

A Pro-Poor Approach to Upgrade Agri-Food Value Chains in Tanintharyi Region of Myanmar

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ABSTRACT

Introduction

Myanmar's economy is underpinned by the agricultural sector (30% of GDP). However, agricultural productivity and profitability indicators are among the lowest in Asia. With over two-thirds of Myanmar's population engaged in agriculture with stubbornly high rural poverty rates (38.8% below the poverty line), small-scale farms are critical leverage points to improve the livelihoods of farm and non-farm households.

In 2017, a bilateral donor approved a five-year project to strengthen the rural livelihoods of small-scale farmers in the Tanintharyi Region of southern Myanmar. Results from the project's baseline survey show small-scale farmers have severe restrictions to accessing affordable credit (Lyne & Snoxell, 2018). Combined with irregular cash flows, this creates liquidity problems, meaning farmers are unable to invest in productive assets, hire labor, and apply quality inputs to improve farm productivity. Furthermore, inadequate extension services and traditional farm practices result in poor quality agri-food products which are not viable for higher value markets. These low-quality agri-food products are sold at the farm gate to brokers at cash-market prices. There is also scarce evidence of collective action among farmers to improve bargaining power.

Considering these constraints, the International Livestock Research Institute (ILRI) and Lincoln University (LU) have employed system dynamics (SD) tools to select pro-poor interventions that enable small-scale farmers to substantively engage in and meaningfully benefit from pork and paddy value chains. Other project consortium members include an International Non-Government Organization (INGO) as the in-country implementing partner and a micro-finance institution (MFI) to deliver value chain financing.

Agri-food value chains are characterized by biophysical delays, cyclical behaviors, and dynamic interactions between nodes in the value chain (Rich *et al.*, 2011). Meanwhile, pro-poor

value chain methodologies primarily rely on qualitative and descriptive data and tend to cluster information at the macro- or meso-level (Rich *et al.*, 2011). Standard pro-poor approaches that rely on the descriptive constraints that small-scale farmers face in accessing markets (Trienekens, 2011), therefore, are limited in their ability to quantify, *ex-ante*, the impacts of upgrading strategies as they do not sufficiently consider the wider consequences and trade-offs (intended or unintended) of upgrading activities within or beyond the immediate value chain system (Rich *et al.*, 2011). These are further useful to address poverty, gender, labor, and environmental impacts for farm and non-farm households when selecting upgrading pathways (Bolwig *et al.*, 2010).

This research applied Spatial Group Model Building (SGMB) methods (Rich *et al.* 2018) coupled with an action research framework to provide ILRI and LU with decision-support tools that suit the dynamic nature of value chains, encourage community participation, and enable trade-off analysis given the project's finite time, resource, and financial constraints.

Aims

To ensure that cost-effective and viable pro-poor upgrading interventions are selected, we use SD tools to (i) identify and describe the dynamic processes and relationships within the pork value chain; and (ii) analyze the *ex-ante* impacts of different pro-poor interventions to upgrade the pork value chains in the Tanintharyi region of Myanmar. In later research ILRI and LU will compare the observable outcomes of upgrading with the model's *ex-ante* results alongside an exploration of the effectiveness of SGMB tools in engaging a broad base of stakeholders.

Methods

Initial field assessments in early 2018 selected pork and paddy¹ value chains from a 'short-list' of

¹ The paddy SD model is still under development and priority is given to the pork model in this presentation.

eight potential products. SGMB workshops were then conducted with value chain actors over six weeks in early 2019. Participants included small and medium-scale farmers, brokers, and slaughterhouse owners/wholesalers. On average twelve people joined each of the four workshops, with an encouraging 40% female attendance. Alongside SGMB workshops, we conducted four reference group sessions, farm visits, and interviews with key value chain actors, such as local livestock officers and retailers, to gather and triangulate qualitative and quantitative information in a data-scarce environment. The output of SGMB sessions included Casual loop Diagrams (CLDs) built around priority problems in the chain and key model modules. CLDs were then transformed into a quantitative SD model of the pig value chain to facilitate scenario testing of potential upgrading interventions. The data were analyzed across 14 indicators of chain performance.

Preliminary Results

The SGMB sessions delivered a consensus from participants on chain dynamics and critical feedback loops in the pig value chain. The Layerstack tool enabled SGMB participants to readily describe their role in the chain in terms of place and time and to learn how other actors influence chain dynamics both past and present. Overall, SGMB techniques moved participants to a shared understanding on how structures and relationships in the chain shape behavior and performance.

The baseline results of the SD model show continued oscillations in the price of live pigs for small-scale farmers. Disease outbreaks and subsequent panic selling cause sharp decreases in prices which is followed by an overshoot live pig price as the pork supply falls short of rebounding demand. Investments by small-scale farmers during peak prices and related production delays further contribute to price oscillations. The baseline model suggests hybrid farrow-to-fatten pig systems are significantly more profitable than local systems but require capital investment and risk mitigations beyond the capacity of many small-scale farmers.

From Scenario testing a rank order for project interventions is developed: (i) credit; (ii) animal health workers; (iii) training and the introduction of commercial pig feed; (iv) artificial insemination. Model results shows that while micro-credit is a critical for upgrading, current loan products on offer by the MFI partner may cause liquidity problems for farmers and unintended negative consequences during disease outbreaks. Results from scenario testing show a

combination of upgrading interventions together with correct sequencing helps ensure short-term positive outcomes and strengthen medium- and longer-term results for small-scale farmers,

The model's producer organization module allowed scenario testing on various forms of collective action among small-scale farmers. Results show that institutional arrangements that enable producer organizations to maintain capital for investments and provide proportional price rebates to members deliver increased profits and allow organizational growth. Furthermore, investments in producer organization capacity extends the project's beneficiary reach and strengthens sustainability of outcomes.

References

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