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Enhancing district delivery and management of agriculture extension in Lao PDR.

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Fieldwork reported in this study was approved by James Cook University’s Human Ethics Research Committee: Approval H6050.

1.1 Table of Acronyms

| | | |
|-------|-------|---|
| ACIAR | ----- | Australian Centre for International Agricultural Research |
| AFD | ----- | Agence Française de Développement |
| ASEM | ----- | Agricultural Systems Management Program |
| CPC | ----- | Coffee Producers Cooperative |
| DAEC | ----- | Department of Agricultural Extension and Cooperatives |
| DAFO | ----- | District Agriculture and Forestry Office |
| DSA | ----- | Daily Subsistence Allowance |
| EMS | ----- | Extension Management System |
| EYMM | ----- | End of Year Monitoring Mission |
| FDI | ----- | Foreign Direct Investment |
| FL | ----- | Farmer technical learning |
| FO | ----- | Farmer organizing |
| GoL | ----- | Government of Laos |
| GSP | ----- | Government service providers |
| HH | ----- | Household |
| ISTMs | _____ | In Service Training Modules |
| JCU | ----- | James Cook University |
| K | ----- | Kip, unit of Lao currency (FEX 1 Mkip = \$153.9 AUD) ¹ |

¹ FEX as at 27th February 2017 (AUD/USD was 0.768).

LPRP ----- Lao People's Revolutionary Party
MAF----- Ministry of Agriculture and Forestry
ME ----- Market engagement
NGO ----- Non-governmental organization
NTFP ----- Non-timber forest product
OD ----- Organization Development
ODA ----- Official Development Assistance
PAECS----- Provincial Agricultural Extension and Cooperatives Service
PAFO----- Provincial Agriculture and Forestry Office
PAR----- Participatory action research
PDR----- People's Democratic Republic
PDIC----- Provincial Department of Industry and Commerce
POHA ----- Provincial Office of Home Affairs
RoI ----- Return on Investment
RPM _____ Research Program Manager

2 Executive summary

Background and methodology

Lao PDR has a well-established network of central, provincial and district agricultural extension units. The extension system has benefited from several decades of Official Development Assistance (ODA) projects which have helped establish models of production and extension methods. The District Agriculture and Forestry Office (DAFO) administrators, however, have not been at the forefront of much of this work. As a result, DAFO officers have limited knowledge and practical experience of *extension management*.

This project aimed to address this problem by developing an Extension Management System (EMS) and guidelines for implementing a newly mandated set of comprehensive extension interventions, referred to in shorthand as farmer learning (FL), farmer organization (FO) and market engagement (ME).² The project strategy was to enable selected DAFO in pilot study districts to operate with relative autonomy in the co-design, implementation and refinement of a set of EMS tools. Achieving demonstrable outcomes and impacts from such independent action would thus demonstrate DAFO's capacity to perform well and also carry the prospect of increased investment in extension services. This strategy informed the three project objectives.

The design was operationalised by selecting two pilot DAFO in each of two provinces: Thaphabath and Bolikhan in Bolikhamxai province, and Khun and Nong Het in Xieng Kuang province (with an expansion district of Paek added at a later stage). These districts encompassed a range of agro-ecological conditions and were also characterized by varying access to markets and differing staff capacities. Project inputs were limited to: (a) the provision of operating funds of \$3-5000 AUD per year to each DAFO; (b) draft EMS tools; and, (c) six-monthly exchange meetings. No training inputs were provided. In all the pilot sites, the project worked within an extension context of farmers transitioning from traditional subsistence systems to commercial production.

The project was based within the Planning Section of the Department of Agricultural Extension and Cooperatives (DAEC) of the Ministry of Agriculture and Forestry (MAF).

Results and Impacts

Applying the first of a set of EMS tools (EMS 1#, see below) the pilot DAFO selected four products with a range of production and marketing characteristics: commercial rice, coffee, organic vegetables and chickens. The five DAFO all generated substantial extension outcomes (detailed in Table 1, p.24). Yields in the final year of the project (2016) can be briefly summarized:

| | |
|----------------------------------|--|
| Commercial rice (two districts): | 300 HHs produced an additional 1000 t |
| Coffee (projected harvest): | 691 HHs produced additional 300 t (red-cherry) |
| Organic vegetable: | 188 HHs produced additional 10 t |
| Chickens: | 221 HHs produced additional 8.4 t |

The bulk of the additional output in each case was gained only after the DAFO began to apply integrated comprehensive extension (FL/FO/ME) effectively. In effect, they

² **FL** - support for farmer learning regarding technical/production issues. **FO** - expanded concept of extension that includes support for farmer groups and organizations. **ME** - enabling equitable farmer engagement with market/commercial agriculture opportunities.

represent the result of *only two years of relatively effective extension*. When these results are translated into the benefits gained by HHs, for the rice farmers this was equivalent to **double their average annual HH consumption expenditures**. For the coffee, vegetable and chicken farmers it was **two thirds their average annual HH consumption expenditures**.

The monetary value of this **additional production output over the four years of the project is 1.7 M AUD**. As important as the improved production and economic impacts of the project is the fact that, in each district, the foundations and networks for dynamic commercial production has now been established. This should ensure that, at least at the local level, there is a sustainable basis for future progress.

The key factor that contributed to these results was the application of the ME and FO elements of comprehensive extension. In the first two years, the DAFO chose to focus their interventions on FL. When it recognized that this traditional extension approach was failing to mobilise farmers, they then began to apply all three components of comprehensive extension in 2015 and through 2016. It was in these two years that the bulk of the extension outcomes was gained. A major finding of the project (detailed in Section 7) is that comprehensive extension is more effective when applied as **ME→FO→FL**, where:

ME – activities enable farmers to become aware of market opportunities (higher prices and better trading conditions when dealing with larger traders), understand the market/trader requirements (volume, quality and scheduling), and know the key actors and their contacts, so they can select and negotiated themselves.

(Which leads to→)

FO – accessing improved trading requires farmers to deal in volume and supply products of consistent quality. As a result, farmers recognise they must work cooperatively in both planning production and then bulking and trading their product

(Which leads to→)

FL – seeking means to increase output, improve quality and, in some instances, to produce on new schedules to meet market demand.

While many extension and development initiatives have applied these elements, rarely has it been done in such an integrated manner by regular frontline extension staff. Project evidence and outcomes thus offer district authorities a pathway to establish the basis for commercialization of various smallholder farm products. This, in turn, enables the DAFO to comply with the recent GoL directive for each district to achieve commercialization of at least one product.

It should be noted that outcomes achieved by the project through implementation of ME and FO approaches occurred through relative simple 'entry level' interventions. Nonetheless, these would be well-suited to many areas where smallholders are transitioning from their traditional systems towards commercial production both in Laos and in the wider region.

Key to successful application of these approaches was implementation of general principles and simple processes that enabled the *farmers themselves* to assess opportunities (ME) and, as a consequence, organize (FO) in order to take advantage of the perceived potential for economic gain.

Application and appreciation of the Extension Management system (EMS)

The EMS was designed to enable the DAFO to carry out core management functions:

EMS 1# Opportunity identification and priority product selection

EMS 2# FL/FO/ME Guidelines.

EMS 3# Planning Districtwide Extension

EMS 4# Reporting Extension Results

EMS 5# Field Accounting

Two further tools were designed to assist DAFO Heads in their overall management of the DAFO as a unit.

EMS 6# Roles and Responsibilities

EMS 7# Human Resource Management

When applied by the DAFO staff, the tools enabled them to manage their extension delivery independently over four production cycles. Small changes were made to the content of the tools based on DAFO feedback. These staff then contributed to drafting the written guidelines.

The DAFO were able to demonstrate extension's potential to contribute to District Economic and Social Development Plan (DESDP) through application of EMS 1# and EMS 2#. Their reporting of progress against plans (EMS 4#) then demonstrated the efficacy of comprehensive extension. As a result, by the close of the project, administrators from all districts explicitly accepted that DAFO plans for comprehensive extension applications should be part of future DESDPs.

Application of EMS contributed to enhancing the capacity and professional commitment of the DAFO staff, in particular: (a) ownership and responsibility for their work; (b) a shift in their orientation from conducting activities to gaining results; and, (c) shifting the relationship of staff with farmers from being directive to facilitative. Such changes arguably could not be achieved through a didactic training regime.

Mechanisms for scaling-out EMS and FL/FO/ME

Operating funds for DAFO are a cornerstone for enabling delivery of extension services. Without financial support, extension delivery cannot take place regardless of how effective the methodologies, or how capable the staff. This has been an aspect of development that many projects have sidestepped.

The current project provided local authorities with evidence of regional revenues that could be generated and was also able to report on relatively high rates of 'return on investment' (RoI). The latter was achieved by comparing DAFO costs with the revenues generated (RoI ratios for the pilot DAFO ranged from 5:1 to 20:1). As a result, district and provincial authorities across all sites agreed that funding for extension from national budgets was justified and would be sought.

GoL's local-level recognition of the efficacy of DAFO extension delivery and acceptance of responsibility to ensure they receive operating funds from domestic sources is a notable achievement of the project. Such results confirm the broad strategy of the project design as outlined above.

A key challenge is whether models applied under project guidance can be applied more generally and without external support. The robust nature of the EMS and FL/FO/ME processes was demonstrated by DAFOs' consistent application of the tools/guidelines and the results gained across the pilot districts and products. Further confirmation of this came through scaling-out activities: an additional district coordinated by Provincial Agricultural Extension and Cooperatives Service (PAECS) staff in Xieng Khuang and an additional province, Khammuane, overseen by DAEC staff.

A second challenge concerns what investment (time, funds, and staff) must be made available to rollout new models. The project concluded that enhanced DAFO performance

and successful outcomes were achieved by enabling elements of an '*institutional ecology*' (Section 7.3.4) to develop and thrive. This extension ecology consisted in:

- **EMS**: this provides pragmatic tools for DAFO staff to manage and deliver extension services over a number of seasons
- **Leadership**³: the DAFO staff require the sanction of an authority figure within their system (e.g., District Governor) to allow them to work and make operational decisions with confidence.
- **Working within broader organisational frameworks**: the districtwide plans led the DAFO staff to be results-orientated and then to appreciate the value of comprehensive extension. Peer networking between districts gives staff a greater sense of professional identity and opportunity for organisational learning.⁴
- **Secure operating funds**: Continuity of funding over several season allowed DAFO to plan, operate, learn, and report consistently.

In other words, rather than having to embark on a program of expensive and time-consuming training exercises, DAFO performance can be improved by modifying elements of the supporting institutional ecology. Proposing alterations to the institutional ecology carries other challenges but the project was careful to align its activities with current GoL policies and procedures and so minimised such risks.

Given senior GoL recognition of the potential for enabling DAFO to generate significant results in a relatively autonomous way, DAEC, in collaboration with the National Agriculture and Forestry Research Institute (NAFRI), have ***drafted a policy brief*** to submit to MAF.

Conclusion and Recommendations

The project has shown that DAFO can be effective in extension service delivery through the application of integrated comprehensive extension: **ME → FO → FL**. This is of significance in Laos and, potentially, globally as national extension services struggle to assert their relevance and efficacy. The project demonstrated that when relative effectiveness is appropriately evidenced and reported, recognition by local authorities can be forthcoming. Moreover, in the case of Laos, these authorities now acknowledge that there is a justifiable case for domestic funding of extension.

The new elements of comprehensive extension, FO and ME, are generally regarded as requiring high levels of facilitation skills that are far beyond the capability of typical frontline DAFO staff. Findings from the current project challenges this assumption. It indicates that the DAFO staff do have the latent capacity to apply EMS and comprehensive extension. These skills can be elicited and enhanced, furthermore, by mentoring and support from PAECS and DAEC. Finally, project findings indicate that there might be a ***cost-effective pathway for out-scaling project results nationally***.

The application of a strategy to intervene in and modify the institutional ecology that supports extension opens the possibility of fast-tracking the introduction of EMS and comprehensive extension. This strategy, however, remains untested. It is thus recommended that a new project be designed that would build on the results gained to date and directly trial the proposed intervention strategy on a much wider scale. If the strategy were to prove effective, then it would offer a rapid and cheap means to achieve

³ For a detailed discuss of the semantics of *leaders* and *leadership* in the Lao language and GoL institutions see Case et al. (2016).

⁴ Easterby-Smith et al. (1999).

significant improvements to extension nationwide. This approach should also have potential to be applied to extension systems in many other countries in the region.

3 Background

Extension Performance in Lao PDR

Lao PDR has a well-established network of central, provincial and district extension units. The District Agriculture and Forestry Offices (DAFO) have the direct responsibility for delivering extension services at the village level. To date the bulk of extension activities have occurred within what might be usefully termed 'project mode', whereby Official Development Assistance (ODA) projects provide the operating funds, technical advice, and direction with respect to the use of extension methods. Within this context, DAFO staff have shown themselves able to work with farmers to improve production systems and crop yields.⁵ Operating predominantly in *project mode*, however, the DAFO administrators have been by-passed and gained limited management experience. Moreover, when results are achieved, they are attributed to the 'projects'. Two issues that impede the DAFO operating as effective units of extension delivery are: (a) the DAFO have no systems to manage extension delivery; and, (b) there is no clear mechanism to justify and obtain operating funds. Consequently, opportunities to scale-out many improved production systems have been missed, with the corollary that improvements to smallholder household (HH) income and corresponding local/regional economic growth has been under-realized.

New Demands for Extension

There is a rapid and ongoing transition from subsistence to market orientated production systems in Lao PDR. Alongside this development, a dynamic private sector now provides new opportunities to smallholders in the form of emerging markets and contract farming arrangements. At the same time, threats to smallholders can emerge through market distortions and issuance of concessions, which can compete for resources. To support farmers in this new context, a more active and broader based extension system is required.

Beginning in 2010, the then National Agriculture and Forestry Extension Service (NAFES) reviewed the new context for extension. It formulated a new mandate with a broader set of responsibilities that was formally ratified in June 2012. Following this approval, the Ministry of Agriculture and Forestry (MAF) elevated NAFES to a full department: the Department of Agriculture Extension and Cooperatives (DAEC). The DAEC has an expanded mandate for delivery of services to farmers⁶. The interventions available for DAFO now include: support for farmer learning regarding technical/production issues (**FL**); an expanded concept of extension that includes support for farmer groups and organizations (**FO**); and enabling equitable farmer engagement with market/commercial agriculture opportunities (**ME**). This is in line with calls for revitalisation of extension globally.⁷ FOs have potential to allow farmers to better coordinate their production, processing and marketing activities. They also afford them better access to inputs (including finance and information) and, potentially, could act as vehicles for representing smallholders' interests. ME activities will help farmers take advantage of the opportunities presented by commercialization of the sector, particularly through potential Public Private

⁵ Examples of this are: (a) Livestock - introduction of forages, with capacity (along with change management practices) to increase pig or cattle output 2-3 times (FLSP and CBSLSP projects); (b) Poultry - village poultry raising systems (housing feed, vaccination) enabling income of 1-2 Mkip/HH, (LEAP nationwide); (c) introduction of improved rice varieties, (numerous projects nationwide).

⁶ NAFES, 'Strategy 2011-21: A breakthrough in support for smallholder farmers'. Summary extract, mimeo translation.

⁷ See, e.g., Anderson (2008), Christoplos (2010), Farrington et al. (2002).

Partnerships (PPP); enabling them to access services from private actors—such as information, technical training/advice, inputs and financing, and a ready market for agriculture output (raw and, increasingly, processed)—while navigating the threats. *Overall, widespread application of FO and ME has the potential to engage and mobilize far greater numbers of farmers and to achieve production on commercial scales through rationalised value chains, and the potential to help smallholder farmers be proactive players in the value-chain.*

The agriculture sector, of course, is impacted by wider political, social and economic changes within Lao PDR and, as such, cannot be considered in isolation. The 9th Party Congress (March 2011), for example, adopted ‘4 breakthrough’ (*sarm sung*) resolutions for national development.⁸ These ‘breakthroughs’ called for ‘improved government management, governance, and poverty eradication by mobilizing all possible financial resources’. To enable this, district-level agencies (health, agriculture and education) were to be given increased ‘executing functions’ for service delivery, and gradually to be provided with financial resources to expedite these enhanced executive responsibilities.

In the new policy environment, therefore, the DAFO are expected to support farmers and agriculture development across the whole district, rather than passively await project-led activities for designated ‘target villages’. To do this they need a range of new abilities: (a) how to identify viable goals for extension *on a districtwide basis*; (b) how to choose which of the extension interventions (FL/FO/ME) to apply in any given District context; and, (c) how to manage the activities/funds and report on results. As the DAFO achieve and report on results, they will demonstrate their contribution towards district and national development goals and, in turn, be able to leverage ongoing public funding of their operations.

Project role

The project strategy was to develop and provide the tools for the DAFO to: (a) deliver improved and more effective extension through appropriate use of comprehensive extension (FL/FO/ME); and, (b) manage their operations independently through development, introduction and use of an extension management system (EMS). If, by employing these strategies on a pilot basis, the DAFO could demonstrate impacts and their capacity to manage interventions/activities independently, then it would be in a strong position to demonstrate the efficacy of extension in terms of *achieving district development objectives*. Success in this regard would, in turn, provide evidence and justification to District/Provincial Government of Lao (GoL) authorities to provide ongoing support to DAFO through regular and sustained operating funds. This strategy was framed within the following three objectives:

1. Development of guidelines that will enable the DAFO to match the most appropriate extension interventions (FL/FO/ME) to the needs and opportunities in their district.
2. Development of an Extension Management System (EMS), with a range of tools that will assist DAFO to target and manage extension on a whole district basis.
3. Development of mechanisms by which DAEC can scale-out the application of guidelines and tools for effective extension delivery across districts.

It should be noted that the project was *not* designed with the intention of developing new extension methodologies for FL/FO/ME. It would rely on existing methodologies already developed and successfully piloted in Lao PDR. These were developed and piloted in purpose-designed projects committed to those interventions. When DAFO came to plan their activities, they needed to identify how to use each of FL/FO/ME in any given case.

⁸ Resolution of the 9th Congress of the Lao People’s Revolutionary Party, March 17-21, 2011, Vientiane. Mimeo, translation.

The FL/FO/ME guidelines (objective 1) would thus identify the function of each intervention, the conditions where each would be applicable and the support the DAFO would need to provide to apply the intervention effectively.

Similarly, the EMS (objective 2) would include specific tools to facilitate DAFO to conduct planning, implementation and management of extension. This level of management would be new to DAFO staff. Accordingly, the EMS tools would need to be functionally adequate but not so detailed or complex that staff would be discouraged from, or incapable of, adopting them.

The final objective was directed toward DAEC and intended to build its capacity to rollout the guidelines and tools nationwide. This was to be achieved by building staff capacity through engaging them on the project and, with appropriate JCU expert support, to give Lao colleagues exposure to management of operations (activity planning, financial and other resource management, monitoring results, reporting, etc.). The project also aimed to assist with development of in-service training modules (ISTMs), again with a view to enhancing staff capacity and making the EMS a sustainable approach to managing extension in Laos. On a second level, the project was to explore means that could persuade decision makers—through hard socio-economic evidence—of the value of extension in order that they might be influenced to provide the means (operating funds) for DAFO to work on a sustainable basis. This was to involve exploring evidence categories, building case studies and, ultimately, development of policy documentation.

