



Proceedings of the National Workshop on Agroecology Transition 2nd and 3rd June 2016, Vientiane, Lao PDR



Supported by:



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I. WORKSHOP WRAP UP

1. Introduction

The 2 days’ workshop has been very intense and very fruitful paving the way to some common principles, common understanding and common expectations about agroecology. There are still some works to do in order to define in an encompassing way agroecology but it is on the right track.

The workshop has offered room for a lot of experience sharing from Laos. It has enabled to start knowing each other and to present the regional dynamic that ACTAE intends to support. It also allowed identifying some key challenges faced by farmers and that are hindering broader promotion of agroecology.

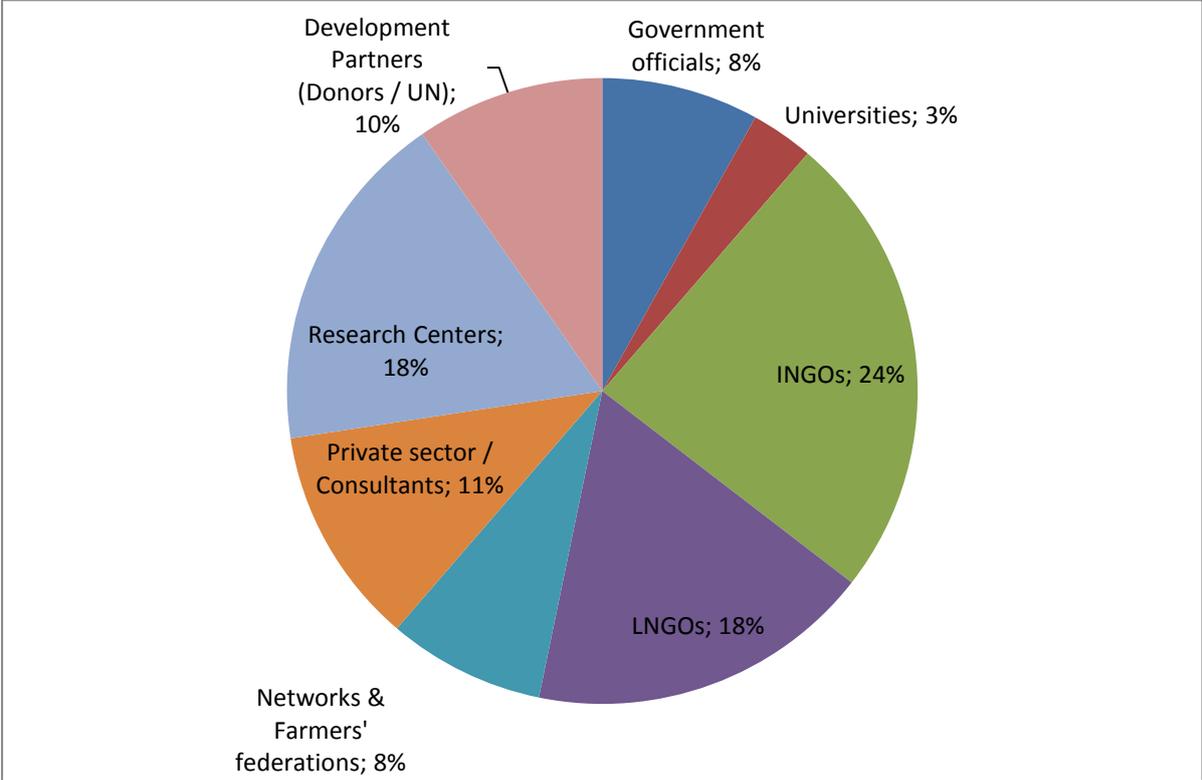
This 1st national workshop was instrumental in laying down the foundations of a national Lao network that will partake in a regional Agroecology Learning Alliance, bringing together all stakeholders active in the field of agroecology.

It was the first of its kind and it is expected that others will follow to keep on networking, sharing experiences and best practices and ultimately promote agroecology transition in the Mekong region.

2. A short account of the 2 days’ workshop

The 1st national multi-stakeholder workshop addressing Agroecological Transition in the Mekong Region, and more especially in Laos, was held on the 2nd and 3rd of June 2016 in Vientiane capital, Lao PDR. It was organized by CIRAD and GRET as part of the inception phase of ACTAE project, funded by the French Agency for Development (AFD).

It brought together **62 specialists and practitioners** from national and international NGOs, research and universities, farmers’ and government agencies, development partners and private sector actively working on sustainable agriculture sector in Laos (see participants list in annex).



It aimed at sharing knowledge, information and experiences between agricultural development stakeholders, more especially through:

§ The presentation of ACTAE program with its 2 components:

- Conservation Agriculture Network in South East Asia (CANSEA)
- Agroecology Learning Alliance in South East Asia (ALiSEA)

§ The discussions of initial findings from the 1st study carried out in the framework of ALiSEA about *Lao agroecology stakeholder mapping and policy framework review* (report available on ALiSEA website: <http://ali-sea.org/aliseaonlinelibrary/situation-review-of-agroecology-initiatives-stakeholders-and-networks-in-lao-pdr/>)

§ The introduction to the online ALiSEA knowledge management and experience sharing platform on Agroecology (<http://ali-sea.org/>) and its Facebook page (<https://www.facebook.com/AgroecologyLearningAlliance/>)

§ The presentation of 12 case studies from various stakeholders

§ Working groups building upon lessons learnt from the case studies and ACTAE presentations resulting in

- A brainstorming about main agriculture challenges faced by farmers and formulation of recommendations for promoting agroecology
- A shared understanding and common vision of agroecology and a sound and accurate translations (in national language) of the concept of agroecology
- A preliminary brainstorming about governance and structure for a future national platform addressing agroecology transition

2.1 Day1: Setting the stage

Agriculture at a crossroad and the urgent need for a shift towards agroecology

The first day of the workshop provided room for presenting few overall reflexions about agroecology in general and some concrete illustrations of past / ongoing agroecological initiatives in Lao PDR. It provided some lessons learnt and supported collective discussions regarding agroecology promotion and dissemination.

First of all, to have a shared understanding regarding why agroecology is necessary today, it was reminded the Green Revolution's limits and negative impacts, the increasing importance of climate change and the current ecological crisis that agriculture and small holders in particular are facing.

These elements call for alternative cropping systems, and agroecology provides convincing and evidence-based alternatives to the current agrifood systems.

It was mentioned that agroecology seeks to produce diversified and high-quality food, reproduce – or even improve – the ecosystem's fertility, limit the use of non-renewable resources, avoid contaminating the environment and people, contribute to the fight against global warming.

In addition, it was emphasized on the fact that agroecology is not new, relying on empirical learning processes and knowledge transfer from generation to generation. Meanwhile, it can be also seen as a modern approach for agriculture, building on both traditional empirical knowledge and scientific research for a better understanding and use of ecological processes operating in the farming systems.

Thus, Agroecology provides innovative concept and approaches capable of tackling issues related to food security / sovereignty, and mitigation & adaptation to climate change.

In line with the need for concept clarification, historical principles of agroecology (Altieri and al. 2005) were reminded since they provide a sound basis for addressing most of technical issues related to food production

- **Enhanced recycling of biomass**, optimizing nutrient availability and balancing nutrient flows.
- **Securing favorable soil conditions** for plant growth, particularly by managing organic matter and enhancing soil biotic activity.
- **Minimizing losses** due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover
- **Species and genetic diversification** of the agro-ecosystem in time and space.
- **Enhanced beneficial biological interactions** and synergisms among agro-biodiversity components thus resulting in the promotion of key ecological processes and services.

To put it in a nutshell and to quote some of the work from A. Wezel (2009), Agroecology can be seen as a set of practices, a scientific discipline and a social movement.

A broad range of agroecology practices found in the region and in Lao PDR: quick stakeholder mapping and few case study based illustrations

A presentation from Ms. Phengkhouane Manivong, independent consultant hired by ALiSEA, of her main findings regarding Laos agroecology stakeholder mapping and policy framework review, introduced a session of the workshop dedicated to take stock of the multitude of agroecology initiatives implemented in Laos.

