CAN AGRICULTURAL RESEARCH BE MORE EFFECTIVE FOR THE RURAL POOR OF ASIA?

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INTRODUCTION

When the International Center for Tropical Agriculture (CIAT) commenced research in Asia, in the early 1980s, the initial focus was on germplasm improvement in cassava and forages for livestock. Significant improvements were realized, through the introduction of new germplasm and through breeding, but real successes, in terms of impact on the livelihoods of poor farmers were not realized until more social or people-centric methods were introduced. CIAT worked to link local researchers, extension services, traders, processors, industry, and government to achieve what none could achieve alone; the identification and development of improved farming techniques that were modified as they were adopted by the target communities. This process allowed for the necessary innovation to match the biophysical requirements and constraints of the land with the broad social, economic, and political landscapes in which the marginalized poor farmers of Asia exist.

This paper discusses options for linking participatory research activities, which by necessity are conducted at specific project sites, with the wider development sector to ensure that successful research results are used by development practitioners and policy makers, and so achieve widespread impact. Two case studies will be presented and lessons learnt from these studies will be discussed.

CASE STUDY 1: Developing smallholder cattle enterprises in Daklak, Vietnam

This case study examines an on-going research program that investigates avenues for improving livelihoods of smallholder farmers in Ea Kar district, Daklak province of Vietnam by facilitating the change from traditional low-output cattle raising to a market-oriented beef production system. The program commenced with a simple research partnership between CIAT, Tay Nguyen University and the Ea Kar district extension office in Daklak, and the National Institute of Animal Husbandry in 2000.

Initially, the program worked with a small number of farmers using farmer participatory approaches. With time, the program extended activities geographically to more villages, and evolved thematically from the introduction of forages to animal nutrition, year-round feeding systems, animal husbandry and breeding, cattle marketing and the policy environment for cattle development. Correspondingly, the project grew in complexity and involved more and more stakeholders such as district government and commune leaders, commune extension workers, farmer and women's union leaders, livestock traders, and agricultural banks. By 2008, more than 2,400 smallholder households had adopted improved cattle production technologies, the

cattle population in Ea Kar had more than doubled and the number of cattle sold for slaughter had quadrupled (Khanh et al., 2009).

Many stakeholders contributed to the successful outcome. The stakeholder matrix grew in both number and complexity as the project moved from simple on-farm research to livestock development and scaling out. Researchers contributed significantly to the development but their role and influence diminished with time; by 2008 researchers were one among many stakeholders who influenced the final outcome but they were instrumental in starting the process by identifying the key constraints and working with farmers and other stakeholders to identify, introduce, and evaluate solutions. They provided the 'engine' that drove cattle development but, had they worked in isolation, they would not have been successful. Key factors contributing to this success were the long-term commitment of researchers, the effective and dynamic partnership with key development stakeholders, linking social with bio-physical research (e.g. linking farmers to markets), and identifying technical solutions that enabled smallholder farmers to compete successfully in the beef market in Vietnam.

CASE STUDY 2: Pig systems learning alliance in Lao PDR

CIAT, together with the National Agriculture and Forestry Research Institute, are evaluating the potential of forage legumes as a feed supplement to improve village pig production in Laos over the period from 2006 to 2010. Village pig production is severely constrained by a lack of protein in pig diets. Early results have shown that supplementing village pigs with the forage legume *Stylosanthes guianensis* (Stylo 184) doubled daily weight gains of growing pigs and reduced women's labor requirements for feeding pigs by at least one hour each day. While continuing research on legume supplementation, CIAT and NAFRI were looking for ways of extending these promising results from the small number of research sites to a large number of farmers in northern Laos.

Linking only with government extension services was not an option, except at limited project research sites, as the extension services were severely constrained by funding and a lack of skilled staff. The project explored alternative ways of scaling out successful research outputs and decided to facilitate a multi-stakeholder learning alliance on pig production in northern Laos. The project identified NGOs and development projects interested in livestock development and invited these and any other interested projects to participate in the alliance which had the objective of improving village pig production. The project facilitated two workshops each year, held at different locations, to discuss progress and share experiences with the introduction of improved pig feeding and husbandry practices, arrange training on issues requested by alliance partners, provide access to information material and germplasm, establish linkages between experienced extension workers and less experienced alliance partners, and generally to act as a hub for pig production research and development.