In the process of working towards these objectives, the project sought to address three broad research questions as follows:

1. How do the range of extension interventions, (i.e. 'farmer learning'; support for 'farmer organisations'; and facilitating 'market engagement') impact on outcomes for smallholder farmers?
2. Will a 'results based management system' improve performance of extension delivery?
3. To what degree can the integrity of a 'results based management system', developed in 'project mode', be maintained during a broader national rollout?

It could be argued that these research questions are relevant, in broader context, for any developing country attempting to strengthen public sector agricultural extension and hence project findings could, potentially, have relevance and application beyond the Lao context.

Project Background and Development

There have been a number of projects over the last decade that have supported extension development in Lao PDR, with much of the focus on method development, staff capacity building, etc. Two ACIAR projects have directly worked with NAFES and contributed mechanisms of scaling-out forages technologies⁹ and use of peer mentoring to expand capacity within and across DAFO¹⁰. Lessons from both of these were directly applicable to the present project and thus carefully considered and heeded. Overall, a wide range of projects has generated robust *examples of interventions in all three intervention areas (FL/FO/ME)*.¹¹ Project support for extension has largely neglected the management of

⁹ ASEM/2001/107.

¹⁰ ASEM/2005/124.

¹¹ Examples include: (a) agro-enterprise method as piloted by SADU (Smallscale Agro-enterprise Development for the Uplands / SDC funded / CIAT implemented), to facilitate farmers to identify demand for their products and then engage actors along the value chain to improve its efficiency (early results see farmers increasing volume of production by a factor of 2-3, and as volume increases village clusters are established as new 'sources of supply'); (b) farmer groups formed as

extension (particularly by DAFO) and, therefore, results have not been sustained, let alone out-scaled. The central challenge of supporting improvement of 'independent'—from ODA project oversight—extension management systems was raised in informal discussions with Mr Somxay Sisanonh, Deputy Director of the NAFES, in early 2011. Following discussions within MAF, a concept note that focussed on DAFO operations was agreed upon. The design of the project was closely informed by these initial agreements.

A roundtable meeting was held in late 2011 between the Agricultural Systems Management Program (ASEM) Research Program Manager (RPM) and the nominative JCU team, based in the then School of Business, Law and Arts, to consider formulation of a project based on a previously submitted concept note. This was followed by consultation in Lao PDR between NAFES, JCU and ACIAR (Jan 2012) and resulted in the three core objectives being agreed upon. Based on the agreement, an SRA (ASEM/2011/09 Jan – Dec 2012) was granted to JCU to develop a research proposal. This included: (a) consultative visits to Lao PDR - the first to develop the preliminary proposal and a second for detailed design of the full proposal; (b) literature review of relevant extension development in the region (Jones et al., 2013a) ; and, (c) an audit of existing best practices for FL/FO/ME. SRA 'best practices' outcomes were to be used as models for application in pilot districts during the project itself (Jones et al., 2013b). NAFES had also undertaken independent preparatory activities to identify sites and to consult with relevant agencies, including discussion of draft proposals within MAF.

The resulting project proposal directly addressed the goal of ACIAR ASEM in the Lao PDR to increase the potential uptake of new agricultural technologies—those developed to improve smallholder agricultural productivity and livelihoods—and hence reduce poverty in rural areas. Improved extension performance is crucial to ensuring that agricultural technologies reach smallholders and that they are better able to engage with emerging commercial markets.

a result of agro-enterprise type methods allow collective bargaining which has yielded 15-30% higher prices for produce as well as helping to establish equitable relationships with traders which result in production being linked to demand; (c) private sector support for farmers is gained through the EMRIP (Enhanced Miller Rice Production in Lao PDR / EU funded / SNV and Helvetas implemented) constructive contracts model, where rice mills provide training (through DAFO staff), assist with input supply and guarantee minimum paddy prices. The latter ME model has been shown to result in yield increases 30-50% by volume and a higher quality product with higher value, benefiting both farmers and the private sector.

4 Objectives

The overall project aim was “to enable DAEC to support provinces and districts in the provision of enhanced and more effective extension delivery to smallholder farmers”.

Receipt of regular and sustained operational funding from national GoL budgets is an underlying and largely unstated requirement for DAFO to deliver extension services. To justify such funding DAFO need to be able to deliver impacts with smallholder farmers, as well as demonstrating they can manage their resources in an effective and transparent manner.

In short, in the context of this project, DAFO needed to be able to demonstrate ‘value for money’ from the extension investment as well showing that they could manage their activities and resources in an effective and transparent manner. These attributes were framed pragmatically within the specific development objectives for the project described below.

1. To develop extension guidelines that will enable the DAFO staff to match the most effective extension interventions to address needs and opportunities within their Districts.

1.1 Describe conditions where each of the DAEC interventions (FL/FO/ME) provides the most effective mechanism for gaining change and greatest impact within each focal District.

1.2 Develop guidelines for ways DAFO staff can support each of the interventions (FL/FO/ME) thus maximising the benefits of each.

1.3 Develop an additional guideline for using ME/FO as a pathway towards cross-village FO (associations), and thus establishing smallholder farmers as ‘actors’ within specific value-chains.

1.4 Develop tools for DAFO to identify governance issues that compromise agriculture development for smallholders and/or issues that will undermine sustainable production.

2. To identify and develop an Extension Management System (EMS) for DAFO to use at the district level.

2.1 Develop tools to enable DAFO/TSC staff to identify viable opportunities for scaling out improved production models across other parts of the district, (taking into account factors such as scale of impact, effect on poverty reduction, inputs required, etc.).

2.2 Develop tools to assist DAFO construct ‘economic scenarios’ that express the potential impact (economic and livelihood) of scaling out improved production models at both household and district levels.

2.3 Develop a suitable planning framework that is aligned with the new function of districts for improved service delivery.

2.4 Develop tools to track the progress of activities in the field, manage funds transparently and report to both technical and administrative lines of authority. Such tools should include simple benchmarks that will enable non-agriculture sector staff to assess progress in extension delivery and impacts (see 3.4 below).

3. To identify mechanisms by which DAEC can scale-out application of the guidelines and tools for effective extension delivery across districts.

3.1 Build an EMS development team drawn from various sections of DAEC to take responsibility for, and ownership of, the EMS tools and FL/FO/ME guidelines with a view to introducing these to new provinces and districts.

3.2 Develop In-Service Training Modules (ISTMs) for: (a) the introduction of EMS; and (b) effective application of extension interventions, FL/FO/ME.

3.3 Establish links with third parties to engage them in further application of guidelines and tools for effective extension delivery in their target areas, and to participate in existing learning alliances, external workshops and studies, to expose EMS to GoL agencies with interests in planning and economic development.

3.4 Develop simplified cost-benefit analyses to: (a) enable DAFO to demonstrate progress against district-level development objectives; and, (b) enable DAEC to justify and secure ongoing funding for extension delivery.

5 Methodology

5.1 Organization Development and Participatory Action Research Interventions.

The 'extension guidelines' for FL/FO/ME and 'EMS tools', are intended to provide pragmatic approaches and means by which to improve the performance and efficiency of the DAFO. It was recognized from the outset that their application would impact upon: (i) the usual work practices of the DAFO field staff, (ii) their relationships with their heads, and (iii) the relationship of the DAFO with other peer agencies, both at the district and provincial levels. As such, the 'technical' changes promised by the guidelines and tools were not to be viewed in isolation but, instead, understood to be contributing more broadly to a process of institutional change.

After introducing the extension guidelines and tools to selected pilot DAFO, the project used a Participatory Action Research (PAR) methodology¹², applied within an Organization Development (OD) framework.¹³ The OD framework entails a process of working collaboratively with participant/client groups (stakeholders) to identify issues, seek ways of improving performance, and co-create measures and plan future activities based on a collective diagnosis and analysis of a problem. Outcomes from the interventions are then assessed iteratively by the stakeholders at key points during the project. This approach thereby *engages with the existing organisational structures and processes and so responds to extant demands and constraints*. In other words, this research process responds to actual issues and constraints, enables progressive adjustment and improvement, and it thus better able to align with the requirements of the stakeholders/first users and beneficiaries. As a means of engagement OD is more likely to result in ownership of outcomes and outputs.

The project design took as its focus *the operation of the DAFO* and the PAR research methodology was geared toward iteratively seeking improvements to service delivery. The DAFO were required to set their targets on a districtwide basis and were provided limited funds to achieve these. The districtwide targets were introduced as a device to shift the mindsets of staff away from their traditional focus on technologies and activities towards having a results/outcomes orientation. This would, in turn, predispose the staff to selecting the elements of comprehensive extension in order to achieve their targets. Within this framework, the DAFO staff had full autonomy over all operational decisions.

Maintaining autonomy of the DAFO was a priority for the project. This is evidenced by the non-interference of the JCU research team in the DAFO plans in the second year of the project. From the perspective of the JCU team, these plans showed no real attempt to expand to reach their stated districtwide targets, or effective application of FL/FO/ME. They were in effect a revert to type of traditional DAFO operation. The project provided

¹² PAR is a widely-used methodology for research and interventions in international development (see, inter alia, Bradbury 2015; Bergold & Thomas 2013; Chambers 1997, 2012); as well as being employed, more specifically, in rural development contexts (Gonsalves 2004; Gonsalves et al. 2005).

¹³ Organization Development (OD) is defined by Cummings & Worley (1993: 1) as: '[A] process by which behavioural science knowledge and practices are used to help organizations achieve greater effectiveness, including quality of life, increased productivity, and improved product and service quality... the focus is on improving the organization's ability to assess and to solve its own problems. Moreover, OD is oriented to improving the total system – the organization and its parts in the context of the larger environment that impacts upon them.'

points of reflection which, by the end of the year, resulted in the DAFO reconsidering their approaches, with dramatic results in outputs (see 7.1.4 and 7.2.2)

It should be noted that draft EMS tools for planning etc. were largely produced by the JCU/DEAC research team and provided to the DAFO for application and subsequent review. However, the guidelines for FL/FO/ME were derived co-creatively with DAFO staff—i.e., based on a longitudinal dialogue between Lao colleagues and JCU advisors—and, as such, drew from the experiential knowledge of the DAFO staff as they attempted to achieve their districtwide targets. The overarching framework for the intervention is detailed below. The process we engaged in is illustrative of the way in which PAR provides not only opportunities to examine responses but also to elicit outputs (guidelines, tools, etc.) that fit with the OD/institutional change objectives.

The steps followed to operationalize the OD/PAR process are described in detail below. The relationship between the main research questions, sub-questions derived from these, and corresponding implications for data collection indicators is provided in **Section 11.1**.

5.2 Field Application of the OD/PAR Framework

The fieldwork was undertaken in five steps, applying the generic approach outlined above to the specific contexts of extension service in Lao PDR.

It should be noted that the project was designed for pilot application of EMS tools and FL/FO/ME over three production cycles (2013, 2014, and 2015). As explored further in the analysis and discussion below, DAFO were observed not to be particularly effective in adopting and applying the methods until 2105. To extend the project a further year, residual funds held by DAEC, along with unspent JCU funds, were combined to provide the five pilot DAFO limited operating funds ((60% preceding years).¹⁴ Full project support was not possible and thus field monitoring and JCU technical back-up for this extra year of DAFO operation was also limited. Despite these limitations, the pilot DAFO were observed to perform effectively through 2016. They were able to build on the extension outcomes that emerged in 2015 and, as reported to the JCU team, developed further insights into the application of FL/FO/ME.

Step 1 – Setting up project design

A SRA (ASEM/2011/009) conducted prior to the project provided the opportunity for the JCU research team and DEAC to work closely on design of ASEM/2011/075 (Case & Connell, 2013; Jones et al., 2013a). This included a literature review of current extension issues and an audit of 'best practices' for FL/FO/ME in Laos (Jones et al., 2013b). In-country consultations resulted in consensus agreements between Lao partners and the JCU team on project objectives and the methods to be used.

The SRA allowed DAEC to conduct field trips to select sites that represented varying sets of agro-ecological and trading conditions and also included differing extension staff capacities (as assessed by DAEC). Two provinces were selected, and within them, two districts. The four pilot DAFO were thus working in districts that stretched across the waist of Laos; in effect, a transect that provided a range of conditions—from lowland rice-based to highland mixed livestock and arable systems—that were required to test the models (see Figure 1).

Bolikhambai Province (BKX) is characterised by sedentary production systems (paddy based), relatively access to markets and production resources. The two districts selected

¹⁴ DAFO kept to their original three-year plan and pursued their targets for a fourth year. Hence this report refers to '4-year districtwide plans' throughout.

were Thaphabath (situated along the Mekong corridor) and Bolikhan (rising into the Mekong hinterland). To represent the northern uplands, Xieng Khuang Province (XK) was selected, characterised as it is by shifting cultivation, ethnic minorities and relatively weak access to markets. Khun district is highland dominated and the second district chosen, Nong Het, borders Vietnam and is located within a karst area. The different agro-ecological characteristics thus provided opportunity for comprehensive extension to be applied to a range of products.

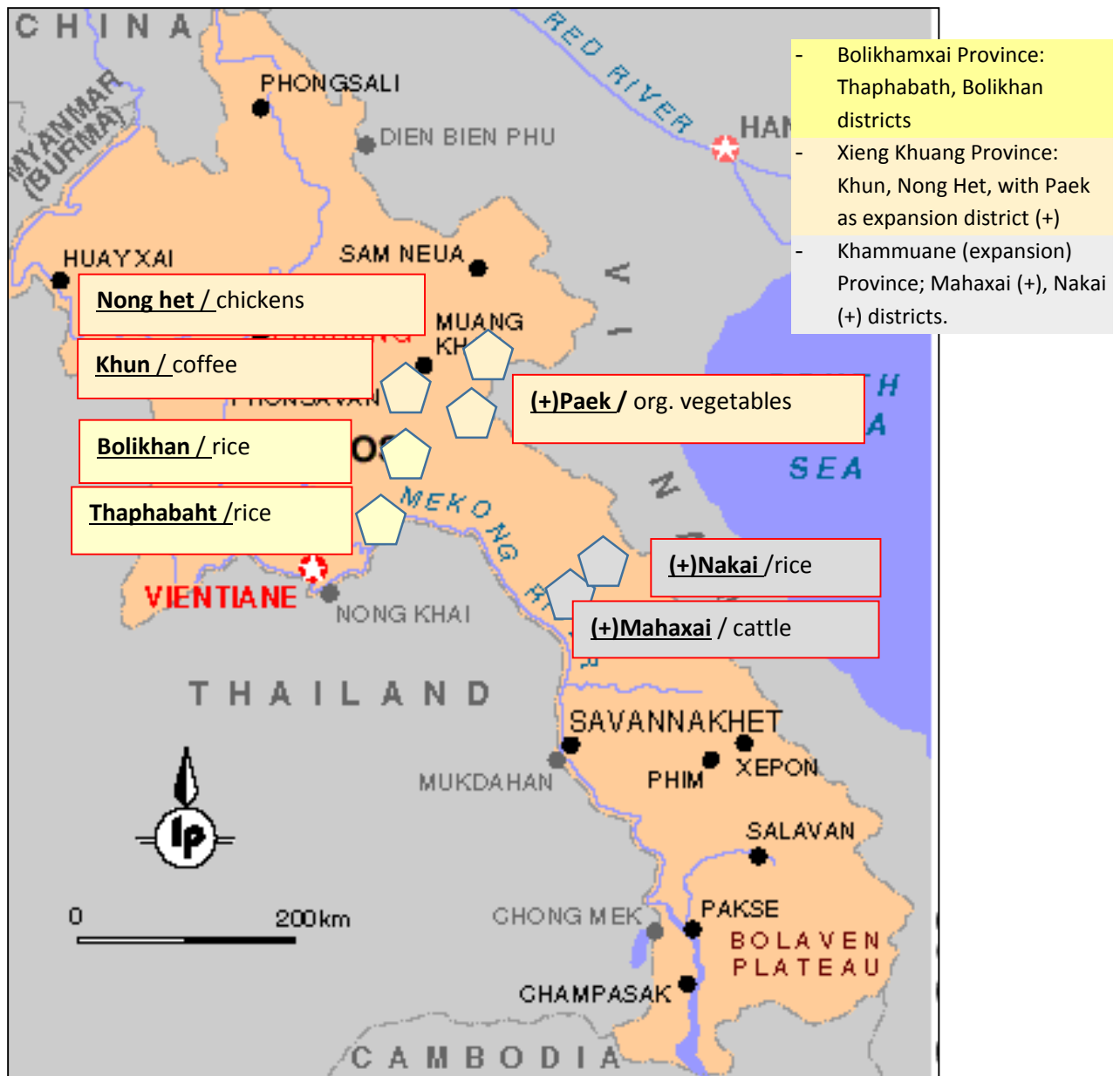


Fig 1. Map of Lao PDR, indicating the sites for the pilot DAFO, and (+) expansion sites.

As noted above, the four districts in the initial pilot study also represented DAFO staff with a wide range of experience from past projects and varying levels of skills/abilities (as

viewed/judged by DAEC). DAFO staff in BKX had little or no previous project experience and thus little practice-based knowledge of extension methods. By contrast, both districts in XK had had considerable staff development from projects over the past decade. This provided the opportunity to examine the response of differing DAFO to EMS in management and administrative terms.

Step 2 – Inception:

An Inception Workshop was used to engage and alert the administrative heads of local agencies (PAECS and DAFO) of the piloting of EMS. In the first instance, the EMS would 'affect' their normal procedures, and secondly, they were called upon to be prepared to assess the EMS in their roles as administrators. The outputs from the SRA (ASEM/2011/09) literature review and audit of the 'best practices' (Jones et al., 2013a, 2013b) were used to illustrate the potential of comprehensive extension. The workshop was conducted as an Action Learning/PAR event to elicit expectations regarding extension in their provinces/districts. This provided a basis for the JCU/DAEC team to develop the draft EMS tools.

Step 3 – District Orientation and Institutional Framing.

The Organization Development unit of research for the project was the 'district'. Within this unit, the DAFO was the prime agency of focus, both to elicit action and to assess responses. The longitudinal and iterative PAR process of engagement over the lifetime of the project enabled repeated refinement and, eventually, development of a robust, field-tested, EMS and FL/FO/ME framework.

While the DAFO were responsible for their own performance in working with farmers, they did not work in an institutional vacuum. When taking the various administrative functions into account, i.e., planning, funding, reporting, etc., it was necessary also to consider their interaction with other district-level institutions. Those considered were the District Governor's Office, District Planning and Investment and District Industry and Commerce. These GoL agencies also liaised with their provincial level offices which, in turn, could effect ratification of DAFO plans and provide access to operating funds. Thus, it was necessary to probe and assess their expectations and responses to EMS at key points.

Qualitative data deriving from workshops (Steps 2 & 3) were recorded and used in combination with baseline quantitative socio-economic data and case studies (c.8 products in 4 districts) to address **research question 1** and related sub-questions (please refer to **Section 11.1** for a summary breakdown of research questions and their respective operationalization).

