

## Adapting extension approaches to cultural environments in South East Asia: experiences from Laos and Indonesia

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**Abstract.** This paper describes the author's experience with adapting extension approaches to different cultural and geographical environments in South East Asia. These experiences include assistance with designing, implementing and evaluating government extension programs for livestock and aquaculture in Laos and Indonesia. Funded by the Australian Centre for International Agricultural Research (ACIAR), the work involves 1) researching effective ways to scale out smallholder livestock production in five ethnically diverse provinces of Laos, 2) designing culturally appropriate extension systems for shrimp production in Central Java and South Sulawesi in Indonesia, and 3) conducting and evaluating extension training in both countries. The three key learnings are that adapting extension approaches in South East Asia requires 1) sensitivity to cultural norms and individual household aspirations, 2) close and intensive mentoring of district and provincial extension staff using an action learning process and 3) embedding understanding of extension theory and practice throughout institutions.

### Introduction

What do prawns and forages have in common? Not much at all technically, except smallholder farmers in South East Asia depend on shrimp aquaculture and raising livestock for income generation. These enterprises require knowledge of intensive practices to prevent disease, provide optimal nutrition, control breeding, manage waste and market end products. Government extension services can play a key role in facilitating farmer learning of best management practices in South East Asia. However, these services are hampered by top-down institutional structures and government inertia, lack of resources, and poor links between researchers and extensionists (often with limited technical skills). Extension staff often lack participatory skills when working with different cultural groups, further reducing their effectiveness in assisting farmers.

This paper describes the authors experience with adapting extension approaches to different cultural and geographical environments in South East Asia. These experiences include designing, implementing and evaluating government extension programs for livestock and aquaculture in Laos and Indonesia. Funded by the Australian Centre for International Agricultural Research (ACIAR), the work involves researching effective ways to scale out smallholder livestock production in five ethnically diverse provinces of Laos, designing culturally appropriate extension systems for shrimp production in Central Java and South Sulawesi in Indonesia, and conducting and evaluating extension training in both countries. The aim is to facilitate adaptive approaches to extension to suit different social and cultural environments.

The first section of the paper outlines the nature of smallholder farming systems in South East Asia and their precarious links with people's livelihoods. The role of government extension services and donor aid projects is then described including their strengths and weaknesses in assisting rural communities. The third section details the extension research and consultancy work conducted in Lao and Indonesia over the past seven years using examples and vignettes. Finally, lessons are drawn on strategies for adapting extension to different cultural environments including the three key learnings. These are that adapting extension approaches in South East Asia requires sensitivity to cultural norms and individual household aspirations, close and intensive mentoring of district and provincial extension staff using an action learning process, and embedding understanding of extension theory and practice throughout institutions.

### Smallholder farming systems in South East Asia

The majority of farmers in countries of South East Asia (for example, Indonesia, Philippines, Vietnam, Cambodia, Laos or Thailand) own and/or manage very small areas of land (up to five hectares). For this reason, farming households are often referred to as 'smallholder farmers' or 'smallholders'. Small holdings are prevalent due to high populations, the constant subdivision of land to family members and government-controlled allocation of land. The main driver is persistent poverty as families struggle to make enough money to buy more land. Sometimes they lose their land to money lenders, banks or corrupt officials. Thus smallholders often live in precarious situations. Their focus is primarily on producing enough food for their families with any surplus being sold or exchanged within villages or at local markets.

Smallholder farming systems traditionally vary according to climatic and soil conditions (for example, growing upland or lowland rice varieties, growing cassava in poor soils or fruit trees in good soils). However, in areas with access to markets, smallholders are increasingly growing cash crops, livestock and fish products. Their land area may not change but they adopt more intensive practices in order to produce higher quantities of produce whilst maintaining quality. The requirement for more inputs, loans or labour can put smallholders at risk if the crop fails or they are unable to repay loans. Inadequate knowledge or experience with new farming systems can often lead to substandard produce, land degradation and system failure over time.

Smallholder families can sometimes end up worse off than before, thereby plunging them further into poverty. Options are to go back to a more subsistence lifestyle (if resources are available and the land is not irreversibly damaged), sell their labour to more wealthy landowners, sell their land and seek off-farm work or keep going in the hope that the next crop will succeed. Of course, some farmers do succeed if they can respond to market signals and learn to adapt or diversify their enterprises (Pretty et al. 2005). The ability to do this requires a combination of inherent business sense, access to a range of technologies and options, good networks and some financial buffering within the household budget (Millar and Photakoun 2008). The extent to which extension services (government, private and non-governmental organisation) assist smallholders in this regard is examined in the next section.