6 sets of practices most commonly found have been identified during a feasibility study conducted by GRET in 2013 across the Mekong Region: System of Rice Intensification (SRI), Integrated Pest Management (IPM), Organic Agriculture (OA), Integrated Farming System (VAC as its acronym in Vietnam), Conservation Agriculture (CA), Agroforestry (AF)

As far as Laos is concerned, most of these practices are implemented across the country. It was especially mentioned a boom for Organic Agriculture since 2014 with local (LCB/MAF) or international standards for certification according productions and markets and a high involvement of private sector and farmers' groups. In addition, it was also highlighted initiatives promoted by I/LNGOs or Research when facing problems (crop and land degradation for instance) or new market opportunities.

In relation to the 5 historical principles of agroecology (presented above) and/or to the 6 most commonly found "set of practices" in the Mekong region, 12 cases studies were presented by various stakeholders according to 3 main topics (see detail list of case studies in annex):

- Social & technical dimensions of Agroecology (3 case studies)
- AE products : quality control, certification, organic agriculture (4 case studies)
- Experience from the fields: examples of AE practices and approaches implemented in Laos (5 case studies)

In addition, one video from SAEDA was presented at the end of the 1st day. It was a farmers' testimony involved in "Sustainable Rice System" (SRS) Development.

In terms of diversity of stakeholders, there were 2 presentations from Government representatives, 8 from INGOs and International Research Centers' representatives, 1 from Farmers' cooperative and 1 from private sector.

Such presentations were instrumental to feed the collective brainstorming on Day 2. In addition, they stimulated some preliminary exchanges between the different stakeholders.

Most of the remarks addressed the following issues:

- How to ensure “agroecological” quality for the products?
- Need to foster behavior change at different level: producers, traders and consumers... but also policy makers
- Need for dissemination / for farmers involvement
- Need for land tenure security
- Decisions from the government (eg Decree on CA) but what’s happen in practice?

In addition, in order to support an agroecological transition, it was highlighted several issues that should be taken into consideration or improved:

- Education of farmers taking into consideration their conditions and context (social and economic situations)
- Existing Pest & Disease Management (IPM) but still a high use of pesticides and pesticide residues in products
- Important erosion / degradation of soil fertility
- Supporting products quality / market opportunities
- Needs for more communication / lobbying
- Need for policies and ... efficient implementation
- Success of AE practices dissemination conditioned by improvement of incomes/benefits for farmers

Overall, it was acknowledged a good expertise at several levels: Academia, Research institutions and NGOs (Local& International), Department of MAF... with different means available such as soil analysis lab (DALaM) or availability of organic fertilizer (by product from private sector factories).

A specific comment was made addressing Conservation Agriculture (CA) development in Laos. Over the past 10 years, researchers around the world have debated and tested about Conservation Agriculture and its relevancy. In Laos, CA was approved and supported by the government. CIRAD is the main promoter until today. If one looks at the policy, Lao PDR has supported policies for CA, but however, it can be pointed out that CA dissemination at farmer level has been (and still remains) challenging. Overall, CA remains mostly at demonstration plots and experimental sites level, with low adoption by farmers. Therefore, it would be needed to put more emphasis on the inclusion of social-economic aspect while promoting AE practices such as CA.

Lastly, although it was acknowledged a good coherence of all the case studies presented about agroecology practices, it was also highlighted that many approaches have been implemented for quite a long time already without providing much impact on the ground. However, 2 main changes can be observed nowadays compared to a decade ago:

- The toxicity of the transition with farmers moving from a traditional production system to new economic / social systems → creation of new windows of opportunities for high value cash crops on short term... but potential disaster for health and environment on medium-long term
- A shared interest amongst the stakeholders for bridging and synergizing initiatives: strong networking involving all stakeholders (farmers, research, training, extension, NGOs, donors... Policy makers)... For dissemination of efficient practices

2.2 Day 2: Working groups and brainstorming about agriculture challenges and a future governance for ALiSEA

Addressing agriculture challenges and agroecology principles

4 working groups were set up gathering stakeholders from different nature (Government officials, LNGOs, INGOs, Private Sector, Research, Academia) in order to brainstorm about challenges currently faced in agriculture and provide recommendations:

- Agriculture production (soil fertility, pest and disease management / control, water management, access to good quality seeds...)
- Dissemination of innovations / extension approaches
- Access to market (certifications, incentives for quality product)
- Enabling environment / policy making

The following section presents the main feedbacks from the different working groups

Group 1: Agriculture production

Resources	Problems in crop production	Solutions in AE
Soil	- Low soil fertility - Low soil quality (sandy, salinity, acidity). Only top soil fertility.	- Intercropping legume crops with food crops - Rotation with green fertilizers / Improved fallow systems - Production of organic amendments, like compost or worm compost
	- No use of crop residue (burning of the mulch) resulting to bare soil not protected against weather elements	- Mulching - Improved fallows to maintain permanent soil cover
	- Unsuitable agricultural practices, like slash-and-burn, ploughing on slopes, mono-cropping	- DMC (Direct seeding Mulch-based cropping systems) - Crop diversification, intercropping
	- Contamination of soil with chemical inputs	- Use of organic fertilizers and pesticides - Integrated pest management:
	- Low access to organic fertilizer to renew fertility	- Intercropping and/or rotation with green fertilizers
Plant	- Locust invasions	
	- Plant pests and diseases	- Integrated pest management: Production of bio-pesticides using local material, crop association with repulsive, crop rotation with different families and organs - Wild animal biodiversity protection to preserve natural predators to rats, birds and insects
	- Roaming animals damaging crops	- Green Fence to protect the crops - Land Use planning: pasture area - Animal raising in pens
	- Weed control problem	- Cover crops - Mulching
	- Low access to organic fertilizers	- Animal raising in pens - Production of organic amendments - Rotation / association with green fertilizers
Water	- Lack or excess of water	- Water-saving techniques (mulching, bowl farming), for lack of water - Selection of crops/varieties adapted to the climate - Land Use planning: Forest protection and reforestation activities
	- Contamination of water by bacteria and chemical inputs	- Production / use of organic amendments and pesticides
	- Lack of irrigation infrastructures	- Support to irrigation system implementation
Animal	- Poor animal feed quality and quantity	- Land Use Planning: set-up of animal pastures - Production of nutritious-feed specific to animals (ex: stylosanthès)
	- Unsuitable fields for big animal pasture	- Land Use Planning in a participatory way
	- Animal diseases / Poor health control	- Veterinary service access (Village Veterinary Agent + village pharmacies)

		<ul style="list-style-type: none"> - Vaccination campaigns - Animal raising in pens and pastures for health control and better nutrition
Landscape	- Competition with agribusiness for land	<ul style="list-style-type: none"> - Land policy - Land Use Planning
	- Lack of lowland in the North → high steep of slope for agricultural fields	<ul style="list-style-type: none"> - Progressive terraces - Crops following contour lines / anti-erosive green strips - Agroforestry

Group 2: Dissemination of innovations / extension approaches

The main finding of this group was summarized in the main problems and recommendations for alternative. The main problem consists of:

- Lacks of understanding of policies/lack of clarify at the local authorities' level
- Lack of resources and capacity at local level
- Lack of coordination from the central to the local level
- Top down approach for extension. This system leads to a lack of farmer ownership in project implementing in the local level and resulting in a limitation of sustainability of project implementing. All project work is dependent on the project cycles.