Step 4 – Pilot Applications and Participatory Monitoring

This step formed a key area for study over 4 cycles (2013-2016). The project design entailed *devolvement of all operational decisions to the DAFO* with respect to the provision of extension delivery. It provided a broad framework for their operation, as follows:

- The EMS tools to be used for selection of a priority product, planning, reporting and fund management.
- Planning for expansion of the product to be based on districtwide opportunities. In the planning, the DAFO staff would decide on application of FL/FO/ME as they deemed suitable each year.
- DAFO field activities were funded from the project budget at approximately \$5000 AUD per year. This limited funding thus required the DAFO to identify cost-effective strategies. It was also considered a figure that the province could, in

principle, replicate in an ongoing and sustainable manner should authorities judge the initiative to be worthy of future support.

DAFO staff attitudes towards—and their capacity to apply—both EMS and the elements of comprehensive extension (FL/FO/ME) was a significant area of research interest and study.¹⁵ The introduction of the EMS tools and FL/FO/ME to the DAFO staff were, de facto, the intervention points of the PAR process, with the consequence that both frameworks derived from a longitudinal experiential exchange between pilot DAFO and the JCU research team. The JCU team offered initial guidance/input which was subsequently revised and refined on the basis of experiential knowledge deriving from field applications progressively over the four years of the project. The development process was monitored through: (a) half-yearly monitoring trips which combined field visits to assess changes to farmer practices and yields (production, group activity and marketing) as well as DAFO performance; and, (b) direct monitoring and short review meetings conducted by project staff. M&E data were principally qualitative—a combination of interview and ethnographic notes—which were used to address **research question 2** and related sub-questions. **Section 11.1** provides a more detailed breakdown of these questions and their operationalization.

Step 5 - Ongoing Implementation and Participatory Monitoring

In pursuit of **objective 3**—replication and scaling out—the project employed a methodology of ‘cascading organizational change’ (Hannan et al., 2003) as explained in more detail immediately below.

Type 1 – Enabling DAFO capacity

The project attempted to provide two models to enable rollout of the EMS and FL/FO/ME to additional districts and provinces.

- Establishment of peer networks of experienced DAFO, PAECS and DAEC staff who could introduce and mentor staff in the use of the tools in new districts (within a given province) and in new provinces.
- Draft a set of ‘in-service training modules’ based on the experience gained by introducing the guidelines and tools in the pilot districts.

Such an exercise would provide an assessment of whether these tools could be applied outside of project supervision, and what support would, in fact, be needed for rollout.

Type 2 – Mainstreaming of Extension Delivery

The second level of enabling widespread application of EMS and improved extension delivery required formal acceptance by decision makers of the efficacy of the approach and, finally, agreement to allocate ongoing operating funds. The project used the following methods in an attempt to secure the necessary higher-level approvals and authorizations for EMS:

- Introduction of estimates of economic returns to extension. DAFO reporting on impacts through economic data collection and preparation of case studies, as well as calculations of ‘return on investment’ formed the basis of a quasi-cost benefit analysis of extension service delivery.

¹⁵ Our interest in perceptual and attitudinal effects on behaviour and performance was informed by the Theory of Planned Behaviour propounded by Ajzen (1985, 1991). See also Ajzen & Fishbein (2005) on the role and function of attitudes with respect to behaviour change.

- Inclusion of district and provincial authorities in the six-monthly monitoring workshops so they would be informed of progress and the value of comprehensive extension, (e.g. District Governor's Office, District Planning and Investment and District Industry and Commerce).
- Identification of appropriate policy initiatives with which EMS would comply and to which it could positively contribute.

Data gathering at this stage of the project focussed on a performance audit/evaluation of selected provinces and districts where partners had deployed the EMS and associated methodologies. A combination of participant feedback, research observation and key informant interviewing data were gathered to enable performance evaluation in answer to **research question 3** and related sub-questions (see **Section 11.1**).

6 Achievements against activities and outputs/milestones

Objective 1: To develop extension guidelines that will enable district level extension units (DAFO and TSCs) to match the most effective extension interventions to address needs and opportunities within their Districts.

| no. | activity | outputs/ milestones | completion date | comments |
|-----|---|---|-----------------|---|
| 1.1 | Activity 1.1 Describe conditions where each of the extension interventions (FL/FO/ME) provides most effective mechanism for gaining change and greatest impact within each focal District. | Draft extension guidelines in Lao + English | Y4-M4 | Completed with assigned DAEC staff. |
| | | Assessment rpts (Lao) and revisions to guidelines | Y4-M4 | Progressive iterations, now complete |
| | | <u>Policy Brief</u> (or part thereof) for MAF (Lao + English) on practical application of interventions and results gained. | Y5-M3 | Draft completed and ready for discussion with Mr Somxay. |
| 1.2 | Activity 1.2 Develop guidelines for ways DAFO and TSC staff can support each of the interventions (FL/FO/MD) thus maximising the benefits of each. | Draft guidelines for support strategies of extension interventions tools (Extension Support) | As above | As above |
| | | Assessment rpts and revisions to guidelines | As above | As above |
| 1.3 | Activity 1.3 Develop an additional guideline for using ME/FO as a pathway towards cross-village FO (associations), and thus establishing smallholder farmers as 'actors' within specific value-chains. | DAEC Team review field experiences. | June 2016 | Draft outline, used in 2016 for commercial rice. |
| | | DEAC EMS field team draft guidelines | Not completed | No further assignment of DAEC team for this following completion of EMS guidelines above. |
| 1.4 | Activity 1.4 Develop tools for DAFO and the TSC to identify governance issues that compromise agriculture development for smallholders and/or issues that will undermine sustainable production. | Draft guidelines (Governance) | Not completed | This activity could not be mobilised within the field activities the emerged |
| | | Assessment rpts (Lao) and revisions to guidelines | As above | As above |
| | | <u>Policy Brief</u> for MAF (Lao + English). | As above | As above |

PC = partner country, A = Australia

Objective 2: To identify and develop an Extension Management System (EMS) for district level extension units (DAFO and TSCs) to use at the District level.

| no. | activity | outputs/ milestones | completion date | comments |
|-----|---|--|--------------------|---|
| 2.1 | Activity 2.1 Develop tools to enable DAFO and TSC staff to identify viable opportunities for scaling out improved production models across other parts of the District, (taking into account factors such as scale of impact, affect on poverty reduction, inputs required etc.). | Draft extension management system (EMS) tools for developing district extension plans - opportunity identification - scaling - prioritization | Y3 – M3 | Applied in 2013 and revised following field us and assessment by DAFO |
| | | Policy Brief for MAF (Lao + English) on relevance of EMS to integration of extn plans with Dist objectives. | Y5 – M3 | Combined with 1.1 and 1.2 |
| 2.2 | Activity 2.2 Develop tools to assist DAFO and TSCs construct 'economic scenarios' that express the potential impact (economic and livelihood) of scaling out improved production models at both household and District levels. | Draft EMS tools for economic scenario description | Y3-M3 | As for 2.1 |
| | | Policy Brief for MAF (Lao + English) on use of EMS to integrate extn plans with Dist objectives. | Y5 – M3 | Combined with 1.1 and 1.2 |
| 2.3 | Activity 2.3 Develop a suitable planning framework that is aligned with the new function of Districts for improved service delivery. | Draft of planning templates (with reference to existing formats) | Jul 2014 | Simplification to the Extension PCAP made (based on LuxDev interaction). Used for 2015 activity and subsequent years. Attempt to link with District Economic and Social Development Plans |
| | | Assessment rpts (Lao) and revisions to guidelines | Apr 2015 | Field reports |
| 2.4 | Activity 2.4 Develop tools to track the progress of activities in the field, manage funds transparently and report to both technical and administrative lines of authority. | Policy Brief for MAF (L+E) on use of EMS to integrate extn plans with Dist objectives. | Y5 – M3 | Combined with 1.1 and 1.2 |
| | | Draft of planning of monitoring tools | Jan 2015 | Standard formats for DAFO Progress Reports were developed, edited in the EYMM 2015 and subsequent year |

PC = partner country, A = Australia

Objective 3: To identify mechanisms by which DAEC can scale-out application of the guidelines and tools for effective extension delivery across Districts.

| No. | Activity | Outputs/ milestones | Completion date | Comments |
|-----|---|--|--------------------|--|
| 3.1 | Activity 3.1 Build a EMS development team drawn from various sections of DAEC to take responsibility for, and ownership of, the EMS Tools and FL/FO/ME guidelines with a view to introducing these to new provinces and districts. | Nomination of staff as EMS Development Team | Y3-M3 (temp) | DAEC staff assigned but worked only on drafting guidelines and then dispersed. |
| | | Draft '0' of tools and guidelines completed and field tested. Report on clarity and effectiveness | Y3-M3 | Completed |
| 3.2 | Activity 3.2 Develop In-Service Training Modules (ISTMs) for: (a) the introduction of EMS and (b) effective application of extension interventions, FL/FO/ME | Draft in-service-training-modules for introduction of guidelines and tools to new DAFO and TSC's. | Not completed | DAEC staff not assigned |
| 3.3 | Activity 3.3 Establish links with third parties to engage them in further application of guidelines and tools for effective extension delivery in their target areas and to participate in existing learning alliances, external workshops and studies, to expose EMS to GoL agencies with interests in planning and economic development. | MoUs between partner projects or direct agreements with districts in these projects gained | Y4 – M5 | Operational Plan Agreement contents agreed, for application of EMS by PAECS in Khammuane with Luxdev |
| | | Assessment rpt (by team) of application of in-service-training-modules in partner sites | Y4 – M12 | Assessment conducted (JC) |
| | | Staff draft papers to present in development workshops | Y4 – M10 | Abstracts not accepted. |
| | | Various learning alliances and or studies joined in joint studies | Not completed | Staff not available from other duties |
| 3.4 | Activity 3.4 Develop simplified cost-benefit analyses to: (a) enable DAFO and TSCs to demonstrate progress against District-level development objectives, (b) enable DEAC to justify and secure on-going funding for extension delivery. | DAFO/TSC case studies prepared (4 Districts x 1 product) | Y2-M10 Y3-M06 | First iteration by staff and subsequently assembled by farmers. |
| | | District level case studies (simplified Cost-Benefit Analysis) prepared by team and contracted agency. | Y3-M7 | Study conducted by weak results |
| | | Tool for DAFO self assessment of CBA for extension plans and results. | Not completed | Study team above could not completed with weak results in first half project. |

7 Key results and discussion

Results from the project are extensive. They include both concrete outcomes and subtler, yet significant, changes in attitudes, perceptions, and work practices of Lao extension staff. They are reported here following the structure provided by the three project objectives. The section proceeds in the following way.

Application of FL/FO/ME: is reported, firstly, in terms of extension outcomes for each product. Secondly, the role and function of each component of comprehensive extension contributing to these outcomes is examined. Finally, the changes in the attitudes, perceptions, behaviours and work practices of DAFO staff that occurred during the longitudinal application of FL/FO/ME are discussed.

Application of the EMS: the underlying principles of the tools are set out along with a brief description of the tools. Reasons underpinning the acceptance and uptake of the EMS tools are considered, along with a review of the effect adoption has had on the performance of the DAFO staff and their collective output. This sub-section seeks to represent the views of the practitioners, i.e., the DAFO staff. Recognition of the value and potential of EMS on the part of district-level administrators (DAFO Heads, District Governors, etc.) is then examined.

Scaling out of EMS and comprehensive extension: several factors are explored. The enrolment of district authorities is reported, including their espoused readiness to assign domestic funds to support ongoing extension and willingness to consider mechanisms needed to embed extension in DESDPs. Finally, and perhaps most importantly, a practical proposal—based on evidence reported here—for the rapid and cost effective rollout of EMS is presented.

7.1 Application of comprehensive extension: FL/FO/ME

7.1.1 Production output and returns to extension operating funds.

All five pilot District achieved significant results against their districtwide plans and in terms of the total volume of product produced. These provided direct benefit to households (HH) and set these products on a pathway to becoming new commercial products for the districts. There were significant changes to the way farmers organised themselves and marketed their product, and these contributed in a large manner to both the achievement of increased product volume and HH benefits.

The five pilot DAFO selected a range of products through application of EMS 1# (see 7.2 below) with characteristics that posed different production and marketing issues. For the two lowland districts, Thaphabath and Bolikhan, commercial rice production (a staple grain, traded widely) was the product selected by DAFO to work with. For highland areas, DAFO product selection was coffee in Khun (a high value product with very specific outlets), organic vegetables in Paek (perishable horticultural product) and poultry¹⁶ in Nong Het (livestock, traded a whole units).

¹⁶ Black fleshed chickens (*gai sin dham*).

The results the DAFO achieved against their districtwide 4-year plans (EMS 3#)¹⁷ are shown in the composite table below (Table 1). Each of the products posed particular challenges and the DAFO achievement against their targets was accordingly mixed.¹⁸ The three Xieng Khuang DAFO achieved around 30% of their targets for output volume for products which, arguably, faced more complex markets. The two Bolikhamxai DAFO achieved 50% (Bolikhan) and nearly double (Thaphabath) their targets for additional rice.

What is arguably more important than the individual figures is that significant results were achieved consistently by the five DAFO over widely varying agro-ecological conditions, for products with varied characteristics, and by staff possessing varied experience and working autonomously. In each case, the products and their farmers have now established the networks to continue to develop these products as commercially within the districts concerned.

These results, *offer strong evidence of the efficacy of the EMS and FL/FO/ME approach and their general applicability*. Taking a broader view, whereas extension delivery by the DAFO has generally not been well regarded, the above results counter that assessment and indicates that a state-supported extension system can, in principle, be effective. The gross value of the additional production revenues reported in Table 1, furthermore, suggests that this is far in excess of the cumulative operational funds used by each DAFO. This extremely favourable 'return on investment' is examined further in section 8.3.

¹⁷ The initial districtwide plans formulated using EMS 3# were for three years. The project was able to extend field activities of the DAFO using remaining funds to a fourth year. The target did not change and so, for the purposes of the report, these are referred to as 4-year districtwide plans.

¹⁸ The data in Table 1 is taken from the DAFO progress reports (EMS 5#) and must be taken as indicative only. It was checked in broad terms by JCU researchers during the six-monthly monitoring trips which included field visits and focus group interviews. The data and events are also more complex than can be presented in a simple table. For instance:

Commercial rice: data were calculated from the total yield and area planted with improved seed. By 2016 rice sold was 30% of this total yield. The price used to calculate the total value was 2500 Kip/kg, whereas farmers received 3000 Kip/kg for non-glutinous rice for some contracts.

Coffee: Sales of various forms can be reported: red-cherry / white parchment / green beans, with a weight ratio of 5 / 1 / 0.8. The trees take 3-4 years to first harvest and with yields increasing for several years. As the project was 4 years in duration most HH would only be beginning to harvest as the project ended. To provide a basis for comparison, coffee yields are expressed as the projected harvest for red-cherry of 2.5 t/ha planted as an understory. In early years of the project, farmers sold coffee as parchment (white coffee) to a boutique roaster in Luang Prabang. As trees planted matured, farmers switched to a new trader and sold as red-cherry so as to better manage post-harvest issues.

Organic Vegetables: Farmers grow a range of vegetables and sell in a dedicated market for prices up to 5 times those of the 'wet market'. The number of HHs reported are those trained and who began to produce organic vegetables. However, it was only 2016 that of these had their product accepted for sale as organic in the dedicated market operated by the Organic Vegetable Growers Association.

Poultry: The number of HHs reported were those 'interested' and who, at the very least, adopted minimal improved practices (vaccination, chick nurseries etc.). As benefits became evident, committed farmers developed more intensive production models in pursuit of more ambitious commercial objectives. These varied production models are not differentiated in the data.

BOLIKHAMXAI**Thaphabath – commercial rice production**

| No. | Extension Output | Districtwide | | Progress by year | | | | |
|-----|----------------------------------|--------------|-------|------------------|------|------|-------|-------|
| | | Potential | Plan | (<2013) | 2013 | 2014 | 2015 | 2016 |
| 1 | No. of villages | 33 | 13 | (13) | 13 | 10 | 8 | 8 |
| 2 | No. of HHs | 3,405 | 200 | (66) | 66 | 88 | 134 | 146 |
| 3 | Total group production (MT) | - | - | (89) | 96 | 215 | 395 | 678 |
| 4 | Added Production 4 District (MT) | 5,405 | 306 | - | 07 | 126 | 302 | 589 |
| 5 | Added income 4 District (M.Kip) | 8,427 | 918 | (1.8) | 17.5 | 315 | 755 | 1,695 |
| 6 | Added income 4 district (AUDK) | 1,293.2 | 140.9 | (0.3) | 2.7 | 48.3 | 115.8 | 260.1 |

Bolikhhan – commercial rice production

| No. | Extension Output | District Wide | | Progress by year | | | | |
|-----|------------------------------------|---------------|-------|------------------|------|------|-------|-------|
| | | Potential | Plan | (<2013) | 2013 | 2014 | 2015 | 2016 |
| 1 | No. of villages | 45 | 16 | (5) | 5 | 7 | 7 | 7 |
| 2 | No. of HHs | 3,233 | 1,000 | (73) | 73 | 187 | 187 | 187 |
| 3 | Total group production (MT) | - | - | (80) | 94 | 311 | 496 | 596 |
| 4 | Added Production for District (MT) | 3,233 | 1,000 | - | 14 | 231 | 416 | 516 |
| 5 | Added income 4 District (M.Kip) | 5,929 | 2,000 | (1.6) | 35 | 577 | 1,040 | 1,290 |
| 6 | Added income 4 district (AUD K) | 909.9 | 306.9 | (0.2) | 5.4 | 88.5 | 159.6 | 198.0 |

XIENG KHUANG**Khun – coffee (expressed as projected harvest of red cherries)**

| No. | Extension Output | Districtwide | | Progress by year | | | | |
|-----|------------------------------------|--------------|-------|------------------|------|------|-------|-------|
| | | Potential | Plan | (<2013) | 2013 | 2014 | 2015 | 2016 |
| 1 | No. of villages | 33 | 33 | (5) | 13 | 21 | 41 | 46 |
| 2 | No. of HHs | 1422 | 800 | (158) | 336 | 455 | 691 | 715 |
| 3 | Total group production (MT) | - | - | (300) | 492 | 450 | 525 | 595 |
| 4 | Added Production for District (MT) | 9,820 | 1,480 | - | 192 | 150 | 225 | 295 |
| 5 | Added income 4 District (M.Kip) | 39,280 | 5,920 | (1200) | 570 | 600 | 900 | 1,600 |
| | Added income 4 district (AUDK) | 5,874.6 | 908.5 | 184.2 | 87.4 | 92.1 | 138.1 | 245.5 |

Paek - organic vegetables

| No. | Extension Output | District Wide | | Progress by year | | | | |
|-----|------------------------------------|---------------|-------|------------------|--------|------|------|--|
| | | Potential | Plan | (<2014) | 2014 | 2015 | 2016 | |
| 1 | No. of villages | 85 | 15 | (5) | 5 | 10 | 8 | |
| 2 | No. of HHs | 166 | 175 | (99) | 99 | 188 | 108 | |
| 3 | Total group production (MT) | - | - | (5) | 5 | 10 | 15 | |
| 4 | Added Production for District (MT) | 60 | 40 | - | - | 5 | 10 | |
| 5 | Added income 4 District (M.Kip) | 2,390 | 1,137 | (165) | (165) | 175 | 350 | |
| | Added income 4 district (AUDK) | 366.8 | 174.5 | (24.5) | (24.5) | 26.9 | 53.7 | |

