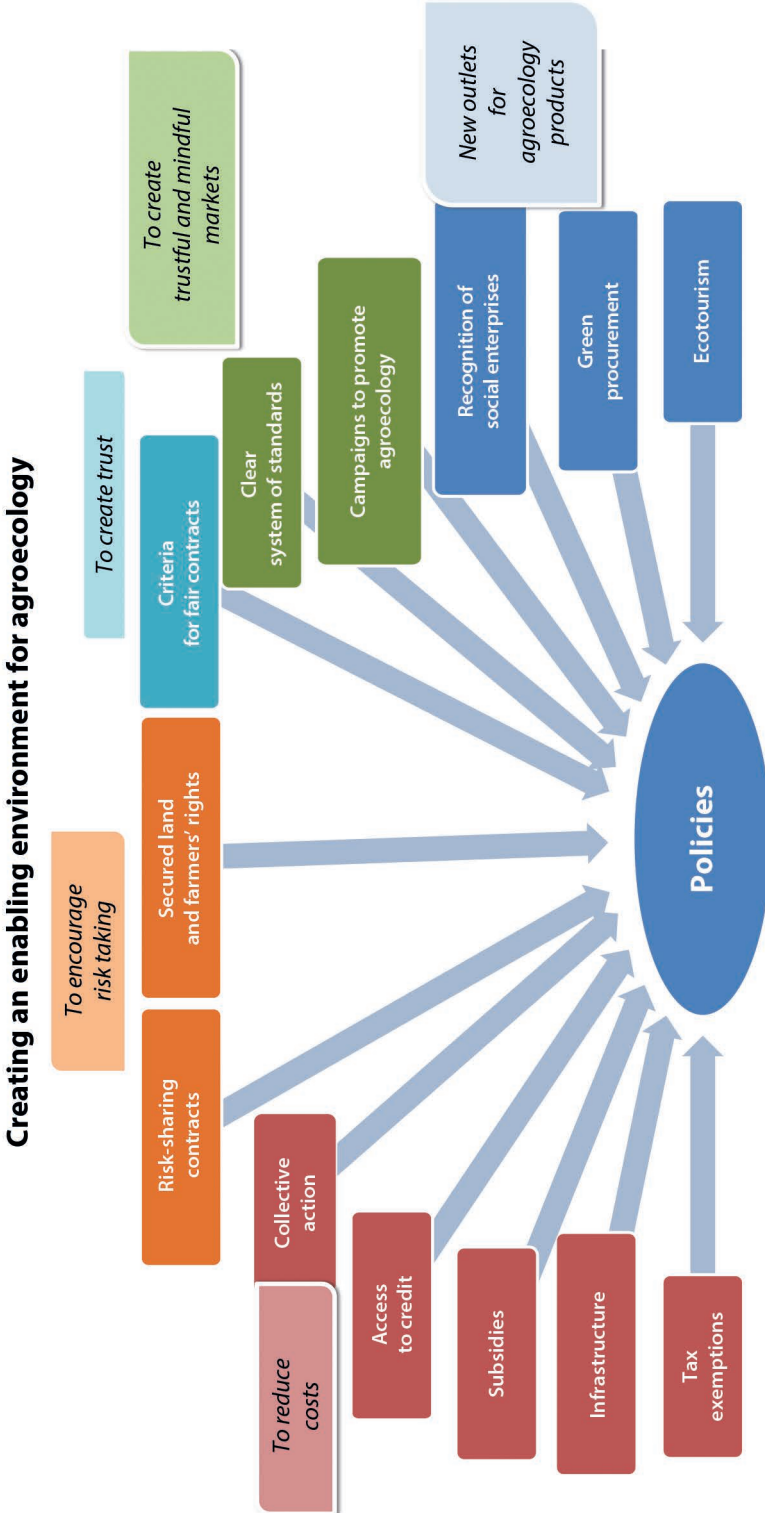


Figure 5.5. An institutional environment favourable to the agroecological transition.

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