Recommendation

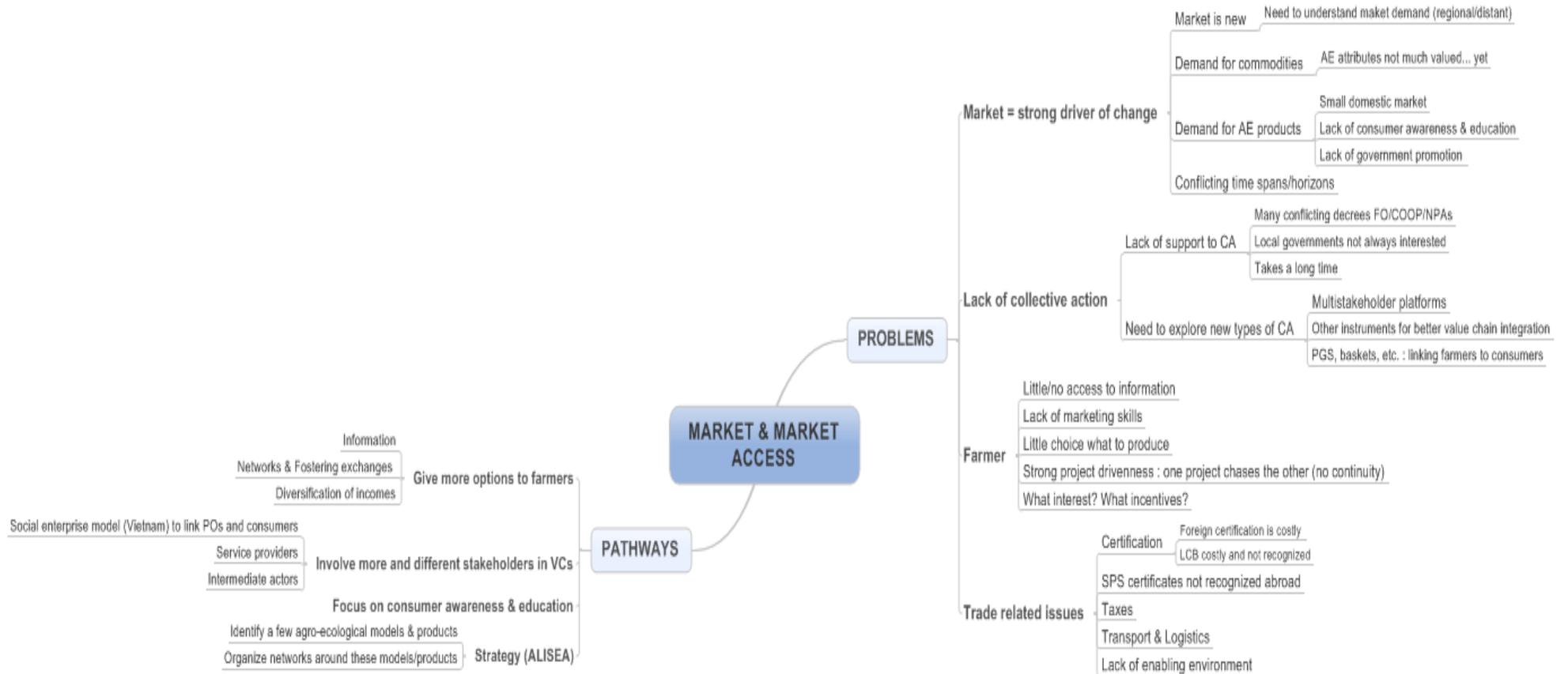
For recommendations the group proposed to have:

- Farmer to farmer exchange which facilitated by local government. The project also should be owned by the local authorities which will help to increase the ownership of farmers and local government
- Considering the whole value chain and market access
- Long term village level engagement and follow up
- Facilitating emergence of local farmers/stakeholder organizations

Group 3: Market access

The main finding of this group were summarized in a mind map as below, highlighting

- On one hand the main problems faced by farmers to access market and
- On the other hands some pathways to address / overcome them



As part of the main recommendations / pathways, we can point out the following ones:

- To give more choices to farmers through market information system for instance and to let them know that there are other options than unsustainable mono-cropping practices
- To support Small and Medium Enterprises that are “agroecologically driven”
- To look at success stories and disseminate case studies (Agroforex, CPC...)
- To identify few quality products on which we can bring together and support all the different stakeholders

Group 4: Enabling environment

1. Promoting a new vision for the future of farming in Laos

According to the group, the problem is not a lack of suitable policy. Lao PDR has plans, strategies and regulations that could enable agroecology. The problem is that these policies are not implemented. Why is that?

Two interrelated reasons:

- Firstly, the governance context
- Secondly, local decisions are based on short-term gains and do not value the future of farming.

For AE to succeed, it is needed to valorize the work of farmers who are using sustainable practices. The economic, social and environmental benefits (short- and long term) of AE need to be communicated in a convincing manner at all levels from rural youth to political leaders.

Recommendations

- a. We need research, cases, and dialogue about new metrics for measuring progress in the agriculture sector.
- b. We need mass communication efforts (video, radio, internet etc.) to promote the value of farmers and farming. Not just promoting AE practices, but giving greater respect to the crucial roles of rural people in development.
- c. Related to a & b, we need to make a concerted challenge to the existing narrative about agricultural development in Laos, which creates a negative image of farmers and promotes unsustainable practices.
- d. In implementing these recommendations, the ALiSEA network in Laos must be outward looking. We need to work together to inform and persuade others... not just internal sharing.

2. Promoting secure land tenure, as a precondition for agroecology

Weak tenure security is a constraint in the empowerment of rural communities towards agroecology. Without secure long-term user rights, farmers will take a short-term view of land management.

The relationship between land tenure and the benefits of AE needs to be examined from a collective point of view, not just an individual perspective.

Traditional patterns of Community Based Natural Resource Management (CBNRM) provide one starting point on which to develop new forms of collective action, such as farmer groups and cooperatives.

There are many past projects and studies related to land tenure. The AE network does not need to repeat this work, but can learn from it.

Recommendations

- a. We need to have a strong connection between the AE network, Land Issue Working Group and other initiatives such as MRLG, and the GIZ pilot activities in Huaphan province.
- b. Research is needed about the relationship between tenure, the adoption of AE practices, and the success or failure of CBNRM. In particular we need to identify success factors.
- c. Good cases need to be brought to the national level... possible through other platforms.

Conclusions

Linking identified challenges/constraints faced by smallholders, we can identify few overall key agroecology principles that could offer some way forwards such as:

1. **Better use of local and available resources:** soil fertility, seed, cropping system
2. **Sustainability:** develop long term approach for balanced ecosystem
3. **Adaptability and flexibility to local context:** agroecology practices should NOT be implemented as tool kit but need extension workers to adapt their recommendations
4. **Farmers first:** at the center of the decision by capacity building reinforcement (knowledge intensive), technologies development, empower them to carry an approach, to get organize to carry collective action
5. **Enhance diversity** in terms of economic and ecological aspects in order to foster resilience

Agroecology approach supports advocacy for changing behavior from farmers to policy makers level and encourages building linkages among stakeholders (such as between farmers and academia for instance).

In terms of definition, several were proposed and the ALiSEA Lao working group has been tasked to propose a consolidated and shared version as they are:

- 1) AE is an agricultural development suitable for present and future with guaranty over sustainability, safety, and justice
- 2) AE is a system / approach that provides small scale farmers with sustainability, good health and environmental conservation
- 3) AE is an agricultural production that helps having sustainable land management
- 4) AE is a friendly agricultural production system in regards to environment, social and economics dimensions

In translation to Lao, each group generated unique and clear terms as they are:

- 1) Eco Agriculture (ກະສິກຳນິເວດ)
- 2) Technical ecology (ເຕັກນິກນິເວດ)
- 3) Future farming (ກະສິກຳສຳລັບອານາຄົດ)
- 4) AE is a system / approach that provides small scale farmers with sustainability, good health and environmental conservation (ລະບົບນິເວດກະສິກຳເພື່ອອຳນວຍໃຫ້ຜູ້ຜະລິດຂະໜາດນ້ອຍຢູ່ທ້ອງຖິ່ນມີຄວາມຢູ່ດີເປັນສຸກແບບຍືນຍົງ ແລະ ຮັກສາສິ່ງແວດລ້ອມ)

Addressing governance and structure features for ALiSEA Laos

✓ **Experience sharing on past and current involvement in existing networks**

The discussion highlighted the need to clarify the different terminologies = forum, network, platform, learning alliance.