Nong Het – Poultry

| No. | Extension Output | District Wide | | Progress by year | | | | |
|-----|------------------------------------|---------------|-------|------------------|------|------|------|------|
| | | Potential | Plan | <2013 | 2013 | 2014 | 2015 | 2016 |
| 1 | No. of villages | 106 | 20 | - | 20 | 13 | 20 | 20 |
| 2 | No. of HHs | 2,958 | 213 | - | 6 | 173 | 221 | 221 |
| 3 | Total group production (MT) | - | - | - | 0.1 | 5.8 | 6.8 | 8.5 |
| 4 | Added Production for District (MT) | 2,673 | 21.3 | - | 0.1 | 5.7 | 6.7 | 8.4 |
| 5 | Added income 4 District (M.Kip) | 9,152 | 1,278 | - | 5.5 | 294 | 370 | 420 |
| | Added income 4 district (AUDK) | 1,404.5 | 196.1 | - | 0.8 | 45.1 | 56.8 | 64.5 |

Table 1. Extension outputs achieved by DAFO for each product
(Data: from DAFO annual progress reports - EMS 5#)

7.1.2 Role of comprehensive extension in achieving production outcomes.

The increased production volume was not based on provision of project inputs or subsidies to farmers; an approach that has been favoured by many ODA-funded extension initiatives in the past.¹⁹ The evidence indicates strongly, therefore, that *the results were gained to a large degree from the integrated application of FL/FO/ME supported by EMS.*

Various elements of the new FL/FO/ME extension approach have been applied by projects in the past, but usually with a focus on just one. It should be noted that for the first two years of the project the pilot DAFO initially focussed on the introduction of improved technologies, i.e., fell back on what was, to them, the safe terrain of FL. It was only as they recognised they were making weak progress towards their four-year plans that they reconsidered their traditional approach and applied FL/FO/ME in an integrated way. *Thus, it was only in the second two years of the project (2015-2016) that the bulk of the progress towards their targets was achieved.*

This is illustrated in Thaphabath for the development of commercial rice (see Figure 2). The figure shows that there was only a small increase in yield in the first two years (2013-14), likely due to the use of fresh seed, with a modest increase in rice output. In early 2015, the third year of the project, DAFO staff began to use comprehensive extension more effectively. They conducted a value-chain study trip for farmer representatives from the eight villages in the cluster (ME). Two villages in the cluster then formed groups and themselves negotiated trading agreements with large rice mills both in the province and in Vientiane (FO). With these agreements in place, the **number of HHs doubled** and the **area cultivated trebled**. The crop yield fell (due to flooding in villages adjacent to the Mekong), but with the increased area the **total output of rice doubled**. In the following year (2016), bolstered by their confidence in stability of market access, farmers were ready to apply the improved practices rigorously (FL).²⁰ This resulted in an increase in crop yields to **2.9 t/ha** (with 2 villages achieving **3.3 t/ha**), and a further **75% increase in output**.

¹⁹ Khun DAFO did provide plastic bags and seedlings to some farmers. This facilitated the expansion of coffee planted but was not a significant monetary incentive in itself.

²⁰ DAFO had also introduced 'broadcast' seeding methods to reduce labour costs. In 2016, 77% of the area was broadcast seeded.

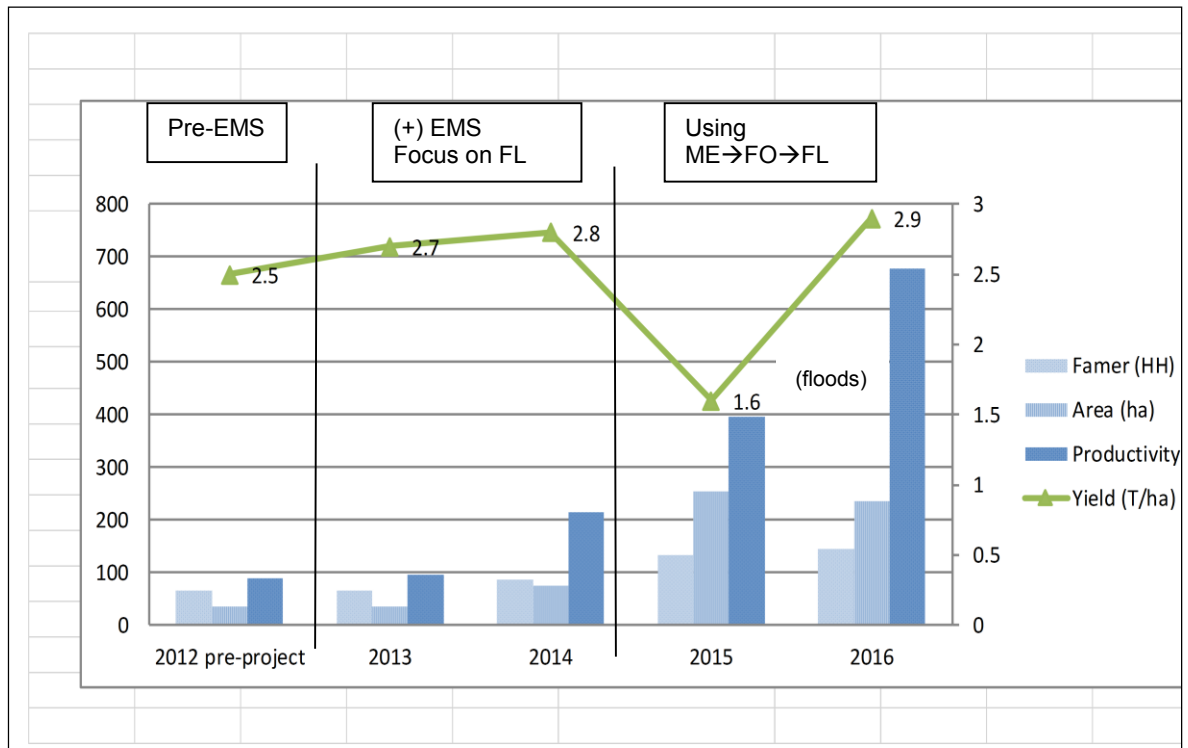


Figure 2: Effect of ME→FO→FL on extension outputs

The varying conditions built into the project design enabled the JCU research team to identify and analyse the functions of each element of the FL/FO/ME and how they can be applied in an integrated way. The findings in brief are:

ME – activities enable farmers to become aware of market opportunities (higher prices and better trading conditions when dealing with larger traders), understand the market/trader requirements (volume, quality and scheduling), and know key actors and their contacts so they can select and negotiated themselves.

(which leads to →)

FO – accessing improved trading requires farmers to deal in volume and supply products of consistent quality. As a result, farmers recognise they must work cooperatively in both planning production and then bulking and trading their product

(which leads to →)

FL – seeking means to increase output, improve quality and, in some instances, to produce on new schedules to meet market demand.

A key finding from our study is that the usual order and logic of comprehensive extension practice (e.g., as expressed in GoL policy), i.e., FL, FO, ME should be reversed. Our evidence suggests that **a more effective process can be represented in summary form as follows:**

ME → FO → FL

Whereas the traditional practice for extension has long favoured leading with the introduction of improved technologies. What we are suggesting, based on our study, is a **major break from past orthodoxy and accepted wisdom.**

This process suggests that *significant gains* in production can be achieved through linking farmers to markets. Economic opportunities afforded by this linkage motivate farmers to

organise in order to coordinate their production and trading activities so as to access the market opportunities. When viewed from the perspective of mobilising district economies, this rationalisation of production by smallholders (i.e., consolidated volume and consistent quality) needs to be achieved *before* any product can be accepted by commodity markets. It should be noted that the momentum for these gains was overwhelmingly achieved *without farmers' adoption of improved technologies*.

There is, however, a limit to these ME/FO-based gains. Once market links have been established and production has been coordinated, farmers then begin actively to seek improved technologies from extensionists to maximise their returns to land and labour. This process thus implicitly leads farmers to take an active position with respect to applying improved technologies. As such, they become 'active learners' and, in some cases, will continue to innovate autonomously of 'project' or DAFO support.

This pivotal role of the ME→FO step in mobilising farmers to move towards commercial production was confirmed with each and every product in the five pilot districts; although each element played a role according to the specific local conditions.

7.1.3 ME and FO application to specific products.

The results gained during the course of the project are significant but, nonetheless, it is important to note the context and limitations of the ME and FO applied. All the products (other than coffee) were grown within traditional subsistence production systems which were, however, in transition towards commercialization. Food security was not a major concern for the products selected and they were not subject to agribusiness of contract farming arrangements. The 'markets' were constituted by multiple small traders, with each HH selecting their preferred trader. The ME activities helped farmers to gain an appreciation of these 'local value-chains' and how to respond by bulking their product and negotiating trade as a group. Thus, the ME activities conducted to date *enabled market engagement for smallholders at an 'entry level'*. The ME activities instigated have yet to be proven within more complex market environments, such as, products where quality management is more rigid (e.g., tobacco and vegetable canning industries).

While the ME interventions were aimed at enabling smallholders to operate at just an 'entry level' of market orientated production, this does begin to bring about a fundamental change in smallholders' position in the value-chain. As part of the process of negotiating trade, *farmers assess the volume of their combined harvest and then offer to sell it to traders and choose the best offer.* In this way, they are no longer 'price seekers' but, instead, playing a proactive role in the value-chain. Traders in their turn begin to see such groups as reliable suppliers and then seek them as preferred sources of supply. This virtuous circle marks a profound change in the operation of the value-chain, where farmers come to be recognised as respected actors. To re-emphasise, such *entry-level changes are necessary precursors for locally producing farmers to be able to access larger commodity markets*.

Similarly, the enablement of farmer organisations was, in general, achieved at a relatively rudimentary level. The groups formed were mainly *ad hoc* in that they had no formal organisational structure and existed to achieve specific tasks, such as, agreement on use of common seed, agreements to bulk and agreements to negotiate trade collectively. This basic level of organisation did still enable the group to achieve agreements on a year by year basis with larger traders, thus gaining better trading conditions (more secure markets, correct weights, higher prices, etc.). While accessing better markets was the focus, this also impacted on production. Farmers within the group advised neighbours to use better practices so the group, as a whole, would have a better product to offer and so improve its bargaining position. Thus, in the process, the groups were playing an informal extension role. Similarly, when it came to trading, farmers who had previously suffered low

prices due to weak bargaining, now as members of a group benefitted from the common price negotiated by the collective.

The FO for coffee and organic vegetables deserve special mention as they operated at a higher level. The **Organic Vegetable Producers Association** had a well-established framework and a training curriculum. The association members thus played a relatively structured role in training an **additional 89 HHs** in organic production techniques. While they performed this well, they were still reticent to allow the new HHs to sell in the special niche market for fear it would be over supplied. However, they do now begin to recognise the vulnerability of their small niche market and are exploring ways to access larger markets. To achieve success in this regard, they will need trained and active organic producers ready to respond to these new markets once they are identified.

The farmer's organization that developed around the expansion of **coffee production** in Khun was notable for its size and scope: almost **700 HHs** across **46 villages** by the close of the project. A FO of this scale has the potential for farmers to play a formative role in the trajectory and functioning of a specific product within a district. This is exceptional in Laos. The Bolaven Plateau Coffee Producers Cooperative (CPC) on the Bolevens is an exemplar,²¹ but has been developed with a focused program over nearly two decades. The more modest and still fragile achievement in Khun has been developed by the DAFO staff over a four-year period deploying a budget of only ~235 MKip (36,000 AUD). The development of this FO merits further elaboration.

Prior to the project, each of the original five coffee villages had structured coffee groups set up by an earlier marketing project.²² These had elected committees and supported members in the use of production techniques (seedling establishment, etc.) and provided a shelling machine to produce *parchment coffee*.²³ The three villages also coordinated to select a preferred trader but then worked independently to bulk and trade their coffee at harvest. With the substantial expansion of coffee, it was clear that: (a) new and larger markets would be needed to absorb the future production of an estimated 200t of parchment coffee; and, (b) the coffee traded would need to be of a consistent type (i.e., red cherries, parchment or green) across all villages. Farmers recognised they would need to set in place the structures to coordinate across the village, as well as establish practical arrangements to allow this to function. In this respect, then, appreciation of the markets (ME) led to farmers recognising the need to form village groups and establish basic cross-village networks.

Farmers recognised these issues in 2015 and then began to explore ways they could address them. By the end of 2016, farmers had built a multi-layered structure, with committees in each village (technical, marketing, and management), zonal clusters of 4-6 villages and zonal representatives, followed, finally, by a district committee. The proto association has a well-articulated vision, namely: to serve the members in the introduction and use of improved production technologies, collective trading, and coordination during processing and actual sale. They would aim to collect fees and this would allow them to serve their members with technical and marketing services, with the DAFO staff role then becoming one of supporting the FO network.

²¹ The CPC was formed in 2007 following technical support by AFD (French Development Agency) since 1992. It currently has 1855 smallholder farmer members, significant warehousing infrastructure and employs its own management professionals. CPC's annual turnover is 3-4M AUD.

²² Small-scale agro enterprise development for the uplands project (SADU) implemented by CIAT

²³ Coffee is harvested as red cherries. When de-hulled and dried the beans are referred to as parchment or white coffee. With the parchment stripped they become green beans ready for roasting.

There is no formal association registered as yet, but the network with its representatives and elected leaders are both well-established and recognised by members. With the bulk of coffee trees yet to bear fruit, no fees can be collected and the network still depends on external funding.²⁴ Coordination between villages for marketing now has included both the old and new villages during 2016. Their dialogue resulted in switching preference to a new trader offering a higher price, so affording members the potential they needed for expansion. As part of this negotiation between the network and the trader, there has also been a switch to farmers trading their produce as red cherries rather than parchment; a move that serves to reduce farmers' labour and ensure more consistent quality for the buyer.

During 2015 and 2016, the local government recognised the potential for coffee as a new commodity for the district and the province. They instituted formation of a coffee association, which would be formally registered but, at the same time, have its leadership and activities vetted by the local authorities. This 'top-down process' thus appeared to run counter to the dynamic 'bottom-up and informed network' already beginning to be formed. In the end, the process employed to establish it was convoluted at best and stalled, leaving the informal network to continue as a de facto point of coordination for the coffee farmers. This remains a contested space and the state-sponsored arrangement might still be imposed, or the existing network might be state ratified. However, at this point the network prefers to operate informally to avoid confronting these issues until it is more stable and viable. The history of coffee in Khun serves as an interesting case that contrasts a state-sponsored attempt to manage farmers and production with an organisation managed by farmers for their own benefit. This issue was examined and reported on in more detail in the final report for the SRA ASEM/2014/102.

The coffee farmers FO, as described above, goes a long way to illustrating how DAFO could develop production of a commodity based on smallholder production. In the first instance, application of ME and FO activities mobilises farmers to work towards commercial production. As the number of villages and farmers grows, at some point the DAFO would have difficulty to reach and support them. In the case of coffee, to simply contact each of the 46 villages by phone to arrange a meeting would take at least 2 days. Having established a network with its 5 zones, such coordination takes only an hour. Providing other inputs would consume such time and resources as to be prohibitive. When considering state funds for extension, where such product-based networks did develop, the investment of state funds and DAFO time should not need to increase or be provided endlessly, but could in fact decrease or be phased out. At later stages of development, such networks could take over much of the current DAFO role. At that stage, the funds for DAFO operation could be reduced or redirected to other products/priorities, thus greatly improving efficiency of the service. As indicated above, this has now been envisaged and considered by the pilot DAFO, but is yet to take place.

7.1.4 DAFO capacity and application of FL/FO/ME.

The above section outlined the functions of comprehensive extension and achievements gained through its field application. The benefits were only realised through the take-up of the principles and techniques by the DAFO staff. Implementation was neither imposed nor directed by the JCU research team. Thus, it required the staff initially to appreciate the functions and then apply them effectively. The components FO and ME were still novel to most DAFO staff and, indeed, are generally regarded as difficult to facilitate; and yet they were applied by the staff of the pilot DAFO to yield significant results.

²⁴ Lao Upland Rural Advisory service (LURAS), funded by SDC and implemented by Helvetas, has indicated it could provide occasional funds to the Khun coffee farmers.

As noted above all, pilot DAFO focussed on the introduction of improved production practices in the first two years (FL). Their approach to addressing marketing issues was to identify a market/trader and arrange for that market/trader to purchase the expected crop. The JCU research team did advise against such 'pre-arranged purchase' agreements but, staying true to the overall PAR approach of enabling DAFO autonomy in decision-making, did not insist on alternative action. It was only as the risks of this approach became apparent in the second year (2014) when the 'arranged buyers' did not fulfil the agreements, and the weak progress to the four-year targets became evident, that the DAFO staff recognised the issues and were willing to reconsider their assumptions and default approach.

The key lesson was that DAFO should not pre-select a trader but, rather, **expose farmers to a range of trading opportunities and provide them with assistance in working through the factors needed to make an informed selection of suitable trader**. This, in effect, shifted the DAFO role from directing and pre-arranging markets/traders, to 'enabling farmers' to engage with local markets. In other words, DAFO moved away from a traditional and familiar directive role to one of facilitation. This shift derived from the *change of DAFO working process*. Furthermore, it is *doubtful that such a change in DAFO understanding and then behaviour could be achieved through training per se*. This is further vindication of *the efficacy of the PAR approach employed by the project*.

As noted above, **working with ME**, value-chain development is often seen as a novel and difficult activity. That the DAFO could conduct these activities effectively was achieved through *establishing a robust process, rather than relying on elegant value-chain assessment tools*. The working process for enabling farmers to engage with local value-chains was:

- Have interest groups in each village identify marketing issues and select representatives to examine these.
- Repeat this process on a village cluster basis with the village representatives. These issues then become the focus for a value-chain study trip.
- The 'cluster' representative are prepared by the DAFO staff by:
 - o facilitating the reps to estimate the total volume of product they expect to trade, and could potential supply in the future, and
 - o provide guiding principles to assess traders, i.e., that not only price but training conditions, reliability, etc. must be assessed
- Conduct value-chain study trips, in which a range of traders are visited to assess their market needs and preferred training conditions (quality, volumes, prices, etc.). Visiting multiple traders implicitly ensures farmers compare conditions and make informed trader selection themselves.

This process was applied in all districts. The results in Xieng Khuang were described above. Due to the complexity of the market (organic vegetables) and the scale of the cluster networks (coffee), the ME/FO activities were not left to DAFO in these districts, but was facilitated through the ACIAR SRA ASEM/2014/102. While the results for these products is impressive, the economic outcomes gained for commercial rice in the two Bolikhamxai districts is perhaps more indicative of its **potential for general application**. The DAFO staff, with support only from one young DAEC colleague, conducted the process in these two districts. Farmers returned with a renewed interest in commercial rice production which, despite having enjoyed increased crop yields in the preceding year (and following the DAFO pre-arranged buyer model), had previously been absent. In addition, farmers were interested in coordinating trading of their crop across the villages of the clusters. This cross-village arrangement failed to materialise but, despite this, two villages proceeded to make contract farming arrangements with larger mills in the province and Vientiane (see Figure 1, above).