### **The role of extension services and donor aid projects in assisting smallholder farmers**

Government extension services have been present since the post colonial era in South East Asia (1930s). Over the past 70 years there has been a shift away from dealing with large commercial plantations and industries to assisting smallholders as the vast farmer majority in most countries. During the 1970s and 80s, extension services were centralised, unified and delivered in a top down manner (Van den Ban and Samantra 2006). Since then, the growth in development aid from overseas donors has created a desire for more decentralised, participatory or bottom up extension approaches (Race and Millar 2006).

At the same time, smallholder farmers have been drawn into cash economies as their countries develop, creating opportunities to increase income whilst presenting technical, social and environmental challenges. Government research and extension agencies have traditionally worked on transferring information to farmers on what they see as useful technologies to increase productivity and gain access to markets. As farmers engage with markets and industries, the private sector becomes an alternative source of advice and inputs. In contrast, pro-poor rural development has largely been the domain of the non-government sector (Christoplos and Farrington 2004; Van den Ban and Samanta 2006). However, these roles are changing and merging as research and development partnerships are forged (Stelling and Millar 2009).

The strength of government extension services is their mere presence throughout countries and regions of South East Asia. Extension staff can be found in most districts and provinces, albeit in small numbers in remote areas. Government extension services are free and farmers can visit government offices anytime to seek advice or permits. However the ability of extension staff to work effectively with farmers varies considerably. A major constraint is lack of government funding to visit villages or carry out field activities. Staff are often confined to their office carrying out administrative or regulatory duties. Another limitation is the relatively low education level of extensionists in some countries (agricultural high school or low diploma at colleges), and reliance on volunteer or contract staff (Photakoun and Millar 2009).

Government extension services are also hampered by top-down institutional structures and government inertia, ongoing lack of resources, and poor links between researchers and extensionists (often with limited technical skills). Extension staff can lack participatory skills when working with different cultural groups, particularly ethnic minorities who are not well represented in government agencies (see example of working with Hmong farmers in Laos on page 3). Nevertheless, government staff can have strong links with industry groups and can take advantage of donor funding. They have the potential to play a key role in facilitating farmer learning of best management practices in South East Asia.

Private sector extension services can be effective for contracted farmers or to fill niche services not offered by government agencies. In South East Asia, industry extension is present in more built up areas and for smallholders who can afford their services or who are purchasing company inputs. Examples are aquaculture feed companies, animal health service providers and crop fertiliser or chemical companies. Whilst smallholders can increase their production per hectare using private sector extension, if the market or system fails and they need to diversify,

they can be left high and dry (see example of shrimp farming in Indonesia on page 4). Non-government extension providers tend to focus on community development, sustainable agriculture and biodiversity conservation projects with smallholder farmers. The strength of development workers is their ability to galvanise communities into action, involve poor households and facilitate credit systems. Their weakness is lack of technical knowledge and skills to assist farmers, although they are increasingly accessing information and contracting government staff to their projects.

### **Adapting extension approaches to cultural environments in Laos and Indonesia**

Since 2002, I have been conducting extension research and training in Laos and Indonesia. Funded by the Australian Centre for International Agricultural Research (ACIAR), the work involves:

9. Researching effective ways to scale out smallholder livestock production in five ethnically diverse provinces of Laos.
10. Designing culturally appropriate extension systems for shrimp production in Central Java and South Sulawesi in Indonesia.
11. Conducting and evaluating extension and social dimensions training to build capacity of ACIAR project leaders and extension staff.

In the vignettes presented below, I describe the process taken to adapt extension approaches in each situation.

### ***Refining extension approaches in the uplands of Laos***

From 2002 to 2005 I was involved in the Forage and Livestock Systems Project (FLSP) funded by AusAid and managed by CIAT Asia (International Centre for Agricultural Research). My role was to assist with extension training and evaluate the impacts of extension activities on farmers and staff. When I joined the project, government extension officers assigned to the FLSP had already been establishing forages with target villages and farmers, as well as facilitating livestock groups across five districts in two provinces. The FLSP wanted to accelerate expansion within districts and needed to design, trial and evaluate a range of extension mechanisms to do this. At this stage, staff worked with mainly two ethnic groups, mostly men and more wealthy households who already had livestock and land.