What is ALiSEA?

- A Network / platform (both terms are synonymous)
- A learning alliance as a group of people with different background, sharing same goal, interested to learn and share among each other
- A forum as public open space to allow free discussion

A platform allows:

- To share and exchange experience/knowledge towards a common goal that members want to reach together;
- To develop common advocacy policy to address to policy makers;
- To share information, findings from other organizations, to facilitate the dissemination of good experience and innovations.

In Laos several active networks have been identified and mentioned as working on agroecology research and development:

- 1) Land Issue Working Group (LIWG)
It has a secretariat; it commissions reports and manages a website. It is represented in the sub sector working groups. It plans to meet with the National Assembly to discuss about land issues.
- 2) Subsector Working Group Farmers and Agribusiness / Agrobiodiversity
- 3) Responsible Agricultural Investment Working Group (supported by MRLG project and facilitated by VFI)
- 4) Lao Organic Agriculture Forum (LOAF)
It meets once a year and bring together all stakeholders regarding organic sector
- 5) Lao Farmer Network
It organizes yearly meetings (but has LFN committee meetings every weeks), study tours for farmers in each province. It supports a market information system. It has tried to establish a market outlet for LFN members (but not successful to date).
- 6) Learning House for Development / Lao CSO Network
- 7) Online Platform (Lao FAB, Lao44, LaoLink)
- 8) Pesticide Action Network Asia and the Pacific (PAN-AP) : It involves in Laos CCL, CARE, MHP, SAEDA and MAF.
- 9) Lao Fair Trade

What are the requirements to become a member of ALiSEA?

ALiSEA is an open coalition of a wide diversity of stakeholders sharing the same vision and willing to promote agroecology. ALiSEA wishes to be member driven and provide services to its members.

How ALiSEA works?

In this regard, the project focuses on: 1) strengthening knowledge and experience sharing among agroecological initiatives and actors; 2) increasing visibility and credibility of agroecological movement towards policy makers and consumers; and 3) scaling up the development and adoption of agroecological practice among farmers.

One mentioned the issue of networks when raising funds for implementing actions since it could create some sort of competition between the network itself and its members.

The main obstacle of getting people actively involved is that often people are busy with too many meetings. It is important to reduce the amount of meetings and to have focused discussions to keep the interest high.

There is a need to think about the network interaction modalities. In some countries, networks are active without meetings.

Different level of interactions could be anticipated:

- Online discussions
- Monthly drinks (Green drinks)
- Quarterly meetings / study tours
- Videos
- Collective campaign actions
- Small grant facility
- Annual forum

The network should target both Organizations and Farmers.

In regards to Farmers involvement, it is important to assess how to get information accessible and understandable by them. The platform needs to raise awareness among farmers, to increase visibility through documenting farmers' testimonies, sharing videos, broadcasting documentaries on TV etc. The participants propose to include the Farmer Organization and researchers into the AE network for sharing experience on AE implementation.

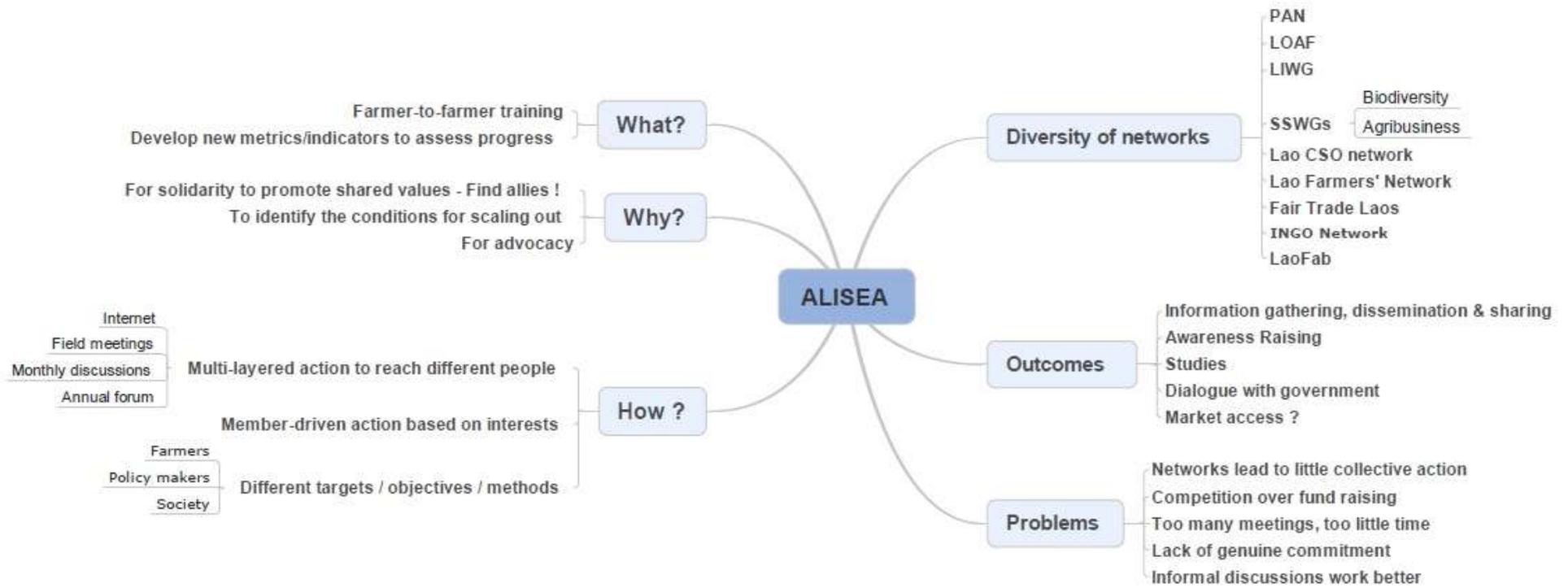
✓ **What are the expectations of the stakeholders towards their participants to ALiSEA network?**

Several ideas and suggestions were proposed by the participants such as:

- Networking / Access to information and joint research
 - Getting access to information to improve ongoing projects
 - Sharing lesson learned and experiences, ideas, and market information
 - Supporting & facilitating participation in regional events
 - Inviting academic people from the institutes of agriculture and young researchers to participate the network

- Supporting action aiming at bridging land tenure and interest in AE practices, securing rights for communal lands
- Supporting research on linkages between land and AE since different forms of tenure rights might impact agriculture practices
- Supporting / Fostering collective actions
 - Supporting farmers to farmers meetings / exchanges since it is the most efficient way to share knowledge
 - Organizing trade fair in Vientiane
 - Develop new sets of indicators for valuing the positive impacts of AE bringing research and development practitioners together
- Conducting advocacy / awareness campaigns
 - Solidarity: to have more people speaking about the same idea / to have allies to conduct advocacy together
 - Organizing / facilitating study tours for policy makers
 - Raising awareness about AE across the region for all stakeholders
 - Raising awareness about consumer protection since it is not clear in Laos
- Increased opportunities for accessing co-fund for ongoing and future projects / initiatives

A mind map (kindly drafted by Dr Isabelle Vagneron), summarizing the discussions regarding the emergence of a national platform in Laos to address agroecology promotion, is enclosed hereafter.



2.3 A contribution to the way forward...

✓ A first working group formed

At the end of the 2 days' workshop, a **first working group** of 4 volunteer members have committed to contribute to the elaboration of the **structure of the future Lao Agroecology Learning Alliance** including:

- 1) SAEDA (Sustainable Agriculture and Environment Development Association)
- 2) Helvetas / LURAS project (Lao Upland Rural Advisory Service)
- 3) SODA (Social Development Alliance Association)
- 4) VFI (Village Focus International)

In addition to these organizations, it could be anticipated that Agrisud and GCDAs would join the working group since their representatives were not part of our meeting but involved in the discussions about CANSEA.