Overall, *the process the project drafted to enable ME and FO with smallholders is relatively simple to introduce and facilitate*. The process first established clear lines of representation within the villages and village clusters. The estimates of expected volume the FO will produce positions the FO to present themselves as reliable suppliers to the traders they meet and so be partners in the value-chain. Finally, the process of the trip itself, as well as gaining value-chain information, builds a degree of familiarity and common purpose amongst the farmer representatives across the cluster. Because it depends on a relatively straightforward process, rather than application of 'tools', it is within the capacity and capability of many DAFO staff without extensive specialist training. To a large degree, the process depends less on the facilitation skills of the DAFO staff, as it does on the changes in perception and attitude of the farmers deriving from *their enhanced understanding of the value-chain beyond their farm-gate*. Such a process could well be applied to many of the existing agricultural products produced in small volumes and traded individually by HHs.

Much of the discussion here has focussed on the benefits to the smallholders. At the same time, the process could provide districts with a roadmap to build products still produced in small volumes to emerge as new agricultural commodities for districts.

Application of FO is an activity that is also regarded as requiring a high degree of facilitation skills and thus beyond the capacity of typical DAFO staff. Evidence from our project, however, contradicts this assumption. The JCU team observed DAFO staff in each district succeeding in assisting the emergence and development of FOs to varying degrees.

FOs are often portrayed, in an idealized format, with operating committees and regular functions which often include collection of fees, etc. Within the national extension system policy framework, FOs are judged to a considerable extent on their *form*. As a result, the focus of extension has been on providing training to farmers on the *structure of FOs* and the 'required' roles and elements within that structure (e.g., formation of a committee). By contrast, in the project FOs were conceived not as 'dry structures' but, rather, as having to fulfil particular needs of the farmer members. In other words, guidance the project provided DAFO staff emphasised the *functions* any FO might fulfil towards helping them to achieve their districtwide plans. At the same time, these functions were not regarded as being fixed but were expected to change over time, as farmers' needs and capacities evolved. Thus, the focus for the DAFO was to be, firstly, on what farmers needed to achieve, and only then how an FO might provide the useful functions to achieve that objective.

The development of the complex FOs for organic vegetables and coffee supported by SRA ASEM/2014/102 has been described above. The **FOs for commercial rice and poultry**, by comparison, are far more modest. These emerged only as village level entities and were primarily concerned with organising production of consistent quality and enabling collective trading. The resulting FOs were relatively informal and more in the nature of 'interest groups' rather than formally structured and governed organisations. Despite the simplicity of the form, these FOs enabled farmers to achieve their immediate objectives: rice farmers accessed contracts and then traded collectively; within the small village, poultry groups in Nong Het, cooperative action to assist other members to improve production to generate volume and better negotiate with traders was also observed to occur spontaneously.

The formation and effectiveness of FOs in all the pilot districts were, the authors contend, essentially due to: (a) gradual development of common objectives for collective trading of products; and, (b) joint activities providing means and justification for members to *benefit* socially from familiarity and a sense of solidarity. The joint activities that played a key role in initiating interest in FOs, especially across village clusters, were the value-chain study trips. Subsequent activities—especially each season to organize to bulk product then trade collectively—would reinforce and consolidate the FOs.

This process of relying on group activity to build FO remains at odds with that of DAEC and DAFO staff who prefer to initiate and support FO by offering 'training' which focusses on form (structures) rather than function. Thus, while DAFO staff now appreciate ME's role in mobilising farmers' interest in improving production, they nonetheless retain the old views about initiating and enabling FO through an applied activity of 'training'. Despite the DAFO staff being active protagonists, they still retain their old views that: (a) FO should be fully formed and structured; and (b) they can best establish FO through training. Hence, the alternative FO process introduced by the project is still emerging and needs to be consolidated.

Despite the attachment DAFO staff have to providing training to establish FOs, they are beginning to appreciate the role of FOs as providing a network with which they can interact and thus access the farming communities for which they have responsibility. This enables the DAFO to work more efficiently and with far larger numbers of villages than is possible by visiting individual villages on a piecemeal (and often preferential) basis. In this study, the DAFO began implicitly to recognise that farmers are able to act more autonomously, play effective roles and make decisions themselves.

The next natural step in the evolution of FOs is the creation of farmer associations; entities that can take over much of the technical extension and marketing for a given product and to which DAFO then play a supporting role. Such organisational arrangements are beginning to emerge with coffee in XK, but it is still not possible for these to flourish until the bulk of farmers begin to harvest, trade coffee, and thereby begin to pay fees that will enable a fully independent FO. At this level of FO development, autonomous training, management, accounting, etc. would then mature and become fully established. Such fully evolved FOs would provide primary services to its members, supported strategically by DAFO. We see these as potentially playing a key role in the commercialisation of smallholder agricultural production in Laos and also providing a new model for DAFO extension activities. Indeed, data from this project show that the alternative approach enables DAFO to justify their extension work as regional *investment* rather than net cost to the GoL.

7.1.5 Guidelines and indicators for FL/FO/ME.

No guidelines for application of FL/FO/ME were drafted or provided by the JCU research team to the pilot DAFO. The FL/FO/ME elements were introduced to the staff by peer DAFO who had applied them with success in their respective contexts. The staff thus had access to advice and mentoring if they wished to take up and apply the approach. The project team was in a position to draft the guidelines only in year three (2015), i.e., after the DAFO had begun to apply the approach earnestly and effectively themselves (see section 7.1.4). Thus, the guidelines were developed out of DAFO perceptions and practical experience of how these could be used and only after they had seen how the approach enabled them to achieve their districtwide objectives.

From this direct experience of conducting FL/FO/ME, staff then identified and articulated indicators by which the extent of effective functioning of each element could be evaluated. The indicators are significant in that they guide staff in their planning and delivery to focus on the *functioning* of FL/FO/ME rather than their *form*. They also provide administrators and those who will allocate funds for ME and FO activities a means by which to assess whether or not activities are having the desired outcomes (see Scientific Impacts, 8.1).

A first draft of the guidelines focussed on each element and its function in different contexts but turned out to be disjointed and laboured. The guidelines were reconstructed around three smallholder production systems: (a) subsistence; (b) mixed (subsistence/commercial) and (c) commercial. As the main opportunity for DAFO application of FL/FO/ME was expected to be under the 'mixed' system' conditions or

transitioning from subsistence to commercial, the guidelines were re-written so as to give prominence to this scenario rather than the others.

The content for the written guidelines were prepared first in Lao during a dedicated writing-workshop in which selected staff from the pilot DAFO and key staff from DAEC's Extension/ Training division participated. The workshop was facilitated by a member of the JCU research team. This initial draft was returned to the pilot DAFO for review and then evaluated and edited by Mr Somxay, DDG for DAEC. The English language version was back translated at a later date (see **Section 11.2**)

7.2 Application of the EMS

It is easy to regard the EMS as a set of forms and procedures. As originally conceived and expressed in the project design, application of the EMS was intended to enhance staff performance and thus the efficiency of DAFO service delivery. It was also anticipated that it would positively impact the relationship of the DAFO with other actors and institutions, such as, GoL district-level decision-making authorities.

The EMS tools were drafted by the JCU project team and introduced to the DAFO via workshops and ongoing in-country support on the part of one of the team members. Once familiar with the system, DAFO were assisted to apply the EMS tools in practice. The draft versions of EMS1# were applied very early on in Year 1 to enable 'product selection', as was the planning tool (EMS 3#). While following procedures, the DAFO staff retained decision-making autonomy with respect to core decisions, such as, product focus and follow-up activities. Indeed, encouraging such autonomy was a key tenet of the project PAR design.

The DAFO staff applied the EMS tools to generally good effect over the course of the project's life. A decision on whether EMS would be mainstreamed, however, was not in the hands of the DAFO staff but, rather, would be made by GoL administrators, such as, DAFO heads and District Governors. Evaluation of the efficacy of EMS needed to be considered from two perspectives: (a) the practitioners' (i.e. DAFO staff) and the outcomes they achieved; and, (b) administrators' and the degree with which their views of extension effectiveness and potential were affected.

The key results gained from the application of the EMS tools were, in brief:

- The tools themselves were observed to be functionally effective and were able to be applied by the DAFO staff. Their robustness and wider applicability was demonstrated when they were applied outside of the ACIAR project by a PAECS/DAFO in another province/district.
- Through application of the EMS tools, attitudes and performance of the DAFO staff improved. Had this not been the case, the extension outcomes evidenced earlier would not have been achieved.
- Local administrators, DAFO heads, District Governors, etc., were recorded as recognising and acknowledging the potential the DAFO displayed through their effective use of the EMS tools. Having seen evidence of the economic return on investment in extension, toward the end of the project these authorities expressed a willingness to assign operating funds to DAFO.

The last of these, assignment of operating funds by local GoL authorities, has the ***potential to yield the greatest socio-economic impact from the project in the medium- to longer-term***. The implication is that GoL itself, as opposed to ODA projects, could support and gain benefits from extension investment in a sustained, programmatic and generalizable manner. The use of domestic funds from district and provincial sources could also be expected to have *profound governance impacts* in terms of increased attention being afforded to outcomes, accountability and transparency; something currently absent from state-supported extension in Laos.

7.2.1 EMS basics

The EMS tools were designed to enable the DAFO to carry out pragmatic management functions of planning, monitoring of activities and funds, and reporting results against plans. As the guidelines came to be drafted, two additional elements were included.

Four underpinning principles informed the design of the EMS tools. These were not simply devised to establish a degree of 'correctness' but, rather, intended to improve functionality and engender a new work ethic and vision for the DAFO. They were used as reference points throughout the project as staff reflected on and learned from their own performance. The principles were as follows:

- 1# Districtwide responsibility for the DAFO.** The DAFO were required to shift from focussing on a limited number of target villages to take on the task of enabling a selected product to become a new commercial product for the district and, with this, to engage all relevant villages. In the process, this would require DAFO to focus on outcomes and so employ dynamic methods (i.e., FL/FO/ME) to achieve results. The macro districtwide goal would serve to align with District Socio-Economic Development Plans (DESDP).
- 2# Evidenced based decision making:** Past extension activities were determined by donors or were politically derived. DAFO staff could now use evidence to justify their decisions on pragmatic (i.e., economic, social and environmental) grounds in relations to GoL policy.
- 3# Results orientated:** staff had, historically, focussed on establishing models (islands of excellence) and their own activities. Now they would focus on results, informed and driven by their districtwide objectives.
- 4# Engaging with multiple stakeholders:** extension staff had heretofore worked independently focussed on introduction of improved technologies. With the acceptance of the outcomes orientation and districtwide objectives, they were now to be prepared to engage with other stakeholders: private sector, other district agencies/authorities, etc.

These principles were applied within the EMS tools. The tools themselves were also designed to affect the thinking and, eventually, the performance of the DAFO staff as they applied them.

EMS 1# Opportunity identification and priority product selection

Staff assess impacts gained from previous extension initiatives and extrapolate these to villages with similar agro-ecological conditions to articulate a districtwide opportunity. This arms the DAFO with a rationale for investment in extension for that particular product. This districtwide estimate of potential forms the basis for DAFO plans (EMS 3#) and is the beginning of shifting DAFO staff thinking from an input-orientation (technologies and activities) toward that of output, outcomes and impacts.

EMS 2# FL/FO/ME Guidelines.

These provide DAFO staff outlines of how to apply the elements of comprehensive extension to achieve districtwide objectives. Effective application of these enable farmers to engage with product value-chains effectively and assist them to form their own organisations and networks to achieve *their* goals.

EMS 3# Planning Districtwide Extension

DAFO staff detail multi-year plans for development of the selected product from a districtwide perspective, including estimates of results, indicators for key outputs, and operating budgets. These plans are now based on estimates gained from EMS 1# that can be justified. Plans use CPAC formats and thus are well-positioned to be integrated with DESDP. As already noted the districtwide objectives lead DAFO staff to think in terms of outputs and what activities they need to conduct to achieve targets.

EMS 4# Reporting Extension Results

Progress reports are linked to the districtwide plans and refer to the outputs indicators. This further reinforces DAFO staff to think in terms of results, rather than piecemeal activities. It provides them with a tool to publicize and promote their achievements to various district authorities' responsible for allocation of priorities and resources, and thus a means to justify funds.

EMS 5# Field Accounting

Simple accounting to assist the DAFO to manage their funds. Transparent reporting of use of funds also assists the DAFO to demonstrate their capacity and can serve to further engender confidence on the part of District authorities who have the power to allocate future operating funds.

The following two EMS tools are expected to be applied by the DAFO administrators in their overall management of the DAFO as a unit.

EMS 6# Roles and Responsibilities

This outlines the roles and functions for DAFO, PAECS and DAEC in planning and supporting extension delivery.

EMS 7# Human Resource Management

This provides guidance to DAFO Heads in forming and supporting teams of staff with various skills and abilities to conduct extension delivery in the field to achieve the districtwide objectives as rapidly and efficiently as possible.

7.2.2 Application of EMS by DAFO staff

The EMS tools 1#, 3#, 4# and 5# were introduced to the DAFO staff and then reviewed periodically. Some of the challenges were:

- (a) Applying EMS1# (Opportunity Identification) , staff could conduct the HH surveys but needed technical assistance to collate this data.
- (b) Entering data into the MS Excel template for EMS 5# (Field accounting) required several sessions of on-the-job instruction.
- (c) Reporting results, EMS 4#, staff at first tended to *focus on activities rather than outcomes* (i.e., number of HHs, yields etc.). Staff also initially reported total outcomes rather than increases/changes and did not compare results with their plans.

These technical problems were gradually overcome and, in due course, staff were applying the EMS competently and with purpose. **The EMS 1#** was applied only once to select the priority product, and it would appear that collation of data would remain an area where some support would be needed, or, alternatively, for the tool to be further developed with a template to automatically process the HH data. Despite this, EMS 1# was the tool that the DAFO staff repeatedly stated was of key value to them as it enabled them to identify and justify a product to focus extension efforts on.

More than simply engaging in rote application, the DAFO staff came to accept the underlying premise of each EMS tool and, by the second half of the project, applied them with insight and commitment. The foundation for their work were the districtwide 4-year plans (**EMS 3#**). These were well framed and incorporated significant targets set by the staff themselves. Initially, having such substantial objectives and working towards them was beyond the expectations any of the DAFO staff. When first encountered, the staff

considered the 4-year districtwide objectives to be some sort of routine or 'ritual' required by the planning tool; not as something they could work systematically towards. It was not until Year 3 that DAFO staff began to take ownership of the targets. This shift coincided with DAFO staff beginning to use FL/FO/ME more effectively and thus seeing for themselves how the new comprehensive extension process could generate significant outcomes.

Alongside the planning and objective setting challenges, DAFO attitudes towards reporting spoke to their unfamiliarity with performance management techniques. 'Reporting' on financial, activity, results/outcomes, etc. (**EMS 4#**) were again regarded as a requirement of 'project' protocol and therefore lacking in personal meaning or relevance. As noted above, typically DAFO reporting has been limited to accounts of field activities performed, rather than outcomes. Despite the introduction of EMS 5# for reporting, they attempted to continue this. As DAFO began to accept the value of districtwide targets, however, reporting processes also acquired new meaning and staff saw value in comparing outcomes with plans in a systematic and consistent manner. It prompted the staff to review their progress and then consider ways of improving it. This development was reinforced by inviting the participation of District Governors in the six-monthly workshops and their recognition of the value and regional significance of the extension work being undertaken by DAFO. In short, processes began to shift from empty adherence to protocol toward genuine functionality and purpose. Staff also appreciated that reporting against the plan was meaningful and that, even when targets were not fully achieved, progress could still be demonstrated against the plan.

Not without justification, inappropriate or incorrect use of funds has been a typical concern of donors and GoL. Some resistance was expected to the introduction of the field accounting tool (**EMS 5#**). Somewhat surprisingly, this did not occur. Whilst undoubtedly specific expenses could have been exaggerated (e.g., fuel costs), overall EMS 4# functioned well to allow DAFO to financially plan and expedite extension activities. By the Year 3, staff were even complimentary about the EMS 4#, indicating that it enable them to track expenditure well, and in one case (Nong Het) the staff applied the tool to monitor funds from another project. Whilst serving the needs of basic accounting, use of EMS 5# fell short full financial management, e.g., where monitoring of expenditure can lead to responsive decision-making and changes in resource allocation. Such a level of management is likely only to come with full oversight from DAFO Heads who are committed to achieving districtwide objectives.

The management functions of the EMS tools thus provided the DAFO with concrete objectives which they could identify, justify and articulate. This allowed them to manage funds according to the activities planned and to report on, recognise and monitor *their own progress*. Together, then, the EMS tools provided the software for DAFO staff to perform their duties in a structured manner and thus work towards their objectives with consistency and commitment. This was achieved and demonstrable at all sites.

Beyond the pragmatic changes in performance noted above, there were other more profound changes in staff attitudes, perceptions and behaviour

Ownership and responsibility: in feeding back on the project, DAFO staff referred to the EMS 1# (product selection) repeatedly as, in their judgement, it had provided them with a framework to make the decision rather than being dictated to. As noted above, once selected, the EMS 1# allowed the staff to justify the decision and to articulate the districtwide potential for extension.

Shifting from activity focus to results/outcomes orientation: The EMS 3# (districtwide planning) provided substantive goals which, once they were accepted and identified with, enabled DAFO to direct their efforts in a professionally meaningful way. By the end of the project, DAFO willingly adopted and practiced all elements of comprehensive extension in pursuit of their targets. Reporting against their

plans (EMS 4#) allowed them to articulate their progress in measurable ways and thus to gain professional recognition and reinforcement of their efforts.

Shift from directive to facilitating interaction with farmers (service provision).

Through the ME activities, DAFO staff recognised they should enable farmers to understand market and make decisions, thus implicitly handing agency over to farmers. With expansion of production/marketing, DAFO recognised that, in order to achieve the districtwide plans (EMS 3#), they would work more effectively by supporting farmer networks (FO). In this way they would devolve agency to farmers in an even more structured way.

The changes in DAFO staff attitudes, perceptions and performance engendered and observed within this project are **highly profound** and, indeed, attributes that would be sought for extension staff in any country. The authors contend that these results, moreover, **could not have been achieved by training inputs**. However, without an ongoing supportive and enabling operating context they may not persist.

7.2.3 Recognition of EMS's value by GoL regional administrators and authorities

Built into the project design was a review process to assess extension delivery impact resulting from the implementation of the EMS. Review feedback was sought from a triumvirate of GoL administrators and local authorities: District Governor's office representing the political head of the district; District Planning and Investment, representing the key agency within the district that would approve plans and funds; and District agriculture (i.e., DAFO) as the implementing agency for extension. Conducting the review also served the aim of providing an entry point for local authorities to consider ongoing (non-ODA) funding for the DAFO. If successful in securing sustainable funding, the review process would vindicate success of EMS-enabled delivery and also foster new GoL champions that could potentially promote the case for a broader application of EMS within a given province and beyond.