We embarked on training extension staff in how to identify household impacts (positive and negative), how to develop case studies to show other farmers, how to conduct cross village visits and how to facilitate village meetings (Millar et al. 2005). Within two years, the number of households growing and using forages doubled to 1400, serviced by 26 extension staff working in team pairs (Millar and Connell 2009). The AusAid project had done its job in assisting farmers to increase their income and reduce labour by cutting forages and fattening animals. The extension methods had proved do-able and effective in a general sense. However, we had not engaged poorer households or more remote ethnic groups or tailored our extension methods to women's needs.

The Asian Development Bank agreed to fund further expansion of livestock production to three additional provinces targeting the poorest districts, villages and households. A new batch of government extension staff were trained in 2006/7 to use the same extension methods with ex-FLSP staff as their mentors. These new extension officers are working with more Hmong and Khamu farmers in remoter areas. Although most of the staff are lowland Lao (Lao Loum) and cannot speak Hmong or Khamu language, we encouraged them to organise cross visits that focussed on the specific needs of their farmers. In July 2008, district staff took Hmong cattle farmers from Koun district to visit experienced Hmong cattle producers in Nonghet district within the same province. Farmers were able to talk in their own language and find out exactly what to do regarding feeding, vaccination, buying and selling cattle (see Plate 1) Visiting farmers were asked to prepare questions for host farmers beforehand, and a feedback session was held at the end of the day to reflect on what they had learnt by presenting in small groups (new techniques introduced).

A cross visit for women involved in pig production was also held in the same month by staff from another province. Twelve women (mostly Lao Loum and Thai Deng ethnicity) from Huaphan province in the remote north east bordering Vietnam, travelled for a day to reach Pak Ou district in Luang Prabang province. The women host farmers showed them how to make dried stylo meal as a supplement for pig rations, how to prevent diseases and how to raise piglets. A concerted effort was made to keep male extension officers in the background so as not to inhibit the women's discussion (see Plate 2). Female extension officers were chosen to facilitate the field trip as well as group feedback session. Each host farmer was given a gift as

appreciation (a suggestion from previous cross visits where attendees felt the host farmers were not adequately thanked or compensated). Additional refinements made to cross visits were reducing the number of people, allowing more time for travel and recovery, focussing on one livestock species and following up farmers after the cross visit.

**Plate 1. Hmong farmers in Laos: learning how to fatten cattle for Vietnam markets**



**Plate 2. Let the women talk! facilitating discussion on pig feeds amongst Lao Loum and Thai Deng women in Laos**



Extension approaches are being continually modified as the project scales out to new districts and villages. Case studies are being developed by staff to represent the full range of ethnic groups, wealth status, women and men, livestock types, forage types, feeding methods, economic returns and livelihood benefits. The cultural requirements and information needs of Hmong and Khamu people are being researched and will be incorporated into extension training and approaches. Partnering with NGOs also needs to be considered.

***Introducing BMPs to smallholder shrimp farmers in Indonesia***

In 2008, I started working with an ACIAR project on improving the productivity and profitability of smallholder shrimp aquaculture and related agribusiness in Indonesia. The shrimp aquaculture industry in South East Asia has suffered severe crop declines due to white spot virus since the mid 1990s. Smallholders have been hit particularly hard as they invest considerable infrastructure in establishing ponds and canal systems. Highly intensive control measures are beyond most smallholders, leaving large producers at a competitive advantage. However, scientists and extensionists in India were able to develop a series of best management practices (BMPs) through collaborative efforts of village groups called 'aquaclubs' and field officers.

The BMPs involve establishing biofilter ponds around infected ponds and stocking them with finfish or virus resistant crabs. The infected ponds are harvested and re-stocked with virus free larvae from hatcheries. The whole process requires collaboration between farmers as they may own only one pond. It also requires constant monitoring of water quality and shrimp health, so it is a lot more complex than growing forages and fattening livestock!! In East Java, Australian scientists worked closely with Indonesian researchers to successfully control white spot in traditional demonstration ponds in one location. However, they needed to see if it would work in other districts so demo ponds have been set up in Central Java and South Sulawesi. A technical officer resides in the village, takes daily measurements and liaises with shrimp farmers regarding pond management and harvesting. Researchers from the provincial aquaculture research station oversee the whole operation. Results have been mixed with a successful harvest in Central Java but failed crops in South Sulawesi, due to environmental conditions.

The missing link in the shrimp project was extension. There was very little engagement of district extension staff (known as Dinas) to enable further trialling of the BMPs with a greater range of farmers. There was also no socio-economic information on the livelihoods of shrimp farmers and factors likely to influence their interest in or use of BMPs. Bring in the social scientists!! A socio-economic survey was designed with rural sociologists from Gajah Madah and Hasanuddin Universities and conducted with 60 households in each site. The results gave indications of current profitability of shrimp systems, the household economy, awareness and use of basic BMPs, information sources and farmer group characteristics. On the basis of potential farmer interest and the high level of provincial government support, the project has decided to expand operations to another four farmer groups in 2009 to see if the BMP concept has legs (known as proof of delivery).