Such working group will be tasked for providing inputs / feedbacks on a preliminary draft for a shared vision, common objectives and a member driven governance for ALiSEA Laos.

In addition, they will be kindly requested to provide some support for identifying resource persons / national experts (independent consultants, academics, researchers...) in the field of agroecology who could be involved in the grant selection committee for ALiSEA Small Grant Facility that will be launched at the end of June.

Such national experts should be recognized and motivated scientists and development practitioners open to the wider "agro-ecological transition" approach promoted by ALiSEA. They should not have any conflict of interest and therefore they should not be entitled or willing to submit proposal to ALiSEA Small Grant Facility. They should help bridging scientific /academic communities with development practitioners.

✓ Launching the small grants facilities

2 Small Grant Facilities will be launched shortly with different objectives as described in the PowerPoint (available on ALiSEA website shortly):

- One managed by CIRAD, aiming at supporting CANSEA members and amounting 320 000 Euros
- One managed by GRET, aiming at supporting ALiSEA members and amounting 210 000 Euros

ALiSEA Network will provide around **22 grants** for **2 years** and **4 countries** (Myanmar, Cambodia, Lao PDR and Vietnam). Grants will preferably be proposed as co-funding, with a **maximum of 10,000 USD**. The objective of the SGF is to provide means to address the issues related to agroecology dissemination, production, market access. It aims at fostering knowledge generation and sharing.

In order to avoid having a too diversified range of proposals within the SGF, priority will be given to proposed applications that will tackle the issues raised during the different national workshop.

As for Laos, 3 main sorts of actions could be identified:

- Raising awareness of all stakeholders in regards to AE
- Developing / supporting mass communication and advocacy regarding AE
- Developing a new narrative that insists on the future of farming (and the existence of a bright future in farming)

ALiSEA SGF will be launched at the end of the 4 National Workshops on Agroecology Transition in Mekong Region, around June 2016. All details information will be displayed on ALiSEA website.

Interested stakeholders should send a 2 pages concept note with an obligation to produce **2 short “agro-ecological transition stories”** and a brief narrative and financial report.

The concept note should be preferably written in English. Specific support through ALiSEA national facilitator, Dr Saythong Vilayvong, could be provided to grass root organizations that could write their concept note only in Lao language.

✓ **Learning and sharing events: organizing collective events in the coming months...**

Location of the events should be taken into consideration since it would define the target audience. Events should not focus only on Laos; it is needed to consider field trips for farmers at both national and regional levels to promote local products and biodiversity.

Actions addressing consumer’s awareness through NPAs / Lao institutions should be considered since there is a lack of consumer protection in Laos.

Several kinds of events could be considered according to the target audience and the message that needs to be disseminated:

- Joined event for the World Organic Day (22nd of September 2016)
- Organizing Farmers to Farmers Exchange
- Thematic workshop bringing together scientists and development practitioners in order to develop new performance indicators regarding agroecology impacts (synergy anticipated between ALiSEA and CANSEA network)
- Workshop (MAF and SAEDA) on upgrading regulation of pesticide use (from regulation to decree)
- Developing a simulation game addressing pesticide use at regional level (CIRAD/CANSEA)
- Joint study on pesticide use patterns & drivers of pesticide use (and roadblocks to biological control, agro-ecological approaches and pesticide-free management) at national and regional level
- Joint study to analyze agricultural policy

Annexes

II. SYNTHETIC REPORT OF RESEARCH WORKING GROUP, DR FRANK ENJALRIC, CANSEA COORDINATOR

Regarding research orientations in accordance with CANSEA component and previous discussions on agroecology and enabling environment for sustainable agricultural production, the “Research working group” discussed on i) constraints identification, ii) research topics.

The exchanges have been then completed during the wrap up session, and others subjects related to others working groups were mentioned.

i) Constraints faced for sustainable agriculture

- Soil fertility: It is the first one expressed by the participants is about soil fertility. Farmers faced regularly constraints of yields decrease.

Usually the answer from institutional research leaded by MAF (DALaM) is to monitor agricultural technics in accordance with soil ability through land zoning and GIS technics. The aim is to tell the farmers what to plant and where. Suitability maps are considered as an issue. This approach is clearly a passive point of view in opposite of agroecology and CA practices able to adapt and modify the agro-pedological conditions of production.

DALaM take reference on their work already done on lowlands, mainly for rice.

- Agricultural practices seem to be often non adapted with overuse of chemicals and pesticides
- Main targets should be farmers’ organizations, large NGOs, dissemination services... and based on CANSEA experience, it has been agreed that development activities are aimed to smallholders, all smallholders.
- The question of the self-interest of farmers to apply Agroecology has been raised due to the fact that health and food safety, environmental services, biodiversity are much less considered that economic benefit. Farmers involved in subsistence based farming systems need more support than research, and research activities will have to adapt objectives and means accordingly.
- Livestock development. Farmers faced problems of poor feeding and animal diseases, mainly due to free grazing, roaming and lack of managed pastures.

ii) Research topics identification

- First point to be raised is the necessity to link biophysical and social research. As a matter of fact, dissemination doesn't seem to be a technical issue.
- The process of decision making in relationship with key actors in the community, and work and labor organization is a real issue. This could be a mean to make the link between Agroecology research and activities (extension) implementation.
- Once again, the enabling agricultural production environment appears to be the key for innovative practices dissemination.
- Different research topics have been suggested as needing research and financial support:

- Metrics: Research on agroecology has to use indicators at social, economic and biophysical levels. Set of indicators will be useful in accordance with the users and the targets (dissemination staff, policy makers, funders, ...)

To link indicators and AE technics added value is necessary to convince different stakeholders. Valuation of natural resources such soil quality, water, and biodiversity must be taken in consideration.

Such new metrics adapted to uplands, lowlands for permanent cropping or rotation cropping systems will be useful to support i) agricultural development enabling to qualify the technics, ii) policy makers, iii) improving agricultural production environment.

- Integration and assessment: Livestock and cropping systems must be considered in the framework of the farm, even the territory.
- Innovative technics: Agroecology based cropping systems designing in accordance with new metrics (references) to develop new good practices able to be adopted by communities and to tackle the constraints identified.
- Communication: To promote awareness of innovative practices, of rules and laws regarding market access, of relationships between farmers and local authorities, it appears more and more important to develop adapted information to farmers, farmers' groups, dissemination services and other stakeholders including NOGOs, authorities, funders ...

How to be attractive with agroecology based innovative systems? So communication appears necessary to assume linkages between the people /institutions /bodies which are disseminating information to farmers. It appears important to increase awareness of farmers on different topics with specific target (to be identified and checked).

iii) Other subjects

- Certification processes for new agroecological practices could be a solution to help at promoting such sustainable agricultural practices. New metrics as suggested above could aim at new standards. Certification of agricultural products to get a premium price is a serious incentive. Planted vegetal materiel as seeds (horticultural, food, forage and cover crops) and cuttings qualification is another mean to improve AE consideration.
- Production environment has been regularly mentioned as determining and decisive. This fact confirms this parameter as a generic one. Many stakeholders acknowledge the importance of agricultural production environment (Cirad representatives reminded participants that according to their experience, it is a

general observation around the world: a cropping system, however its performances cannot by itself resolves all the constraints faced by the farmers.

Market access is one the components of agricultural production environment. The questions are: Do we have to support cooperative processes to strengthen collective bargaining and saving groups establishment? Can we involve government bodies in contracts farming regulation? Is a framework to support framers initiative and to secure farmers investments necessary?