Senior staff at DAEC were initially hesitant to engage local authorities in any kind of participatory or evaluation role for the project. There may have been a reluctance to expose 'unproven' systems and methods to external scrutiny from other GoL agencies. In the second year of the project, during an internal review, both strong and weakly performing DAFOs stated that, whilst the EMS provided them autonomy in decision making, they felt insecure acting without direct sanction of a senior authority. In the absence of any ODA 'project cover', they suggested that they would feel themselves to be on a safer footing if local authorities were engaged and invited to review their EMS/comprehensive extension activities and achievements. In other words, it was DAFO that requested the involvement of the District Governor's office. This request from the bottom up set a precedent that enabled the project to regularly engage district authorities in six-monthly review meetings. Participation of local GoL agencies became routine, which normalisation led in the medium-term to DAEC acknowledging and accepting that this was a positive development. This was regarded by the JCU team as a **watershed moment for the project**.

The project initially had a low profile due to the small funding inputs it provided. This status gradually changed, in part, as a result of including district and provincial authorities in the six-monthly project review meetings. These meetings offered a forum in which DAFO could present progress reports and give clear, evidence-based indications of the potential a given product would have by way of contributing to the regional economy and meeting GoL goals (e.g., with respect to commercialisation of smallholder production). Local GoL recognition of the value of the EMS was further enhanced in the third year when the increased volumes of outputs were monetized and compared with extension expenditure (see Fig. 3). While not taking into account all costs (i.e., to farmers) it did offer a rough ‘value for money’ or ‘return on investment’ measure. This immediately captured the attention of DAEC leaders and local GoL agencies alike.

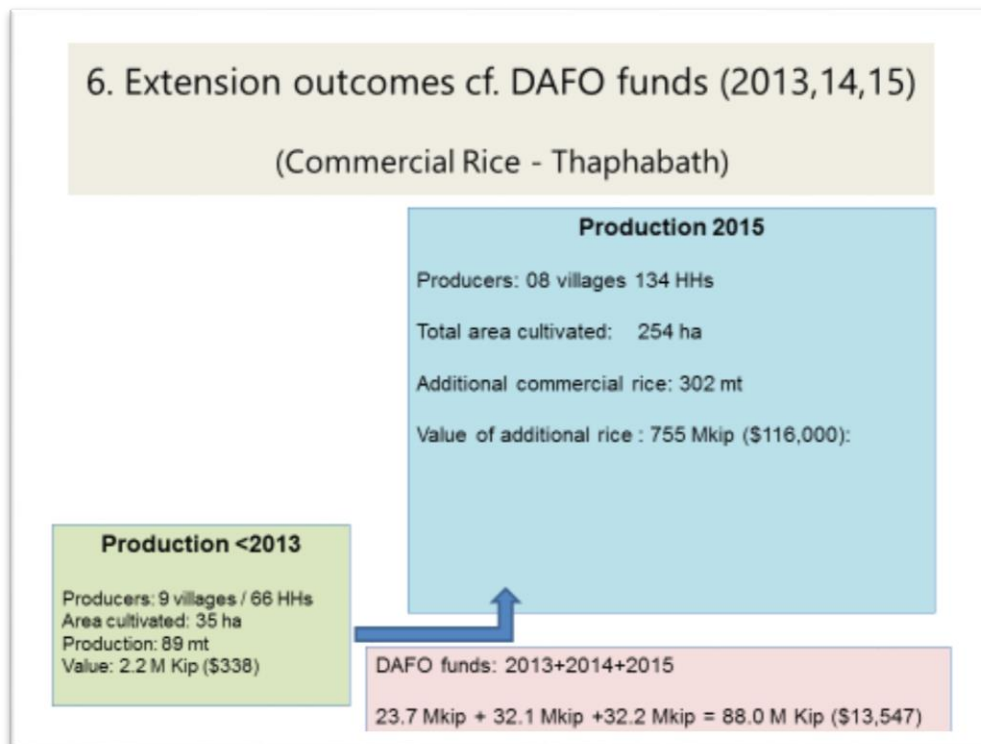


Fig. 3. DAFO slide (EMS 4#) rough estimate of returns to operating expenses

In a series of end-of-project review interviews, authorities across the pilot districts were consistent in providing positive feedback about the achievements. Key points made were: (a) recognition of the impact (based on economic data generated by DAFO) gained from extension; and (b) a general willingness, in principle, to fund extension at the levels the project had (i.e., 30-50 M Kip/year). The latter funding level could be justified by the authorities and, in their view, should be feasible. Statements made in one-to-one review interviews were also reiterated in public at district and provincial level meetings in the last year of the project.

That such feedback and support would be forthcoming from local GoL authorities *would have been unimaginable at the beginning of the project*. What this project has accomplished is **a major shift in mindset with respect to extension in Laos**. Whereas at the inception of the project agricultural extension was exclusively within the province of ODA-funded activity—indeed, this was considered the norm—by the end of the project there was a clear appetite for seeking ways of supporting it through modest levels of state funding. This shift in perspective goes a long way to confirming the broad strategy of the project design.

One of the District Governors stated that he would take concrete action to ensure extension obtained regular funding through its inclusion in his DESDP. Several districts also stated that to agree suitable levels of funding for extension would require the District Governor's office, District Planning and Investment and the DAFO to work together to establish meaningful aims and objectives that would be consistent with policy. This development accords directly with one of the key aims and impacts sought by the project.

Whilst local authorities were engaged mid-project, they continued to play a somewhat passive role in that the DAFO Heads did not manage their staff resources but, rather, persisted with the staff originally assigned (i.e., did not apply EMS 7#). Neither did they manage operating funds to optimize progress towards the districtwide plans. The work was still regarded by senior DAFO staff as comprising a 'project' and something outside of normal GoL activities, rather than constituting a 'potentially new way of working' (the position repeatedly taken by Mr Somxay in staff meetings). While exposed to the progress reports (EMS 4#), the DAFO heads and the other district authorities were not engaged in an explicit way to actively assess the EMS tools themselves. It would have been difficult for the project to engage local GoL agencies at a more intensive 'technical' level without national level authorities (DAEC/MAF) explicitly authorizing this as an objective within a policy framework.

7.2.4 EMS guidelines document

The project published a set of EMS guidelines in its final year 2016. The Lao version, with full approval by DAEC was printed (500 copies) and distributed to all DAFO and PAECS. An English language version was prepared and made available in digital form.

The process used to produce these guidelines aimed to ensure their accessibility to potential users and, at the same time, establish ownership of them by DAEC. The EMS tools had been used in a draft form by the initial four pilot DAFO who, in turn, fed back on their experiences and made recommendations regarding minor changes to content. In revised form, the guidelines were approved and adopted by the DAFO staff.

The written guidelines were intended to inform users (DAFO staff) and administrators (DAFO heads, District Governors, other donor projects etc.) of the role of EMS and its components. The document was never intended to be an instruction manual. It set out the key principles and also included sections on the use and function of each tool. The guidelines included the four pragmatic management tools that would be used by practitioners: product selection and development of districtwide opportunity (EMS 1#); planning (EMS 3#); reporting (EMS 4#) and fund management (EMS 5#).

The EMS document included the FL/FO/ME use as EMS 2#. This has been problematic as 'management' and 'extension delivery methods' have become conflated. Many Lao colleagues now refer, mistakenly, to FL/FO/ME as EMS which is an obstacle to discussing the issues related to each. If in the future the EMS were to be mainstreamed it would be better to distinguish between the EMS and FL/FO/ME more explicitly.

The guidelines included two additional tools: Roles and Responsibilities (EMS 6#) as relating to extension units and operations at district, provincial and national levels, the DAFO and PAECS; as well as Human Resource Management (EMS 7#). An example of the latter concerns setting out how the technical staff of the DAFO could be assigned, as required, to achieve the districtwide plans and build capacity by mentoring colleagues. These two tools were intended principally for administrators.

The guidelines were prepared initially in the Lao language. A writing workshop that involved selected staff from the pilot DAFO and key staff from DAEC's Extension/ Training division was conducted for the purposes of drafting the guidelines. This draft was returned to the pilot DAFO for review and subsequently reviewed by Mr Somxay, DDG of DAEC.

The English language version was back translated for the finalized Lao version (see **Section 11.3**).

7.3 Means and mechanisms for scaling-out EMS and FL/FO/ME.

7.3.1 Accessing mainstream funding

Operating funds for DAFO are a cornerstone for enabling delivery of extension services. Without financial support, extension delivery cannot take place regardless of how effective the methodologies, or how capable the staff.

As noted above, the project introduced metrics for comparing the value of additional output with DAFO operating expenses (Figure 3). When these were analysed in more detail, the return on investment (RoI) revealed a range of 5:1 to 20:1).

The district authorities (Governor and Planning offices) of all five pilot districts recognized the effectiveness of extension under the EMS-informed regime and understood that success derived from the actions of DAFO staff rather than stemming from a 'project' per se. **They stated that the level of funding (30-50 MKip/year) was appropriate and could be justified.** Two districts described a pathway to access such funding through coordinated efforts of the Governor's office, Planning and DAFO. This would in effect have meant that extension activities would be included in the DESDPs.

This acceptance of the value of extension and willingness to access local funds, expressed in formal forums is a watershed. While no district did come to the point of committing to ongoing funding for extension, there were instances where block grants were provided to extension. Xieng Khuang Provincial Government, for example, provided Khun DAFO a block grant of 50 MKip in 2014/15 to accelerate the expansion of coffee planting. Bolikhamxai province provided 50 MKip to the PAECS to consolidate the EMS activities in the two existing pilot DAFO and a third district. **Such grants to extension on the part of local GoL were 'exceptional' and confirmation that local authorities recognised the impact of extension.**

7.3.2 Application of EMS by partners

One of the stated aims of the project was to out-scale and test the EMS and comprehensive extension in contexts outside its own scope and remit. If successful, adoption by another project or projects would potentially demonstrate the validity and generalisability of the approaches and tools.

Expansion beyond the pilot districts was first attempted *within* an existing province. The PAECS staff in Xieng Khuang displayed a high level of understanding of the EMS and were prepared to coordinate expansion of use to an additional district. Introduction of the EMS to Paek DAFO was provided by experienced staff of one of the original DAFO, i.e., Khun. Additional support for collating survey data for EMS 1# was provided by the DAEC/JCU Project Team. Paek DAFO selected organic vegetables as their priority product and continued in subsequent years to work effectively on that product This initial test thus did indicate that the EMS was robust enough to be scaled out at provincial level by PAECS.

The scaling out of EMS to a non-ACIAR partner project, where that partner would be prepared to assign its own funds, was tested with LuxDev Laos /024, 'Khammuane Local Development Project'. The arrangement was agreed through contacts with the director of LuxDev Laos, Dr Peter Hansen. He informed the JCU research team that LuxDev had not previously considered supporting extension work in Laos as past experiences had been bad and returns from the investment inadequate. The EMS offered a means for DAFO to

conduct systematic planning and monitoring of extension. Funds for DAFO extension delivery and PAECS coordination (\$24,000 AUD over 2015 and 2016) were allocated for 2 of LuxDev's 3 target districts; Mahaxai and Nakai.²⁵ District selection and preliminary planning was ratified at the provincial level by means of an inception workshop, also attended by Mr Somxay. Application of EMS 1# resulted in the DAFO in Mahaxai and Nakai districts selecting cattle fattening and commercial rice production, respectively, for attention.

LuxDev's trialling of EMS demonstrated the robustness, generalisability and transferability of the EMS. DAFO were able to use all the EMS tools satisfactorily and gained concrete results.

7.3.3 DEAC capacity to scale-out EMS

Attempts were made to build capacity within DAEC to rollout the EMS and comprehensive extension on a wider basis. Project ambitions in this regard were specifically set out as additional sub-objectives (3.1 and 3.2) in ASEM/2011/075 Contract Variation 1#. Regrettably, however, this capacity building endeavour proved largely unsuccessful.

The attempt to form an EMS development team was discussed with Mr Somxay. Team members were to participate in expansion activities with partner projects and thus be part of the process of introduction of EMS and comprehensive extension to a new province. As a result of such working experience, this team would then draft an 'In-Service Training Module' (ISTM) which could guide further DAEC teams in the future. That this initiative was not pursued can be explained, in part, by delays in generating fully articulated printed set of EMS guidelines for discussion within DAEC. As a consequence, interest from other sections within DAEC was not forthcoming. A second, but no less significant factor, was that the existing team seemed to have little interest in sharing project resources and opportunities with other DAEC staff. Internal politics and established 'project-based' patterns of conduct, somewhat ironically, mitigated against staff capacity building. That said, during the final year of the project, awareness of EMS was raised..

7.3.4 Strategy for fast-tracking rollout of EMS

The project had developed the EMS tools and approaches to using comprehensive extension in an integrated way and had demonstrated their efficacy. The results from their application were properly consolidated only in 2016. While the tools had thus been validated through use under project support, the critical issue remained what process and support could be used to rollout EMS application nationally.

Whatever the efficacy of EMS demonstrated as a project, senior decision-makers were to regard its mainstreaming and institutionalization with caution. Issues pertinent to wider EMS rollout in the Lao context included: (a) can the processes and procedures be scaled-out from project to national level; (b) will the exercise justify the required investment (time, staff, funds); and (c) will the new procedures align with existing ones or require extraneous adjustment?

By its close, the project had gone some way to resolving addressing these issues and proposing practical mechanisms for rollout.

²⁵ Nakai: commercial rice / 8 villages / 85 HH, and Mahaxai: cattle raising / 8 villages / 104 HHs (2016)

(a) Robust approaches:

The scaling out achieved in the lifetime of the project—firstly, within a province to a new district (Paek/Xieng Khuang) and then later by DAEC staff to a new province (Khammuane)—demonstrated: (a) that the tools could be applied by DAFO outside of the host project; and, (b) a network of experienced staff are capable of introducing the approach/tools and mentor new staff in their application.

While the authors have evidence of these successes some limitations and qualifying caveats should be made:

- Some elements of the EMS, (i.e., EMS 1#) is not currently in a form that new DAFO staff could apply directly. Use of EMS 1# would need support from DAEC staff, initially, and later from PAECS staff familiar with the approach.
- Methods for applying ME and FO depend on processes that are relatively familiar to DAFO staff.
- Effective application of FL/FO/ME by DAFO staff only came after two years, as it was recognised as an improvement on current approaches. If the alternative approach becomes a norm, with direct recommendations from DAEC and PAECS, this 'leadership' along with support of experienced staff will enable its broader application by DAFO staff.

(b) Modifying the institutional ecology for fast-tracking, low cost rollout:

Despite the fact that the project provided no formal training inputs, the attitudes, behaviours and performance of the DAFO staff was enhanced significantly. As a result, measurable improvements to production and social outcomes were realized. Reflection throughout the project together with data deriving from final exit reviews, suggest that alteration of the DAFO 'institutional ecology'²⁶ was responsible for the observed changes in DAFO performance:

- Application of EMS tools: this enabled the DAFO to focus, justify and manage their resources in such a way that they were able to progress towards their objectives.
- Leadership: The Project minimised its presence in the sites and gave DAFO autonomy with respect to much of its decision-making. In the first 12-18 months of the project, Mr Somxay attended each of the six-monthly review workshops and affirmed the project objectives repeatedly to the DAFO staff. In the later stages of the project, the formal authority of the DEAC DDG was gradually replaced by the engagement of provincial and district authorities (see 7.2.3).

This formal authorization was supplemented by six-monthly monitoring and progress reporting workshops where DAFO staff could exchange experiences, and received additional operational guidance. Such organisational learning would need to be facilitated either by DAEC (for new Provinces) or PAECS (within provinces).

- Context of work broadened: The role and function of the extension work shifted from achieving technical demonstrations on a limited scale (e.g., model farmers/villages) to being responsible for achieving outcomes on a districtwide basis. This led to staff recognising the need to use new approaches (i.e.,

²⁶ The concept of institutional ecology has been widely employed within the fields of organization studies and institutional theory; see, inter alia, Tucker et al. (1992), Baum and Powell (1995), Baum and Oliver (1996), Seth (2012). We invoke the concept here as a shorthand for the complex nexus of institutional supporting conditions which surround and influence the state-sponsored delivery of agricultural extension services.

FL/FO/ME), and to interact with new actors (i.e., private sector, other district agencies, mentoring with peer DAFO).

Operating funds enabled the DAFO to operate and, when provided on a consistent basis, develop plans and work consistently over cycles of seasons to build results.

The above elements of 'institutional ecology' appear to be critical in supporting improved extension delivery at the DAFO level. Another important factor that should not be overlooked, however, is the power of professional identity. In combination with constructive leadership, the EMS creates a working environment that allows professionalism to flourish and to be recognised. Achievements in this respect were no accident. The project design (e.g., DAFO employing a districtwide perspective, etc.), and PAR approaches to instituting change implicitly allows shifts in institutional ecology to occur and gradually embed themselves.

(c) Alignment with policy:

- Resolution of the 9th Party Congress: requires district agencies to be “units for planning and delivery of services”. The EMS provides the tools that would enable the DAFO to fulfil this function.
- Development of commercial production of a priority product by each district. Following MAF directive, each district must aim to achieve commercial development of one of its listed priority products. The integrated use of FL/FO/ME provides a mechanism by which DAFO staff can achieve this.
- Planning formats: the EMS uses adapted versions of standard planning tools known collectively as PCAP²⁷ and formally approved by the Ministry of Planning and Investment. This standardisation of formats should assist future integration of EMS into DESDPs.
- Engagement with District Governors and other district agencies: the GoL initiative to integrate activities at district level (first piloted through the *Sarm Sang* initiative in 2013) has, since 2016, gained further impetus. Efforts to engage with District Governors is now consistent and compliant with this policy development.
- Access to funds: previous reluctance to disburse operating funds to all services (health, education, agriculture) due to scarcity and lack of confidence in institutional capacity, now appears to be moderating. Efforts in other areas of the government (i.e., Ministry of Home Affairs) to establish effective district planning and access to funds have been recently initiated. An example is the UNDP pilot program: “Support for Capacity and Delivery of Services by District Administrators”.
- Evidence-based decision-making: historically in Laos, state service initiatives have originated at central government level and then been implemented through a process of top-down directives. In the present political climate, however, there is a new willingness to take up the principles of 'evidence-based decision-making'. This development provides space for cases and successes at district level state service delivery to be recognised and to influence policy and procedures in a bottom-up fashion.

In summary, evidence from the project indicate that: **(1) the application of EMS by DAFO staff is feasible; (2) that it could be rolled out through appropriate alterations**

²⁷ PCAP planning forms were derived from a JICA funded project within the Ministry of Planning and Investment called, **Project for Capacity Building for Public Investment Program Management**

to the institutional ecology of extension; and, (3) EMS aligns well with government policy and procedures.

The most significant implication of these findings is ***the possibility of intentionally altering conditions that feed into the institutional ecology of agricultural extension in such a manner that DAFO staff performance could be improved and extension impacts enhanced significantly.*** Changing the ecology would thus provide a far faster and far cheaper way to enable DAFO performance than traditional ‘training’ interventions. The introduction of EMS could play a part in the modification of the institutional ecology for the good. For example, it would be implemented in new provinces by DAEC and then expanded in fresh districts by PAECS.

At this point, systematic adjustment of the institutional ecology remains a hypothesis that needs to be tested. If this approach were found to work, however, it could have dramatic implications for many other initiatives aimed at improving performance of public sector agencies in Laos. It could also have applications in the wider region and beyond.