Participation in the alliance increased from 9 NGO staff in 2006 to 25 alliance partner staff in 2008. By then, legume supplementation had been adopted by more than 1,200 households in 120 villages in 16 districts in 8 provinces in northern Laos (Stür et al, 2009). The alliance of

researchers and development workers benefitted all partners. Development projects and their staff received training in improved pig production technologies and participatory extension methods, gained access to information and research results, and became part of an informal network of professionals that ensured continued access to information and experiences. Researchers were able to empower development practitioners to scale out research results and thus achieve impact, and they benefited by receiving feedback from multiple development partners on implementation of research findings.

LESSONS LEARNT

Agricultural development is influenced and determined by the interaction of multiple stakeholders including researchers, extension workers, local government leaders and policy makers, farmer leaders, and traders. Researchers have an important and essential role in this 'innovation system' but are only one group among many stakeholders. Effective and dynamic partnerships between researchers and development stakeholders are essential for agricultural development and for gaining the maximum impact from research outputs. Partnerships need to be based on sound partnership principles, and provide an avenue for adaptive scaling out of research results. In both case studies presented in this paper, successful biophysical research outputs (i.e. new livestock technologies) stimulated stakeholder interest and excitement in livestock development; they could see the gains that could be made by adopting new technologies. This enthusiasm was followed by the development of strong information sharing and support mechanisms that fostered innovation and drove the extension, adoption, and expansion processes that led to real impact for marginalized farmers.

There is an essential and interdependent role for both social and biophysical scientists in achieving high-impact agricultural research. Social researcher have much to contribute and bring skills and tools such as stakeholder analysis and actor linkage maps to identify key stakeholders in the innovation system, value chain approaches for targeting research needs, and a whole systems perspective.

KEYWORDS

Research, development, partnerships, stakeholders, impact.

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Can agricultural research be more effective for the rural poor in Asia?

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Outline

1. Objective
2. Case studies
   - Developing smallholder cattle enterprises in Vietnam
   - Pig systems learning alliance in Laos
3. Lessons learnt and conclusions
   - Useful approaches
   - Role of social and biophysical science

Outline

1. **Objective**
2. Case studies
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Objective

- Share experiences for extending successful research from pilot sites to achieve broader development impact

Outlime

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Case Study 1: Developing cattle enterprises in Vietnam

Location: Ea Kar district, Daklak province, Vietnam.

- Undulating upland
- Variable soils
- Coffee, maize, cattle, sugar cane, small areas of rice

Case Study 1:
Developing cattle enterprises in Vietnam

Research objective: Investigate the key interventions needed to transform smallholder cattle production from traditional grazing to market-oriented beef production.

Traditional smallholder cattle production
- grazing common property resources and crop residues

Forage-based smallholder beef production

Case Study 1:
Developing cattle enterprises in Vietnam

Research objective: Investigate the key interventions needed to transform smallholder cattle production from traditional grazing to market-oriented beef production.

Research program commenced: 2000 until now

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Outcomes:

Outcomes

1. By 2008, more than 2,400 smallholder farmers had planted forages for their cattle and had changed from traditional grazing to pen feeding & fattening of cattle
2. Many farmers changed the cattle breed from local to cross-bred cattle, for which there is higher market demand
3. Farmers produced higher-quality beef cattle
4. Traders developed new markets for cattle (e.g. Ho Chi Minh City)
5. Cattle population more than doubled from 2000 to 2005, while it increased by only 7% in other districts
6. From 2005 - 2008, the cattle population remained stable but the number of cattle sold (off-take) increased from 8,000 to 15,000 animals
7. Higher net returns per unit land and higher returns to labour

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Developing cattle enterprises in Vietnam

Location: Ea Kar district, Daklak province, Vietnam.