- To give social/economic/environmental values to agricultural land, forest and soil seems to be an important issue but difficult to be assessed and monitored.
- Simulation games: This methodology is presented to resolve problems between stakeholders as for example services providers and extension services, farmers and middle men, farmers and services providers, ... on different topics from “pesticides uses” to “crops residues uses” including free grazing, land tenure, farms and plots access, forest products uses, etc. As a matter of fact adapted use of pesticides and herbicides are an important issue in terms of human health, of environmental impacts, of economic production and farmers’ incomes. This topic could be worked through simulations games in accordance with the different stakeholders involved from governmental agencies to inputs suppliers and extension staffs.
- Some solutions have been proposed to insure some interest to the farmers to apply Agroecology approaches:
 - To promote farmers and agriculture at the national level government and institutions because there are many social and economic issues linked to rural development as for example food sovereignty, urban development control, ...
 - To support farmers’ communities to manage their villages, territories land according to AE practices;
 - To promote awareness of rules and laws with strengthening of relationships between farmers and local authorities;
 - To support land tenure with community title certificate in order to secure farmers rights.
 - To support contracts farming regulation;
 - To develop farmers groups and networks
 - To communicate on potential answers of Agroecological approaches to the main constraints faced by farmers.

III. CASE STUDIES (POWERPOINTS)

All the case studies presented and listed below are available for download on ALiSEA website

<http://ali-sea.org/1st-national-multi-stakeholder-workshop-addressing-agroecological-transition-in-laos/>

Social & Technical dimensions of Agroecology

Social dimension of Agroecology in Laos, LURAS / Helvetas

Soil Laboratory quality control, DALaM

Black Soldier Flies' Recycling Solution: From waste to feed and fertilizers, Waste Eco Solutions

AE products: Quality control, Certification, Organic Agriculture...

Food Safety by Detection of Contamination in Food of the Market at Luang Prabang, Faculty of Agriculture and Forest Resource, LP

Development of NTFP Value chain: Complementarities between NRM and Business development through PGS certification, GRET

CPC, An organization to improve living conditions of Lao coffee smallholders, CPC

Organic by default: Myth or reality? Evidence from smallholder rice production in the Lao PDR, CIRAD

Experience sharing from the field: Examples of AE practices and approaches implemented in Laos

Forestry & Agroecology in Vieng Kham district, Agrisud

Green Earth Centre: An innovative solution for improving rural, Village Focus International

Engaging with village communities into transformative landscape approaches to agroecology, EFICAS project, CIRAD

Sustainable Intensification of Rice Production: Ecosystem-based Approaches, FAO

Hands and Minds connected to boost Eco-efficiency in Smallholder Systems, CIAT

Video from SAEDA

IV. WORKSHOP PRESENTATION EXTENDED ABSTRACTS

Social dimension on agroecology in Laos

Andrew Bartlett, LURAS / Helvetas (Andrew.Bartlett@helvetas.org)

Summary

Agroecology is often seen as set of techniques or practices, but to understand why these practices are relevant and how they may be applied requires an understanding of underlying social context in which farming takes place. In particular, we need to appreciate the political and economic conditions that have given rise to the unsustainable farming practices that agroecology aims to replace.

The Regional Consultation organised by FAO in Bangkok in November 2015 demonstrated that agroecology is contested territory. Four narratives could be heard at the meeting: political, scientific, practical and spiritual. Despite these differences, it was possible to find common ground in the idea of rural people taking greater control of their lives. In other words, agroecology can be seen as a means for achieving social goals.

In Laos, the social dimensions of the maize boom in Xiang Khuang help to explain how the 'Toxic Landscape' came about and why efforts to promote agroecological practices have yet to achieve widespread success. In order for agroecology to benefit a larger number of people in Laos, the debate about the future of farming in the country may need to become broader, encompassing all of the narratives that were encountered at the Regional Consultation, rather than focusing on the more technical aspects.

Study on Food Safety by Detection of Contamination in Food of the Market at Luang Prabang

By: Vongpasith CHANTHAKHOUN, Faculty of Agriculture and Forest Resource, Souphanouvong University, vongpasith@yahoo.com

Summary

The objective of this study was to analyse the contamination by formalin, borax, salicylic acid, pesticide residues, e.coli, salmonella spp. in different types of food (e.g., animal products, vegetable, aquatic products, and NTFPs) at retail markets in Luang Prabang and in Pakxeng district (Luang Prabang province). All samples were examined for contamination for 4 different chemical groups and 2 different biological groups (formalin, borax, salicylic acid, pesticide residues, ecoli, salmonella spp.) were analyzed using standard protocols.

Results revealed that samples of the vegetable, aquatic product and NTFP samples from Luangprabang market had above standard pesticide residue levels (76% for pesticide residue, and 31% for Salmonella). The fruit exhibited above standard levels of contamination levels were: oranges (100%) and apples (100%) from China. This was also the case of: all tomatoes from Vietnam and Luangprabang; all long beans from Thailand and Vientiane; all cabbages from Vientiane and Xiengkhuang; 33% of the cucumber from Vangvieng. kinds of Aquatic product 16.6% that found E.coli were shrimp 66.6% the sample were from Vietnam, kinds of Aquatic product 50%, salmonella were pickle 100% the sample were from Luangprabang and squid 100% the sample were from Vietnam.

In Pakxeng market (Luang Prabang province) animal products, vegetable, aquatic product and NTFPs exhibited significant amounts of formalin, pesticide residues, E. coli and Salmonella. 33% of fermented bamboo samples were contaminated, and 33% of the oranges and 33% of the tomatoes from Luang Prabang were contaminated by pesticide residues. 67% of the bean

sprouts from Pakxeng were contaminated. 33% of the pork samples (and 60% of the samples of aquatic products) exhibited Salmonella contamination levels above standards the kinds of Aquatic 60% and NTFP 75% that found Salmonella were pork 33.3%, pickle 33.3%, wild meat 100% and bamboo fermented 50% all the sample were from luangprabang markets.

These results indicate that food quality and hygiene controls should be made more stringent and should include restaurants, guesthouse and hotels. Public awareness of food poisoning risks related to the consumption of undercooked food should be increased. To improve food quality and food safety in Laos, hotel and restaurant staff and sellers should be actively advised to use test kits. Farmers should be aware of the dangers related to the used of chemical pesticides. Meanwhile, authorities should work proactively to advise the farmers on how to use chemical pesticides correctly and should monitor farmers closely and continuously.

Problem

The rapid growth in organic consumption may be traced back to increased consumer confidence in organic foods as well as to concern about possible health risks and environmental impacts of conventional food production methods. Luang Prabang is an antique city with a rich and distinctive cultural heritage based on traditional arts, crafts, colourful lifestyle, multiple foods, unique language, wonderful festivals and rituals. Luang Prabang is a very popular destination for tourists around the world, and is the most visited place in Laos. As a result, the food produced and sold in Luang Prabang should meet the needs of consumers (tourists) from many countries. Food from Luang Prabang is very different from that of other regions in Laos: it is not as spicy and deep fried or stir fried dishes are not as popular as steam cooked or boiled dishes. Luang Prabang food is often considered as aristocratic or royal food. With the increase in the number of consumers, there is a need to increase the supply of raw material such as vegetables, animal and aquatic products and NTFPs, all of which may come in different forms (e.g., fresh, dry, fermented). It is therefore important that the quality of the food chain matches the requirements of the consumers. On the other hand, some bacteria and pesticides that are similar to one another cause the same type of harmful effects to humans. These effects may be mild or severe, depending on the unsafe food involved and the amount of overexposure. But the pattern of illness or injury caused by each chemical group is usually the same. Some pesticide chemical families can cause both external irritation injuries and internal poisoning illnesses. . Therefore, it wasn't research or data analyses on food contaminated as food safety for promoted to consumer. However, the bacteria enter the body through the digestive system; symptoms will generally be in this part of the body - nausea, vomiting, abdominal cramps and diarrhoea. In some cases, food poisoning can cause very serious illness or even death. The projects were focus on food contaminated of bacteria, pesticides, and herbicides that sale at central market in Luang Prabang province. Which kind of that positive or negative to the gender health and/or consumer according to 5 indicators such as E. coli, Salmonella, Formalin , Borax, Salicylic Acid, Pesticide residues.

Research question

1. 4 type of food contamination more than standard or not?
2. From farm to consumer which step that government involve of control?
3. Which type of food should control and which should be recommended to national and international consumer?
4. Which type of policy should be recommended for food safety?