8 Impacts

8.1 Scientific impacts – now and in 5 years

Enabling smallholder farmers to engage with markets more effectively (ME) and for farmers to form appropriate organisations (FO) is part of the new wave of modern extension (Alex et al., 2002; Farrington, et al., 2003; Rivera & Qamar, 2002; Rivera et al., 2001). While generally welcomed, both these aspects of extension are open to interpretation by extension professionals in terms of what specific actions they require for implementation and hence what kind of professional training and development they imply. It is also difficult to assess impacts of these interventions and thus whether investment in them constitutes good 'value for money'. With regard to the latter, little research has thus far been undertaken on identifying and using pragmatic indicators for ME and FO.

Following application of comprehensive extension, the JCU research team interviewed selected DAFO staff who had successfully implemented and gained results from ME and FO. These staff identified factors that would be indicative of progress and which would, in principle, be transferable to other sites. These initial responses formed the basis of further consultation with DAFO, DAEC and PAFEC staff regarding the development of appropriate indicators for FO and ME.

Indicators for ME

Farmers and their organizations actively adopt *four practices* to realize market opportunities. Effective ME will entail farmers or FOs:

- Using value-chain knowledge (prices, quality requirements, timing, etc.) to plan production and trading
- Selecting the best trader or entrepreneur according to the terms they offer
- Negotiating with traders or entrepreneurs satisfactory terms of trade
- Coordinating sale of their product with reliable volume and quality to match market demand

Indicators for FO

Effective farmer organisations and their members actively adopt the following *four practices*:

- Conduct annual group-wide planning for production that matches their strengths with market opportunities
- Members assist each other and share lessons to achieve effective production and meet market requirements.
- Group applies internal control measures to ensure product is consistent and meets market requirements
- Group can negotiate trade jointly and arrange the bulking of their product for sale.

Historically, DAFO staff have viewed ME and FO as activities they should perform *to* or *for* farmers, e.g., arrange a buyer for a product, or, provide the training on FO structures. The indicators above focus on the functional *practices* that farmers need to satisfy their own purposes. Thus, the indicators can be used not so much as measures but as factors that will actively guide extensionists in planning effective actions. Clear articulation of indicators will also offer reassurance to decision-makers and generate confidence about funding extension. Deriving clear and practical indicators for guiding FL/FO/ME would also contribute to the global initiative and effort to reinvigorate extension through application of comprehensive extension.

The indicators were articulated in the FL/FO/ME guidelines and applied by DAFO in their revised plans for the final year of the project (2016).

Application of these indicators for planning comprehensive extension has the potential to guide and strengthen the efficacy of interventions/activities. This would apply not only within Laos but also in other many other countries/contexts where ACIAR operates.

The ASEM/2011/075 team is yet to publish findings with respect to the indicators in a scientific journal or to disseminate by other means. Now that the project has concluded, however, and firm evidence is extant, dissemination has become a key objective for the team.

8.2 Capacity impacts – now and in 5 years

Capacity impacts can be evidenced at three levels: (a) district, (b) provincial, and (c) central. At each level, the most significant impacts were with line (operational) staff. Although emphasis will thus be given to operations capacity building impacts, some consideration will also be given to the decision-makers (DAEC, PAFO, PAECS) and other senior GoL administrative staff.

8.2.1 Capacity at District level

In each pilot DAFO, three members of technical staff were assigned to work with the project, with the Deputy Head of the DAFO acting as a coordinator. Repeated attempts to enrol additional staff during the life of the project did not meet with success. The pool of staff engaged with the project remained relatively static throughout and, in the case of some DAFO, staffing actually reduced from three to two.

By mid-project, these staff were all able to use the EMS tools, although technical assistance for use of EMS 1# (collating data) was still be needed. In each of the DAFO, one of the staff gained full competence to the extent they could advise and direct peers/other staff. In this way, a foundation for the application of EMS to additional products was established within each DAFO.

Application of FL/FO/ME was a more complex issue. Effective application of comprehensive extension requires a significant change in staff perception of their work; that they should not be limited to technical areas, but also encompass socio-economic activities, i.e., facilitation of ME and FO. To the extent that staff in each district felt compelled to articulate the new comprehensive strategy in public forums and to design coherent action plans, the project met with success in securing this perceptual shift. Each of the DAFO—as a unit—now has at least one staff with capacity to apply ME and FO at the basic or ‘entry’ level. This is significant claim given the facilitation skills normally associated with these elements. It is was made possible, the authors suggest, through DAFO having to comprehend and implement a systematic process, thereby gaining *experiential learning* rather than being trained to use elaborate tools that they played no part in designing. The two most able DAFO (Khun and Paek) demonstrated a capacity to facilitate and support cross-village networks of FO and to help cultivate more complex formal structures. This level of work and the corresponding staff capacity would be within the top tier of FO facilitation in the Lao context.

Ongoing delivery of extension will depend on appreciation and support by local decision-makers. With the exception of Nong Het, the local administration (i.e., District Governors, Department of Planning and Investment, DAFO Heads) in all pilot districts, became aware of the successes of the project and, having recognised the effectiveness of the DAFO efforts, acknowledged that extension merited ongoing state-sourced support. ***This constitutes a major shift in thinking.*** Local government representatives made their views and position clear in public forums on several occasions. However, apart from Paek district, there has been little evidence of concrete follow-up actions to match the good intentions. In addition, decision-makers still do not appreciate that ME→FO→FL can be

applied *intentionally* and *systematically* to move smallholder production towards the desired commercial output for existing products for their districts.

By the conclusion of the project, all DAFO had at least one staff member that could act as mentor in any future scaling-out initiative for EMS and FL/FO/ME within their respective provinces. This is a legacy of talent and capacity that DAEC and PAECS can draw upon in the future. If not used, however, it will inevitably dissipate.

8.2.2 Capacity at Provincial level

The provincial teams were composed of the Head or Deputy Head of PAFO along with one technical staff member drawn from the Provincial Agriculture Extension and Cooperatives Section (PAECS) of the PAFO. Their role was to act as coordinators for the piloting of the EMS and FL/FO/ME across selected districts. Although the JCU research team assisted with coordination at the outset, from the second year (2014) forward, this task was completely devolved to the PAECS teams.

Over the course of the project, the PAECS teams demonstrated a deep understanding of EMS both in conception and application. They recognized the effectiveness of the FL/FO/ME methodology and were able to act independently in supporting uses of the EMS tools. Moreover, by the final year of the project, these teams were capable of explaining/promoting the EMS at public meetings and deal convincingly with the sometimes challenging lines of questioning coming from Lao audiences (including external agencies and central authorities). The PAECS in Xieng Khuang, in particular, developed a high level of professional commitment to the project and was able not only to refine the EMS but also to formulate a prospectus for progressive expansion to additional DAFO in the province.

Senior decision-makers within the provinces were aware of improved outcomes for extension (i.e., coffee, organic vegetables, commercial rice, etc.) but were not informed of the specific mechanisms available to replicate this with new products.

Both Xieng Khuang and Bolikhamxai provinces have the human resources (see 8.2.1 above), and the commitment within the PAECS to introduce EMS and FL/FO/ME to additional DAFOs in the future. This would significantly enhance the delivery of extension and see additional local products develop as commercial products. This is unlikely to occur, however, without further consolidation of evidence and a degree of external support.

8.2.3 Capacity at Central level

Building in-depth capacity at the central level (DAEC) proved to be a greater challenge than originally anticipated by the JCU research team. As this kind of capacity enhancement required active support and allocation of resources on the part of senior decision-makers, options open to the research team were limited.

At the project inception, DAEC agreed to constitute a Project Team as follows: one manager and two coordinators responsible for each pilot province. In the estimation of the JCU research team, all these initial team members started at a relatively low capacity in terms of comprehension of the project aims and objectives and the personal skillsets brought to bear. By the second half of the project, the manager was fully familiar with the EMS and FL/FO/ME approaches and able to articulate and justify these in public forums. Just one of the co-ordinators rose to the challenge, in the authors' judgement, and became a committed and effective mentor for the introduction of EMS and FL/FO/ME to new sites. This staff member was relocated to Khammuane PAECS where one of his responsibilities was to oversee scaling-out of EMS supported by Lux Dev funds. The limited number of staff assigned to the project within DAEC means that the capacity building legacy of at the centre was compromised. As a consequence, there is little DAEC capacity to support scaling out EMS to new sites. It is more likely that PAECS, with their

experiential understanding and expertise, would be the impetus behind any future scaling out initiatives.

At the level of DAEC decision-makers, Mr Somxay, DDG, was active in the co-design of the project. He demonstrated a high degree of personal commitment from the very beginning and was supportive throughout the project's duration. He also sought to persuade other sections of DAEC of the efficacy of the EMS. In-house workshops were conducted to this purpose but with limited effect. As results in pilot DAFO consolidated, a Leadership Monitoring Trip was arranged in February 2016 for heads of all DAEC technical sections. This exposure over several days and taking in different pilot sites was successful in alerting DAEC leadership to the potential of EMS and the results it could generate. These DAEC section heads reported that they were extremely impressed by the evidence they saw during their monitoring trip. Despite expressions of positive intentions, following the trip, no further DAEC staff were assigned to EMS to build resources for scaling out. It is the authors' opinion that for DAEC to take up the opportunity offered by the project it will need to shift its focus from an exclusive preoccupation with extension methodology development toward **supporting DAFO as a service delivery unit**. Such a change in emphasis goes way beyond mere 'extension methodology', as evidence from this project shows.

8.3 Community impacts – now and in 5 years

8.3.1 Economic impacts

The direct economic impacts from the project have already been intimated in 7.1.1 with a description of extension outcomes for each product (Table 1). When these are monetized (see Table 3 below) the **returns to extension become even clearer and more compelling**. Some note can be made on the calculation of economic impact before examining these in detail.²⁸

Over the 4-year duration of the project, the total value of additional value of product produced due to extension was **valued conservatively at 1.6 M AUD**. This is somewhat above the Australian investment in the project (\$1.2 M AUD²⁹) and above the economic impact projected in the project document (\$0.8 M AUD). If a conservative five-year projection is made,³⁰ the return comes close to being **5 times the original Australian investment**.

More important than the top line figures, however, are the economic impacts gained by the communities themselves. For the two rice growing districts (Thaphabath and

²⁸ The economic returns gained during the project was the sum of the value of additional production for the four years. Similarly, the value of the DAFO operational funds was the sum of funds received by the DAFO from the project and other supplementary sources over the four years, typically about \$30,000. Variations in operational funds were, for Khun, due to additional funds provided by the province and, for Paek, due to only receiving financial support for three years.

²⁹ The budget funds here include the \$1,050,249 from the contract variation, plus the funds from the SRA whose activities contributed to results in Khun and Paek, \$105,000

³⁰ The projection of benefits for a further 5 years into the future is based on that assumption that existing production levels will continue unchanged from their 'final year' value. In other words, the value of additional product gained in 2016 was multiplied by five and added to the cumulative four-year project total. **This understates the impact**, as additional HHs are likely join the activities and existing HHs will probably improve their production. This is particularly so for the products in XK where major developments are be expected. For example, new coffee farmers planted just 0.2 ha in their first year, whereas typical plots sizes are 0.8-1.0 ha. For organic vegetables and poultry, significant increases in output are expected as the FO resolve marketing issues and intensify production with more committed application of improved practices.

Bolikhan) the **additional income to the economy of each district is about \$0.5 M AUD**, with a lower figure of about **\$0.1 M AUD added to the economies of each of the three highland districts (Khun, Paek and Nong Het)**.

The **additional income per HH for the rice districts is \$2400 over the four years**. To put this into perspective, this would be equivalent to each HH selling 2 cows per year, or about double the average Bolikhamxai HH consumption expenditures per year.³¹ For the three highland districts in Xieng Khuang, the **additional income is \$800, or \$200 AUD /year** still 2/3 the annual HH consumption expenditures, and thus not an insignificant contribution to the smallholder HH economy (MPI, 2015).³² The conservative projections for a further five years are far more substantial (see Table 3).

It should be noted that these figures are considerably diluted as they do not account for the increase in HHs over the project period, nor the fact that many HH counted are still not applying improved practices. As the bulk of HHs follow the example of leading HHs (which might reasonably be expected) HH benefits gained could increase by a factor of 2-4 as they come into line with those gained by leading HHs.

| District | Product | HHs 2016 | DAFO operational funds 4 yrs (AUD K) | Value of additional output | | Returns | |
|--------------|----------|-------------|--------------------------------------|-----------------------------------|--------------------------------------|---|--|
| | | | | Project period - 4 yrs (1000 AUD) | Extended Period - 4+5 yrs (1000 AUD) | Av. HH benefit 4 and 4+5 yrs (1000 AUD) | Return to DAFO funds (4 yrs and 4+5 yrs) |
| Thaphabath | Rice | 146 | 20.7 | 427 | 1,727 | 2.4 / 11.8 | 21:1 / 83:1 |
| Bolikhan | Rice | 187 | 28.7 | 451 | 1,441 | 2.4 / 7.7 | 16:1 / 50:1 |
| Khun | Coffee | 691 | 106.0 | 563 | 1,789 | 0.8 / 2.6 | 5:1 / 17:1 |
| Paek | Org. Veg | 108 | 14.3 | 81 | 269 | 0.8 / .5 | 6:1 / 19:1 |
| Nong het | Poultry | 221 | 33.9 | 167 | 490 | 0.8 / .2 | 5:1 / 15:1 |
| TOTAL | | 1353 | 203.6 | 1689 | 5,716 | | |

Table 3. Estimate of value of additional production gained from extension inputs

A key point to be emphasised is that in each district, the basic conditions for these products to be produced and traded as commodities has now been established, i.e., improved practices are now well recognised (if not fully applied); farmer organisations exist to coordinate production, planning and trade; and market networks have begun to be established. These basic conditions could be built on further by the DAFO in expansion sites within the district.

The overwhelming potential impact of this project over the next five years would occur if the DAFO throughout the country were progressively introduced to EMS and comprehensive extension. The process of application of comprehensive extension identified by the project (**ME → FO → FL**) could feasibly be applied by districts to commercialize several of their existing smallholder products (by way of volume, consistent quality and predictable delivery schedules).

³¹ 'HH consumption' includes the value of all HH goods and services, e.g., food, clothes, education, medical, etc.

³² Refer to Table 7 of the report.

8.3.2 Social impacts

The figures set out in the preceding section are exclusively economic and thus do not tell the whole story of what impact such outcomes can have on rural livelihoods. As noted above, the additional annual incomes are significant when compared to average HH consumption. Such increases would certainly relieve stress in terms of making ends meet, and most likely translate into additional food³³. For HHs in Nong Het, raising chickens provided a direct improvement to diet due to eggs harvested. As one Hmong father reported as a result of taking up black fleshed chicken production: “*the children can eat eggs every day now*”. Although anecdotal, there can be little doubt that this kind of impact and experience was replicated very many times across the pilot districts. This kind of dietary impact, moreover, is highly significant for ethnic minorities in the north, where protein deficiency remains the most serious nutritional constraint.

FOs are emerging and/or developing for all products across the five pilot districts of this project. The main objectives of these FOs, as expressed by the farmers, is to enable them to trade their products collectively and to so access better trading conditions (see 7.1.2,3).

In most of the districts, these FOs are ad hoc groups still lacking formal structures. Nevertheless, within the groups, increased social exchange can be seen to be taking place with respect to planning and executing trade. As evidence from both the SRA ASEM/2014/102 and this project shows, such interaction is contributing to the **development of social capital within the affected communities**.³⁴ The communities themselves report that whereas trading by individual HHs left less market-savvy HHs vulnerable to exploitation by traders, collective trading results in all members receiving the common price negotiated by the FOs.

Collective trading has necessitated farmers estimating their harvest and then proactively seeking traders who will offer the group the most favourable prices and contractual conditions. Through the benefits of FOs, farmers are moving from passively accepting market conditions toward actively turning them to their advantage. Implicit in this development is a change in *perception by traders*. Farmers are no longer viewed as ‘mere suppliers’ but, instead appreciated as significant players within a given value-chain.

There is a common view amongst development sceptics³⁵ that FOs formed under the auspices external agencies, such as, national extension systems, simply service the economic agendas of the state and do not give farmers any meaningful agency. Working at the ‘entry levels’ of ME and FO, the FOs emerging within the project remain focussed on managing market opportunities. At present, the objectives of the state and farmers coincide. But they may well diverge as the FOs strengthen and then establish their own agendas. This can emerge dynamically. As the FOs establish an operational footing and are strengthened by successful outcomes (favourable production and marketing of their products each year) they might be expected address underlying issues that affect their successful operation. Issues of social equity, for example, might well emerge when, for instance, local government staff are seen to offer concessions or promote traders’ interests over those of farmers.

Thus, once established, even nascent FOs described in our study could in the future develop agency to actively protect themselves against what they might see as the dubious actions of external actors. In a more positive sense, self-promotional initiatives on the part of FOs may also be anticipated. They might, for example, lobby local government

³³ Sipaphone (1998).

³⁴ See, inter alia, Ostrom (1994) and Woolcock & Narayan (2000).

³⁵ See, e.g., Cook (2003).

agencies for changes to GoL-controlled conditions that would improve returns from production and trade.

8.3.3 Environmental impacts

In general, the development of commercial rice production (Thaphabath and Bolikhan districts) and poultry production has not—and is not expected to—have significant environmental impacts either positive or negative.

The production system for coffee developing in Khun includes agro-forestry farming practices, i.e., planting within the forest understory and applying organic fertilizers. The current **area of coffee established using this production model is now over 100 hectares**, with the farmers themselves anticipating and **planning for an area that will exceed 900 hectares by 2020**. As organic production is highly favoured in XK province, farmers will receive strong GoL support for this model at both provincial and district level. They will also enjoy economic benefits when they sell into organic markets at higher prices. The organic coffee production regime will serve directly to maintain forested areas in XK. In this particular province, moreover, it might also win out against competing systems based on the forms of non-organic intensive production being actively pursued by private sector Chinese coffee interests.

In Paek District, the support for organic vegetable production will provide an alternative to intensive vegetable practices being introduced by entrepreneurs from China and Vietnam; intensive vegetable farming being characterised by indiscriminate chemical fertilizer and pesticide use. Over the lifetime of the project, **organic production has been introduced to an additional 89 HHs in Paek**, with a smaller number (30 HHs) selling into the local organic market. As regional markets are accessed, the volume of vegetables being produced will increase. Indeed, at its high altitude, Xieng Khuang is well placed to develop a regional reputation for organic produce, including vegetables. In the medium-term, this trend should generally mitigate against the profligate use of chemical inputs for agriculture in the province.

8.4 Communication and dissemination activities

For EMS and FL/FO/ME to be mainstreamed, it was considered essential that local authorities be convinced of their efficacy and be prepared to champion their ongoing use.

The project used a series of workshops and ongoing engagement with district authorities to describe and advocate for the use of the EMS. The value of districtwide plans and the opportunity for extension to contribute in a substantial manner to the DESDPs were issues that were given particular attention. These included an initial orientation meeting in each district, followed by inclusion of district authorities to participate in subsequent six-monthly progress and exchange workshops. Two EMS tools were important in securing the interest and support of local GoL authorities: (a) the Product Opportunity Reports, describing the potential for development of the selected products; and (b) the Progress Reports (EMS 5#) which evidenced DAFO progress against their districtwide targets. Similar sets of workshops were also conducted at provincial level. Overall, these events played a key role in progressively engaging local GoL authorities and making them continually aware of outcomes and impacts from the project. These meetings also acted to model a prospective district-level committee that could serve to monitor any ongoing extension activities post-project.