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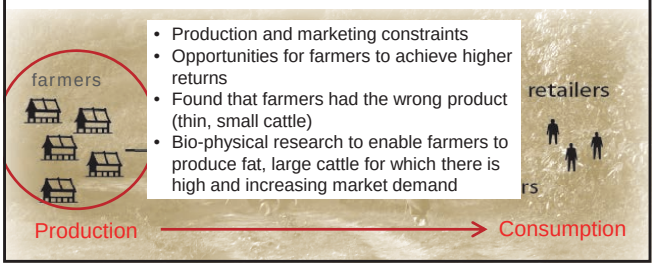
Research program commenced: 2000 until now

Outcomes:

Research process:

Research process

1. Participatory approaches to technology development
   - previous speakers
2. Value chains as a framework for targeting interventions



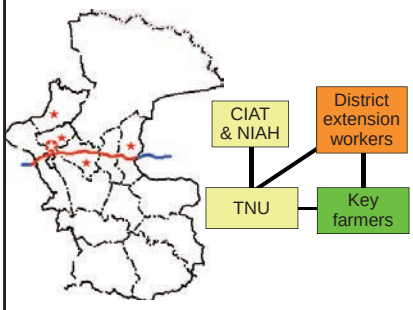
- Production and marketing constraints
- Opportunities for farmers to achieve higher returns
- Found that farmers had the wrong product (thin, small cattle)
- Bio-physical research to enable farmers to produce fat, large cattle for which there is high and increasing market demand

Research process

3. Evolving partnerships – the role of research in development

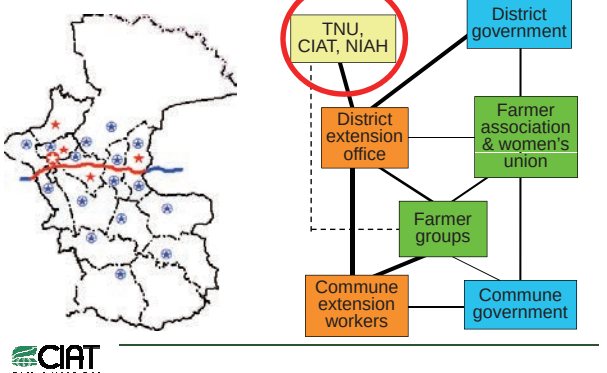
Stakeholder linkages 2002

Ea Kar district

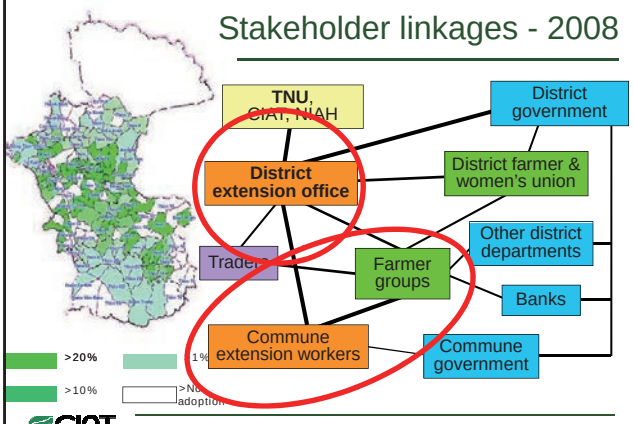


- Project activities in 4 villages
- Stakeholders:
  - **1) Researchers**
    - CIAT, National Institute of Animal Husbandry (NIAH)
    - Tay Nguyen University (TNU)
  - **2) District extension workers**
  - **3) Key farmers**

Stakeholder linkages 2005



Stakeholder linkages - 2008



The role of research in development

- Researchers played an important role
  - Developed technical and marketing interventions, and facilitated policy reforms
  - Identified forage technologies which were the entry point for transforming cattle production
  - Built capacity of district and commune extension staff in forage production, animal nutrition and management, market studies, household surveys, and M&E
- The role of researchers diminished with time and other development-oriented stakeholders become key actors in driving cattle development
  - These development stakeholders were essential for achieving impact

Case 1 - Summary

1. Forage technologies provided significant impacts for farmers, which stimulated the interest of other development stakeholders
2. Participatory approaches ensured that
   - farmers were active participants in technology development, and
   - ensured inclusiveness and promoted ownership by local stakeholders
3. A value chain approach helped to
   - focus research on critical issues affecting returns to farmers, and
   - linked biophysical and social science
4. Dynamic and effective partnerships of researchers and other key development stakeholders were essential for success
   - Placing research into a development context ('innovations systems' framework)
5. Long-term commitment

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Case Study 2:
Pig systems in Laos

Forage legumes for supplementing village pigs in Laos

- A farmer innovation!
- Previous forage research project found that farmers had started to feed the forage legume *Stylosanthes guianensis* CIAT 184 (Stylo) to their pigs with good results.
- Anecdotal evidence that supplementing pigs with Stylo doubled weight gains and women saved more than 1 hour each day.