Stakeholders involved

Materials for analyses, Medium and chemical

The study were conducted workshop at Luang Prabang province. However, Sample collection were taken during January to February 2016 and collected by follow the sample group list such Food from animal, Food from vegetable, Food from aquatic, Food from non-timber forest products (NTFPs).

Results

1.1. *Detection of Contamination in Food of Luangprabang district, Luang Prabang province*

Table 1. Contaminate food of Luangprabang district, Luang Prabang province

Group of Sample	No. (%) of positive samples					
	Formalin	Borax	Salicylic acid	Pesticide residues	E. coli	Salmonella
Animal products	0	0	0	0	0	0
Vegetable	0	0	0	76.19	0	0
Aquatic products	0	0	0	0	16.67	50
NTFP	0	0	0	0	0	66.67
Total	0	0	0	66.67	7.69	30.77

Results presented in Table 1 revealed that 31% of positive samples could be found for Salmonella (mainly in NTFPs) and 67% of positive samples were found for pesticide residues (mainly in vegetables). E.coli was mainly found in Aquatic product (17% of positive samples mainly shrimp from Vtenam). For Salmonella, the most dangerous products were pickle fish from Luang Prabang and squid from Vietnam (all samples were positive).

1.2. *Detection of Contamination in Food of Pakxeng district, Luang Prabang province*

Table 2. Contaminated food in Pakxeng district, Luang Prabang province

Group of Sample	No. (%) of positive samples					
	Formalin	Borax	Salicylic acid	Pesticide residues	E. coli	Salmonella
Animal production	0	0	0	0	8.33	8.33
Vegetable	0	0	0	21.05	0	0
Aquatic	0	0	0	0	0	60
NTFP	40	0	0	20	0	75
Total	7.14	0	0	20.83	4.76	33.33

In Pakxeng district, Table 2 shows that the main risks of contamination were Salmonella on aquatiuc products and NTFPs (33% of positive samples) and pesticide residues on vegetables and NTFPs (21%). The present study samples products were found contaminated with may cause food poisoning and pose a threat to public health. It indicates a need for more strict hygienic practices in the market and the international check point.

Table 3 List of the main food risks to control

No	List of be care for food safety			
	Animal product	Vegetable	Aquatic	NTFP
1	Pork	Orange	Pickled fish	Wild meat
2		Apple	Squid	Bamboo fermented
3		Tomato	Shrimp	

4	Cabbage					
5	Bean sprout					
6						
Remark	E.coli and salmonella	Pesticide residues	Formalin and salmonella	and	E.coli and salmonella	
Source	domestic	China, Vietnam, Thailand and Luangprabang	Almost all from Vietnam, some pickled fish local sources			

Key issues identified

Based on this study, it could be concluded that the main food risks on food markets were related to high levels of:

- E.coli and salmonella on animal products (e.g. pork),
- pesticide residues on fruits and vegetables (e.g., oranges, apples, tomatoes, cabbages and bean sprouts),
- formalin on aquatic products (pickled fish, fresh/dried squid, fresh shrimp),
- E.coli and salmonella on NTFPs (e.g. wild meat, fermented bamboo).

Therefore, government of Laos must ensure compliance with food safety regulations and make sure producers properly use authorized chemical products (i.e. respect established contaminated limits). However, the survey shows that compliance rates are very high for all analysed food groups. Results obtained herein could be the principal information to use in manipulating on the policy and enforcement activities for food safety.

Acknowledgements

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Green Earth Centre, *An innovative solution for improving rural livelihoods*

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Lao people depend on natural resources (land, water, plants and animals) and ecosystem services (clean water and air, carbon and nitrogen fixation, nutrient cycling, erosion control, pollination, pest-predator balance, etc.) to sustain their livelihoods. They traditionally practice shifting cultivation to grow rice and other crops, and hunt wild animals, gather forest products (commercial NTFPs) and collect fish, frogs, crabs, snails, shrimps, and other aquatic organisms and plants to enrich their diet and or to enhance their income. Cultivated lands and farms, which are a contiguous part of the larger landscape in Laos are used for growing food, fodder, fiber, and other materials to meet farmers' needs. However, increasing population pressure, fast economic development and expanded trade, modernization, unsustainable farming practices, and over-exploitation of natural resources have contributed to degradation of ecosystems and a fast decline in valuable biodiversity. Rural communities, who constitute about 80% of the nation's population, are the most vulnerable to declining natural resources, degraded environments and changing climate.

A high priority for the government of the Lao People's Democratic Republic is rural development; this is part of their aim to decrease poverty and escape the status of "least developed country". This task involves improving the livelihoods of people in rural communities through developing their capacity, improving local governance, and supporting local economies. People living in remote regions have limited access to agriculture technical support, skills and capacity building, and lack knowledge about new agricultural methods that could be improving their lives. The government of Laos places high importance on agriculture systems that are able to reduce the poverty and malnutrition that are significant problems in rural areas. There are many challenges in this process, calling for significant effort, time, and resources.

In the past there have been a variety of development projects financed by many international donors to support the country's fight against poverty and food security. In many cases, when these development projects were completed all activities of the projects also ended, with limited successes. This is mainly because many of those projects did not take into account the real needs of the communities; the willingness of the communities to implement the activities, a limited emphasis on knowledge and skills transfer to the communities, and a poor understanding of local conditions for the project. Livelihoods improvement work requires behavior change, which is the most difficult task required to assist communities to adapt their behavior. Without this crucial factor communities are not able to see and understand the whole process by themselves. Most development projects simply do not provide this level or depth of sensitivity built into project design.

The Green Earth Centre (GEC) was established in Salavan Province, one of the poorest provinces in Laos, by Village Focus International (VFI) in 2008. The GEC was created in an effort to provide innovative solution to address needs of local farming communities to improve their livelihoods. The GEC is a 40-hectare training and demonstration center where rural communities can observe and learn processes along the entire supply chain – from agriculture production to food processing and marketing. Trainings and demonstrations incorporating agroecological principles – including agro-forestry models, organic fruit and vegetable farming, VAC/ integrated farming, IPM and conservation agriculture – are designed to help villagers learn improved agricultural methods in a way that is culturally appropriate and is replicable for those communities. In 2009, GEC also become a focal point for building a multi-stakeholder network to coordinate and add value to local initiatives related to participatory land use planning in southern Laos. Agriculture and natural resource management-related trainings for civil society organisations, local government offices and private sector companies are also held at GEC.

The goal of GEC is to be a leading training and research center for community-based agricultural production, processing and marketing. GEC incorporates local knowledge into trainings to build the skills, knowledge and capacity of rural farming communities to apply better agroecological practices. GEC aims to directly support smallholder farmers through providing appropriate training and technical support and linking farmers to markets.

GEC has three objectives to achieve this goal:

1. *Demonstration and Training Centre:*

- To disseminate agroecological knowledge, experiences and lessons learnt to and within communities, through farmer field schools and trainings and local communication channels (i.e.- community radio).
- To provide demonstrations on production and processing of agricultural products as well as improved agro-forestry techniques for forestry products of commercial value.

2. *Integration of smallholders into markets:*

- To provide new knowledge, skills and tools to enable farmers to participate in agricultural and forest product value-adding activities.
- To empower farming communities to improve their livelihood opportunities and increase household income by linking them to sustainable markets.

3. *Capacity Development:*

- To support multiple stakeholders (government agencies, civil society, communities and the private sector) to address land and natural resource management issues in an integrative and sustainable way.
- To support communities and multi-stakeholder groups in strengthening knowledge and sharing experiences on appropriate agroecological techniques.