The EMS tools and FL/FO/ME guidelines were drafted from the field experiences and with direct input from the DAFO and PAECS staff. They were printed in Lao language (48 pages). The Lao version was printed (500 copies) and distributed to all DAFO and PAECS.

Whilst the project base was within DAEC, as common with many projects it became the provenance of those few staff directly seconded to the Project Team. There was some reticence on the part of Mr Somxay in attempting to raise wider awareness of the project until he was convinced that substantial extension outcomes were forthcoming. This only emerged in early 2016 and, following the realization of clear evidence of success, a series of in-house workshops were conducted to generate awareness of EMS within DAEC itself. Regrettably, these made little impression. By contrast, a 'Leadership Monitoring Mission' conducted February 2016 was successful in generating awareness and interest on the part of all the heads of section within DAEC.

The project worked with 'partner projects' and other agencies in an attempt to generate 'external demand' for the EMS and FL/FO/ME. Collaborations included:

LuxDev Lao 024: Khammuane Local Development Project. EMS was funded and applied by the partner project. This extended the impact of EMS and, at the same time, validated the robustness of the tools and their suitability for application outside the original pilot contexts.

United Nations Development Program (UNDP) Governance and Public Administration Reform Project (GPAR). The UNDP GPAR project was working with senior ministries (Ministry of Home Affairs and Ministry of Planning and Investment) with a view to establishing systems for district-level agencies to conduct planning and service delivery. Channels of communication and collaboration was maintained with the project leaders in order to ensure that outcomes from ASEM/2011/075 aligned and harmonized with emerging GoL policies and procedures.

SDC/World Bank/UNDP: Stocktake of Participatory Approaches in Lao PDR.

Collaboration with this initiative began to bring EMS to the attention of key GoL ministries (Ministry of Home Affairs, responsible to the role and function of District Governors, and Ministry of Planning and Investment, responsible for planning procedures). EMS was highlighted in a formal project report as providing exemplary approaches to planning and reporting (Motteux & Saphangthong, 2016).

To a large extent, the project remained within the provenance of DAEC. To gain wider recognition within the Ministry of Agriculture and Forestry (MAF) a joint study by NAFRI and DAEC was commissioned in October 2016. The output was a 'discussion paper', which was tabled at a cross-institutional consultation workshop attended by senior staff from NAFRI, DAEC and NUOL. The NAFRI study team were sufficiently impressed by the evidence they collected during their review that they decided it worthwhile taking the step of assisting DAEC to prepare a policy brief (Lao) for submission to MAF. Further action is planned by DAEC and NAFRI to ensure the final draft will be brought to the attention of MAF.

9 Conclusions and recommendations

9.1 Conclusions

9.1.1 Comprehensive extension effectiveness

9.1.1.1 Role of comprehensive extension in rendering extension delivery effective.

The relative effectiveness of national extension systems across the globe has been the subject of academic interest, generally with results that cast doubts on its efficacy (Anderson et al., 2006; Rivera, 2001). Such studies, however, were in the main conducted during a period when extension was limited to the introduction of improved practices. The extension work conducted within the remit of this project by the five pilot DAFO—working with a high degree of autonomy, limited funds, and across four categories of products—seems to challenge accepted wisdom and provides evidence that a national extension system can yield results under the right supporting conditions.

Findings from the project show that ‘modern comprehensive extension’, integrating the elements FL/FO/ME, can generate positive outcomes for smallholder production and, correspondingly, deliver livelihood benefits. Key to the application of comprehensive extension is that its elements should be applied in an *integrated manner* (ME→FO→FL) so that each step prompts or demands the subsequent step.

9.1.1.2 Working approaches matched to national staff capacity.

The kind of facilitative work and interpersonal skills needed to apply ME and FO is often considered to be beyond the capacity of non-specialist national extension workers (Bartlett, 2010). Findings and evidence from this project contradicts such scepticism. The performance of the staff across all pilot districts showed that the DAFO—taken as a unit—possess staff capable of leading and directing ME/FO/FL work. Moreover, the issue of ‘facilitation’ is side-stepped somewhat by reliance on relatively straightforward processes (see 7.1.4) which connect farmers to value-chain opportunities (ME) and stimulate *them* to investigate what they need to access them (FO and FL). This approach is not dependent on sophisticated tools and extensive training. It should also be noted that application of this process (ME→FO→FL) implicitly shifts the *practices* of extension staff away from a directive stance toward facilitating and enabling farmers to achieve *their* objectives.

9.1.1.3 Providing strategies for local authorities to mobilise smallholder production

The above conclusions focus on ‘extension’ as an activity. They can also be viewed from a local planning perspective. The ME → FO → FL process now provides district-level GoL authorities with a viable strategy and practical operational approaches to establish precursors for commercialising smallholder production of selected products (as directed by current policy).

9.1.2 Application of EMS

9.1.2.1 Pragmatic effect of application of enhance management on extension operation

The EMS tools provided a basis for DAFO staff to work autonomously in an ‘evidence-based’ and ‘results-orientated’ manner. The first five tools of the EMS provided pragmatic means for the DAFO staff to articulate the potential for development of a product and subsequently to manage delivery of extension services in pursuit of targets. The core tools that shaped this were Opportunity Identification (EMS 1#) and Districtwide Planning (EMS 3#). The EMS thus provided a valuable guiding framework for DAFO to conduct their work in a systematic and sustainable manner over several growing seasons.

9.1.2.2 Effect of rationalised management on staff performance

The application of a management system, such as the EMS, also provided a framework for staff to grow professionally. This was evident in changed attitudes and improved performance (see 7.2.1). The lynchpin for this transformation was, again, accepting and adopting the districtwide perspective with respect to work practices (planning, activity implementation, reporting). This wider perspective was formative in encouraging staff to become results-orientated and thus cultivating a willingness to be open to new ideas and approaches; in particular, comprehensive extension.

9.1.2.3 Role of economic data on decision-makers

The application of EMS, along with significant outcomes gained, persuaded GoL decision-makers of the potential benefits of extension investment. In particular, when extension staff reported results in terms of *regional* production and revenues—metrics that could be compared to operational funds—local authorities were markedly impressed. Reporting formats that include financial valuation alongside projections of potential gains appear to be persuasive to decision-makers.

9.1.3 Mainstreaming EMS and comprehensive extension nationally

9.1.3.1 Feasibility of mainstream funding for extension

It would appear that local authorities consider funding envelopes of approximately \$3-5000 per year to be feasible and sustainable for extension programs that are well planned and justifiable in regional economic terms.

9.1.3.2 Application of calibrating institutional ecology as a means to achieve enhanced service delivery

The challenge for any successful piloting exercise conducted within a project framework is whether it can be applied generally and whether costs and time to achieve mainstreaming are feasible for host institutions.

This project generated the tools/approaches and devolved responsibility to the local units i.e., the DAFO and PAECS staff. No formal training inputs were provided. Despite this, improved staff performance across the board was forthcoming and significant extension outcomes achieved. Based on observations and reflection, the factors within an institutional ecology that account for these successes are as follows:

- **EMS:** this provides pragmatic tools for DAFO staff to manage and deliver extension services over a number of seasons

- **Leadership**³⁶: the DAFO staff require the sanction of an authority figure within their system (e.g., District Governor) to allow them to work and make operational decisions with confidence.
- **Working within broader organisational frameworks**: the districtwide plans led the DAFO staff to be results-orientated and then to appreciate the value of comprehensive extension. Peer networking between districts gives staff a greater sense of professional identity and opportunity for organisational learning³⁷.
- **Secure operating funds**: Continuity of funding over several season allowed DAFO to plan, operate, learn, and report consistently.

In principle, the authors contend that it is possible to positively influence the supporting conditions represented by these factors. In other words, we posit a form of institutional ecology for extension that can be intentionally modified by change agents³⁸ with the knowledge and skills to influence institutional settings. If making such changes do contribute to the take up of EMS and comprehensive extension, then it offers a rapid and cheap means to achieve this nationally. This approach could also have potential to be applied to extension systems in many other countries in the region.

9.2 Recommendations

ASEM/2011/075 succeeded in gaining recognition from local decision-makers that extension (using comprehensive extension) could contribute to DESDPs and that adoption and implementation of the EMS tools enabled DAFOs to significantly improve extension service delivery. Whilst appreciated and valued at the local level, the scope and remit of the project was such that achievements were restricted to single products in each of 5 DAFO deploying only 2-3 staff members. Despite the fact that these staff members demonstrated initiative and acted autonomously, the changes in their practices were viewed as a 'special' niche activity associated with an external project, rather than being internalized as 'new ways of working'. A key recommendation is that: *means are found to up-scale EMS and mainstream improved practices.*

If successful, wider applications of EMS and FL/FO/ME could have the following profound effects:

- **Commercializing smallholder production**: providing many districts with a process to build commercial products of selected products based on smallholder production (rather than resorting to concessions of other exclusive arrangements). This could positively impact the livelihoods of many hundreds of thousands of HHs in Lao PDR.
- **Supporting implementation of GoL service delivery policy**: allocation of national funds for extension in a sustainable way would put into practice key GoL directives and, simultaneously, engender improvements to governance (higher levels of accountability, evidence-based decision-making, etc.).

³⁶ For a detailed discuss of the semantics of *leaders* and *leadership* in the Lao language and GoL institutions see Case et al. (2016).

³⁷ Easterby-Smith et al. (1999).

³⁸ Buchanan & Boddy (1992).

- **Smallholder farmer agency:** the pathway for development of cross-village networks of FOs would see smallholders having a formative say in trade of their own produce, become recognised as actors within value-chains, and begin to have a voice in the trajectory of development of products in their area. Overall, out-scaling the approaches piloted in this project could provide a pragmatic entry point for improving civil society in rural areas.

For senior GoL authorities to be persuaded that EMS merits nationwide uptake and rollout will require the accumulation of sustained evidence over several more seasons. The advantages of the approach would also need to be recognised within higher tiers of Government, including Ministries of Home Affairs and Ministry of Planning and Investment; ministries, in other words, with the power and authority to ensure that EMS procedures are aligned with GoL policy and who could direct funds for extension to be made available. For EMS to be rolled-out on a nationwide basis, furthermore, it would need to be demonstrated that deployment could be rapid and financially viable.

We recommend that ACIAR consider funding a future project that would have as its objective nationwide rollout of the system and approaches piloted in ASEM/2011/075. This would not simply be a rollout of the work of the current project, but address a new set of research questions, necessary for application in Laos, but also relevant to wider application within the region.

RQ 1# Can planned adjustment of the ‘institutional ecology’ of the DAFO enable effective application of EMS and comprehensive extension to be fast-tracked?

RQ 2# Will direct use of ME → FO → FL enable rapid shift towards commercial based on smallholders, while retaining smallholders’ agency?

RQ 3# What are the organisational constraints to the application of EMS and comprehensive extension and how might these be overcome?

These research questions would be investigated within a project with **the overall aim:**

to support organizational development and improvement in public agricultural extension services in Lao PDR thereby enhancing smallholder farmer livelihoods and district economic development.

Objective 1: Fast-tracking Application of the EMS

Achieve fast-tracked EMS through a process of altering the institutional ecology of extension, i.e.,

- (a) use of EMS to manage extension services
- (b) engage leadership at local levels (i.e. District Governors, District Planning and inclusion of extension within DESDPs), including commitment to allocate mainstream operating funds for extension after a period for proof of concept.
- (c) operate within a districtwide context

Application of an institutional ecology pathway to enable extension would both provide a broader and more compelling set of impacts across districts and products as well as testing whether this pathway is effective or requires other supporting strategies.

Objective 2: Farmers achieve rapid commercial production and marketing.

Attempt to develop product-based FOs through working with cross-village networks using the approaches still emerging from ASEM/2011/075 and ASEM/2014/102.

This would strengthen FO development and, at the same time, enable districts to move with relative rapidity towards commercialization of many products currently produced by smallholders.

Objective 3: Mainstreaming the EMS

Build support structures to enable EMS to be aligned with GoL priorities across the extension service system:

- (a) At central level (DAEC) through development of vision of the DAFO as a service providing unit
- (b) At local levels by building mechanisms for inclusion of DAFO plans into DESDPs and the establishment of monitoring systems that will enable extension operation and outcomes to be evaluated in a participatory manner.

The project would need to work with MoHA and MPI to ensure that any tools and procedures developed would be applicable and acceptable at both district and national levels.

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10.2 List of publications produced by project

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11 Appendixes

11.1 Project research questions and their respective operationalization

| RESEARCH QUESTION | DETAILED QUESTIONS | OPERATIONALIZATION |
|---|---|---|
| <p>1. How do the range of extension interventions, (i.e. ‘farmer learning’; support for ‘farmer organisations’; and facilitating ‘market engagement’) impact on outcomes for smallholder farmers?</p> | <p>1.1 What are the functions of each intervention (FLFO/ME) as applied within the Lao context, and what indicators can be used to indicate actual function in practice?</p> | <p>1.1.1 Literature and extant case studies were examined to define functions of each intervention, and then define identifiable indicators for the functions (Jones et al., 2013a, 2013b).</p> <p>1.1.2 The outcomes were compared against extension inputs (EMS tools). Data derived from PAR engagement and six-monthly M&E/review interviews with stakeholders (DAFO staff, PAECS staff, farmers, GoL agencies).</p> |
| | <p>1.2 What are suitable conditions where each of these can play an advantageous role in improving productivity and livelihoods?</p> | <p>1.2.1 Review of literature (studies, project documents).</p> <p>1.2.2 ‘Success story’ narratives of benefits gained.</p> <p>1.2.3 Assessment of inputs to achieve successes (project documents) to indicate comparative ‘leverage’ of each intervention.</p> <p>1.2.4 Studies of application FL/FO/ME experiences: 8 products / 4 Districts (and selected partner Districts). These also used ‘outcomes gained’ and self-assessments of interventions by practitioners. Data from PAR and six-monthly M&E/review interviews.</p> <p>1.2.5 The above were progressively synthesised (Y1, Y2, Y3) through iterative OD/PAR engagement with stakeholders (DAFO, PAECS, farmers, local GoL agencies, private sector reps, DAEC, JCU).</p> |
| | <p>1.3 What are the actual and potential scales of impact, i.e., number of Households, level of benefits (productivity and livelihoods)?</p> | <p>1.3.1 1.3.1 Baseline ‘outcome data set’: no HHs, scale of impact (production + livelihoods) were collected:</p> <ul style="list-style-type: none"> - New village / intro meetings (PAR tools) - Annual outcome data / EMS tools (data collected and reported on by DAFO/PAECS) - Case studies of selected farmers (Y1,2,3) developed and reported by DAFO. <p><i>Indicators:</i></p> <p><u>Productivity</u>: practices changed; number of farmers affected; level of benefits; inputs used by farmers.</p> |

| RESEARCH QUESTION | DETAILED QUESTIONS | OPERATIONALIZATION |
|--|---|--|
| <p>2. Does a 'results based management system' improve performance of extension delivery?</p> | <p>2.1 How does the EMS affect practitioners' operations (i.e., DAFO staff)?</p> <ul style="list-style-type: none"> - how easy is the EMS for practitioners to use (i.e., its sustainability)? - how does 'results based management' affect staff professional commitment to extension delivery? | <p>2.1.1 Audit and evaluation of application of EMS tools, and activities completed according to plan by DAFO staff. (PAR data, ethnographic notes)</p> <p>2.1.2 Feedback by practitioners and capacity to asses +/- of extension activities and means to resolve constraints (monitored and evaluated during planning workshops using PAR, observation and ethnographic notes).</p> |
| | <p><i>The EMS includes various elements, and the following are specific questions relating to each of these.</i></p> | |
| | <p>2.2 How is selection of extension objectives affected, (viability of the objectives in relation to: criteria for poverty reduction, etc.; broader District level development objectives)?</p> | <p>2.2.1 Before/after stakeholder preferences. Acceptance by DAFO for FL/FO/ME : (a) during Inception Study Trip; (b) initial planning preferences in Yr 1 by staff cf. actual applications; and (c) shift in application over Y1, 2, 3.</p> <p>2.2.2 Interviews with tech staff and DAFO Head on preferences, during annual workshops.</p> |
| | <p>2.3 Do guidelines assist DAFO to select and deploy the full range of FL/FO/ME in an effective manner.</p> | <p>2.3 As above (2.2.1/2).</p> |
| | <p>2.4 Does EMS permit effective tracking of extension activities (e.g., activity management, sticking to timelines, etc.)?</p> | <p>2.4.1 Performance evaluation and audit of implementation cf. plan.</p> <p>2.4.2 Indication of changes in internally driven compliance over the 3 yrs, and indications of improved focus in successive plans.</p> <p>2.4.3 Indication of generic application across projects in Districts, and across Districts in pilot Provinces.</p> |
| | <p>2.5 Does EMS facilitate improved data collection with respect to extension outcomes (e.g., productivity, livelihoods, etc.)?</p> | <p>2.5.1/2/3 As above (2.3.1/2/3).</p> |
| | <p>2.6 Does EMS improve fund management and transparency of expenditure?</p> | <p>2.6.1/2/3 As above (2.3.1/2/3).</p> |
| | <p>2.7 Does EMS facilitate improved production and dissemination of timely and informative reports?</p> | <p>2.7.1 Audit of reports.</p> <p>2.7.2 Response of recipients (Agricultural sector and district) to reports (how useful, expectations regarding ongoing reporting, etc.). Interview data deriving from end-of-project M&E feedback from DAFO Heads and local GoL agencies (District Governors, Planning, etc.).</p> |

| RESEARCH QUESTION | DETAILED QUESTIONS | OPERATIONALIZATION |
|--|---|---|
| <p>3. To what degree can the integrity of a ‘results based management system’, developed in ‘project mode’, be maintained during a broader national roll-out?</p> | <p>3.1 <u>In-service training modules</u></p> <ul style="list-style-type: none"> - How well do DEAC staff conduct these for new Districts (e.g., with partners)? - To what extent do participants apply training within their own areas of responsibility? | <p>a. ISTMs were not developed in the lifetime of the project.</p> |
| | <p>3.2 <u>Partners</u></p> <ul style="list-style-type: none"> -What aspects of the EMS do project partners assess as meriting application at the initial engagement stage? -To what extent is the EMS adopted and applied by partner agencies? | <p>3.2.1 Interviews with partner planners and PAECS/DAFO implementers.</p> <p>3.2.2 As for 3.1.2 above.</p> |
| | <p>3.3 <u>Quasi Cost Benefit Analysis for consistent ongoing funding</u></p> <p>Do the project EMS tools and data provide suitably compelling evidence for local governments to allocate funding for ongoing extension?</p> | <p>3.3.1 Review of District/Province development plans and allocation of resources for extension delivery.</p> <p>3.3.2 Data derived from interviews with key informants (District and Province Development Committees, District Governors’ offices, District Planning, etc.) in relation to perceived contribution of extension outcomes on production and livelihoods. Data were collected in Yrs 3 & 4).</p> |

11.2 Guidelines to Comprehensive Extension

11.3 Extension Management System (EMS): A Practitioner’s Introduction