District extension staff have been trained in the technical and social aspects of implementing BMPs with farmers using a range of extension methods. They will be mentored by provincial coordinators and researchers from the Brackish Water Aquaculture Centre in Central Java. A field guide will be produced as an extension tool. The challenges identified by extension staff are many, including acid sulphate soils, leaky ponds, loss of farmer confidence in shrimp and conversion to growing seaweed, lack of credibility with farmer groups, lack of extension skills, and lack of monitoring equipment. It's a big ask, and we have yet to see if they are up to the challenge. Adaptation of extension approaches will be needed across the different locations, and partnerships formed with the private sector and NGOs as in Aceh. Nevertheless, government officials and scientists think it is worth a try to rebuild the valuable shrimp industry by managing white spot virus using biological control systems.

**Plate 3. A shrimp farmer in Indonesia discusses the impact of white spot disease with aquaculture researchers and extension staff**



**Plate 4. Aquaculture extension staff identify challenges to introducing BMPs to their shrimp farmers**



***The new institutional norm: Embedding extension theory and practice into decision making at all levels***

Research scientists and policy makers seriously concerned with making a difference to the lives of smallholders through agricultural research and development, need to embrace the social dimensions of their work. People and their institutions come to this realisation at different stages in their careers or projects. Most often it occurs at the point where a technology has been developed in a laboratory or research station, and tested in a few on-farm trials but needs to be applied in different cultural contexts and locations.

What happens next? There is a sudden realisation that a few researchers cannot expand the technology and therefore government or private extension services are needed. So it is either 'handed over' with the expectation that the technology will scale out under its own momentum, or a new project is formed to take it forward. This is where the rubber hits the road. More often than not, the technology goes nowhere due to the institutional constraints outlined in the introduction or lack of understanding of how the technology fits with different smallholder farming systems.

Projects can be designed with an understanding of the social and cultural dimensions of smallholder livelihoods and the extension process needed to work with them. Project leaders and scientists can learn extension theories and methods to deal with social constraints and create opportunities for farmer learning. During 2006 and 2007, myself and a colleague from Charles Sturt University ran a series of training courses for ACIAR project leaders in Laos, Indonesia and Papua New Guinea. The five-day course covered social and community dimensions of implementing agriculture, forestry and fisheries research projects (Race and Millar 2006). Participants learnt to identify the positive and negative impacts of their work on smallholders, how to involve a range of stakeholders using community participation methods, the role of extension and how to evaluate social issues and impacts.

We have worked from the top and from the bottom of institutional levels in South East Asia, but have yet to engage those directly responsible for extension staff. Extension managers at district and provincial levels need to be exposed to the same extension theories and practices bestowed on their staff at training workshops and cultivated in the field.

## Conclusion

The three key learnings are that adapting extension approaches in South East Asia requires 1) sensitivity to cultural norms and individual household aspirations, 2) close and intensive mentoring of district and provincial extension staff using an action learning process and 3) embedding understanding of extension theory and practice throughout institutions.

Working in different cultural environments in South East Asia has been an enriching experience and has highlighted to me the importance of being adaptable with extension approaches. We can follow accepted extension principles and methodologies but they still have to be applied to the needs of particular farmers and extension staff. The first step is allowing time to assess the situation before jumping in with grand ideas. Spending time with farmers and villages, talking to extension staff, going out into the field with them, finding out the expectations of managers and project leaders are all paramount steps. Search for cultural understanding and meanings beneath the surface - don't assume anything!

Secondly, work closely with local and provincial extension staff in developing culturally appropriate extension activities with their farmers. Encourage staff to get to know their farmers by working alongside them. Use an action learning approach to plan, do and review all extension activities. Find mentors for new staff and encourage teamwork. Engage managers and decision makers and build their understanding of extension theory and practice. Garnered with these skills and adequate support, extension officers will develop a self motivating confidence which can sustain them, despite constant institutional and budgetary changes.

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## Acknowledgements

The research and training described in this paper was funded by the Australian International Centre for International Agricultural Research (ACIAR). The author would also like to acknowledge the project partners involved: the University of Sydney, CIAT Asia, the Lao National Agriculture and Forestry Extension Service and Department of Livestock and Fisheries, the Indonesian Directorate General of Aquaculture, Gajah Madah University and Hasanuddin University.