Integrated Farming & Demonstration Areas

In addition to rice – which is the most widely cultivated species in Laos – there are also other important crops and products that provide a wide range of food (both human and livestock), medicine, fibers, housing materials, income and environmental services to meet multiple needs of rural families. Many plant, animal and aquatic species are integral to people's livelihoods in Laos. The GEC tests ways to enhance biodiversity on local farms and make use of land in a productive and sustainable manner to enhance people's livelihoods while preserving natural species and resources for future generations. Following an integrated farming approach, GEC tests and demonstrates effective methods for animal husbandry, including organic poultry (chickens and ducks), raising pigs in pen and pit styles, goats, raising fish and frogs in ponds, cultivating earthworms for feeding poultry and for composting, and growing forages for animal feed. In addition, GEC activities include a tree nursery, organic vegetable gardening, mushroom production, processing agroforestry products, and growing sweet potatoes, peanuts and corn for animal feed.

Promoting Local Agricultural Production, Processing & Marketing

The GEC promotes the production of agricultural goods that match the needs of markets in the communities surrounding the center. The project gives support to targeted households to develop small businesses related to agriculture production. For example, GEC provides consultation to determine the needs of each farming community, conducts market research, and provides training and a revolving fund for starting small-scale chicken farms.

The GEC supports the processing of agricultural goods grown at the center and the surrounding area. In the beginning, the center tested the processing of several products, such as mak mao fruit (forest black current) juice and wine, passion fruit juice and wine, dried, baked, and fried bananas, pineapple jelly, and banana and passion fruit jam. All of these products were well received by local markets. In the future the goal is to develop products at a higher standard to sell across regional and even international markets.

Capacity Building

The GEC provides knowledge and capacity building to local farmers and other stakeholders (government, civil society, private sector partners), allowing the stakeholders to observe first-hand, and later apply useful and profitable agroecological skills learned at the GEC. The GEC has a large training facility and dormitory to accommodate participants travelling from other provinces. Bringing stakeholders together – through field visits, on-site demonstrations and training programs – to observe and discuss new techniques is also a way to facilitate cross-sectoral dialogue, information exchange and promote agroecological practices to multiple groups.

GEC's Vision

In the immediate future, GEC aims to become commercially productive, with demonstrations for processing and marketing of agricultural products, and will facilitate linkages between businesses and farmers that ensure increased economic benefits for farmers. GEC will also continue to promote knowledge sharing, as well as access to information and consultation for local people on agricultural products, strategies and opportunities for improved livelihoods. Through the development of a community radio, for example, Green Earth will be a center for information and knowledge sharing for local people on land issues, agricultural and forest products, market opportunities and natural resource management.

The Green Earth Centre intends to become a premier center of knowledge for sustainable development to increase the capacity of rural farming communities and other stakeholders to apply good agroecological practices, and to become a strategic node for linking small farmers to markets. It is clear that the activities and opportunities provided by the GEC to date have been well received by stakeholders and are constantly improving. These results are due in large part to the close support from and cooperation with local authorities, especially the offices of education, agriculture and forestry, and the District Governor's office.

Still, the GEC has many challenges to overcome, specifically a restricted budget, a small staff, and a need for higher capacity among our own staff. Village Focus International – and the GEC team – believes that in the very near future the Green Earth Centre will be recognized nationally and perhaps regionally as a leading center of knowledge and skills-building about sustainable agriculture, forestry and marketing in Laos.

Hands and Minds connected to boost Eco-efficiency in Smallholder Systems

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The Project in a nutshell

Expanding infrastructure and markets, as well as government policies and development programmes supporting the commercialisation of agriculture are presenting remote smallholders in Cambodia, Laos and Vietnam with new economic opportunities. However, while prospects for improved farm income are opening, this is also leading to a shift from traditional semi-subsistence but often highly diverse and complex smallholder farming systems to increasingly specialised and intensified ones.

Solid scientific data on the environmental and wider livelihood opportunities and impacts of this transition from semi-subsistence to commercially-focussed livestock and crop farming are often either lacking or anecdotal. We know relatively little of the eco-efficiency of different farming systems (traditional ones and the new ones emerging), nor, from the perspective of farmers, what the trade-offs are between better income, on the one hand, and more diversified farm production and traditional livelihoods, on the other hand.

The objectives of this research-for-development project are therefore to create a realistic picture of what smallholders in the region are actually doing in the light of changing conditions, and of what is working well or not so well in the light of environmental footprints and socio-economic and livelihood indicators.

In terms of major methodological approaches, farmers themselves will initially identify relevant issues and challenges. These will then be *quantified and qualified* by multidisciplinary science at farm and landscape levels, and for both current and projected future scenarios. The project will apply soil, plant and animal science, spatial modelling, and participatory whole-farm and *ex ante* intervention impact modelling, climate simulation and scenario development, experimental risk assessment, political impact, micro- and macroeconomic analysis. The best practices and systems will be further developed through on-farm trials, while learning, knowledge sharing and ownership around the research results will be generated through multi-stakeholder platforms consisting of

farmers, extension, NGOs, market actors, researchers, local authorities and other agricultural development stakeholders. The presentation will elaborate more on this suite of methods and approaches.

The project target sites are located in Khoun and Pek districts in Xieng Khouang Province, northern Laos, in Lumphat and Ou Ya Dav districts in Ratanakiri Province, eastern Cambodia, and in Cu Jút and Ea Kar district in Đắk Nông and Đắk Lắk provinces of the Central Highlands of Vietnam.

The major partners in the project are the National Agriculture and Forestry Research Institute (NAFRI) in Laos, the Royal University of Agriculture (RUA) in Cambodia, the Western Highlands Agricultural Science Institute (WASI) in Vietnam, and the University of Göttingen (UGOE) in Germany.

The project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and lasts until May 2018.

Engaging with village communities into transformative landscape approaches to agroecology: Lessons from the EFICAS (Eco-Friendly Intensification and Climate resilient Agricultural Systems) Project based on village case studies

Jean-Christophe Castella, Pascal Lienhard, Sisavath Phimmason, Soulikone Chaivanhna, Guillaume Lestrelin, Chanthasone Khamxaykhay, CIRAD & DALaM

Summary

In the northern uplands of Laos, elements of the village landscapes and livelihoods are in complex interactions, preventing the straightforward adoption of agroecology techniques despite their demonstrated performances as compared to (i) traditional swidden systems with shortening fallow periods or (ii) conventional production practices based on the use of chemical inputs and/or mechanical tillage. To facilitate the dissemination of agroecology innovations in remote upland villages, the EFICAS project is engaging with village communities into landscape level transformations of agricultural production and resource management. The underlying idea is that individual adoption of alternative practices is, in many cases, hindered by collective interests or governance modes that are not compatible with e.g. permanent soil cover or biomass recycling, that are core to agroecology.

Since 2014, the EFICAS project has studied agrarian changes and their drivers in a limited number of villages and has designed together with local population development pathways that would be compatible with the adoption of agroecology practices such as conservation agriculture, agroforestry, SRI, or integrated crop-livestock systems. The development scenarios are specific to each village, but they respond to the same objectives of:

Delinking the management of crop and livestock systems prevailing under traditional shifting cultivation systems (e.g. the animals are left roaming freely in the young fallow as soon as the upland crop is harvested),

Preventing animal diseases through improved forage management in dedicated livestock areas and systematic vaccination schemes,

Engaging the whole village community in testing legume crop associations with main upland crops (maize, upland rice) to maintain soil fertility and providing soil coverage while avoiding rodent infestation of the mulch,

Preserving riparian forests by promoting the development of high value crops under tree shadow, such as cardamom,

Supporting the intensification of paddy fields by increasing the number of crop cycles (introduction of spring or winter crops), using animal manure and composts, and boosting fertility of newly terraced fields with legume crops,

Combining these activities is faced with a number of challenges that are specific to each village human and biophysical environment and singular historical pathway. The main lessons learnt are illustrated in the case of the two villages of Phoutong in Louang Prabang Province and Phoukang in Houaphan Province.

Institutions involved, partnerships

Implementing agencies: DALaM, CIRAD, PAFOs and DAFOs, with local communities (Village Land Management Committees)

Partnerships: AgriSud International, CARE-CCL, GRET, etc.

Donors: EU Global Climate Change Alliance and AFD

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