Forage legumes as a feed supplement for village pigs

Project strategy

Stylo for pigs
• how does it work?
• can it be improved?

Reach poor households
• Government extension service
• NGOs & projects

Research
- Understand the production systems
- Understand the impact of Stylo 184
- Identify additional feeding options

Learning alliance
• platform for building capacity & sharing knowledge
• linking people

Development
- Support development partners in scaling out
- Build capacity
- Provide feedback to research

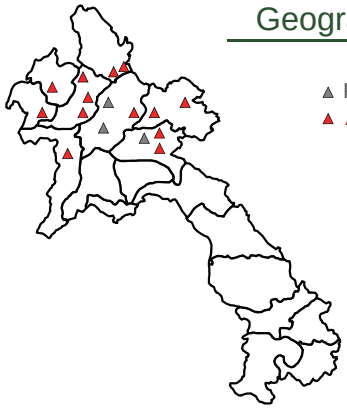
The learning alliance

1. Forming the learning alliance
   - Stakeholder analysis
   - Held a field day and inception workshop for identified stakeholders
2. Activities of the alliance
   - 2 meeting a year
   - Training courses, based on needs of partners
   - Access to technologies, people with technical knowledge, information material and sites for field days

Outcomes

- Participation
  - The number of NGOs and projects participating in the alliance increased from 9 staff (from 5 projects) in 2006 to 25 staff (from 7 projects) in 2008.
- Geographical reach

Geographical Reach



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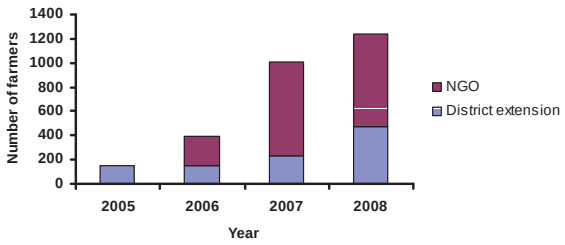
- Geographical reach
- Scaling out

Adoption of Stylo supplementation



Outcomes

- Participation
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- Geographical reach
- Scaling out
- Alliance partner feedback

Alliance partner feedback

- Access to effective technologies
  - provided substantial, immediate benefits to farmers
  - were easy to implement and provided an inspiration for field staff
- Built capacity for scaling out
  - technical and extension methodologies
- Created a R&D network
  - a strong informal network of researchers and development workers who trust and respect each other

Case 2 - Summary

The learning alliance

- benefited all alliance partners
  - Development practitioners improved their technical and extension skills, got access to valuable information and became part of an informal network of professionals that will continue after the end of the learning alliance
  - Researchers empowered development workers to scale out research results and thus achieve impact, and they received feedback from development workers on their research findings
- achieved significant livelihood impacts
- efficiently scaled out agricultural technologies
- built innovation capacity

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Lessons learnt

- Successful technology development and scaling out was influenced by the interaction of multiple stakeholders.
- Researchers have an important and essential role in this 'innovation system', but are only one group among many stakeholders.
- Successful research outputs (such as planted forages) stimulated the interest of 'development' stakeholder and ensured their commitment to livestock development.
- Development of strong information sharing and support mechanisms (such as learning alliances) that fostered innovation and drove the extension, adoption, and expansion processes.

Useful approaches

- Participatory approaches
  - for technology development, and
  - interaction with other development stakeholders
- Value chains as a framework for targeting interventions
- Effective and dynamic partnerships in an agricultural research and development framework ('innovation systems')
  - Stakeholder analysis, Actor linkage maps
  - Learning alliances

Role of social and biophysical scientists

- Bio-physical research needs to be placed within an agricultural research and development framework ('innovation system') to ensure that it can achieve widespread impact.
- Thus, there is an essential and interdependent role of social and biophysical science researchers in conducting effective agricultural research for the rural poor in Asia.

Thank you for your attention