RUBBER-BASED FARMING SYSTEM: In A Challenging Industry Development and Expansion in Southern Philippines

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Introduction

➢ Expansion of natural rubber plantations in Southern Philippines was terribly slow owing to the longer gestation period of rubber trees to be harvested.

➢ This was due to more than 70% of farm areas are smallhold (3-5ha/household), and farmers prepared to grow crops that can provide immediate sources of food and income.

➢ Region 9 (Zamboanga Peninsula) in the south has the largest potential area for rubber expansion of nearly 400,000ha (Bureau of Soils and Water Management, Philippines)
The Philippines has targeted more than 1 million hectares rubber expansion in 2020.

This expansion program was also challenged by the fluctuating market prices of rubber, low productivity level due to poor management practices, inadequate logistic support from the government, and limited sources and availability of quality planting materials.

On the average, harvesting of rubber commence on the 6th year after planting, thus, smallhold farmers have problem on income in the first six years.

These challenges had been mitigated through the introduction of rubber-based farming system or growing of intercrops with shorter duration for cash or subsistence.

The technology was introduced in the communities with the concerted effort of the different stakeholders such as rubber farmers, peoples' organizations, and Local Government Units.
Introduction cont...

- The rubber-based farming system (RBFS) was an action research designed for the community as an intervention over farmer’s practices (FP) of rubber monocropping.
- It adopted the planting distance 2m x 3m x 21m in an east-west orientation of rows with a total of 500 rubber trees per hectare.
- The cropping system was showcased to advocate and create job opportunities for the farming households in the community. RBFS required three (3) jobs per hectare equivalent to three persons hired for employment per year.

Objectives

- Generally, the project was conducted to fast track the rubber expansion initiative in Southern Philippines through improving farm productivity and profitability and create job opportunities in the countryside.
- Specifically it aimed to:
  - To strengthen people’s organizations and other stakeholders through technical and logistic support;
objectives cont...

- To advocate rubber plantations expansion in the region adopting the intercropping practices;
- To evaluate the cost and return of RBFS vis-a-vis rubber monocropping.

Methodology

- The strategy of the project implementation recognized that people’s organizations are the major partner of community development.
- Direct farmer beneficiaries are encouraged to share to other farmers the technology and knowledge gained including the farm inputs generated from the project to other farmers.
Pre-implementation Phase

- Setting of commitments with the LGU partner
- Selection of Farmer Cooperators with farm sites
- Project Briefing and Trainings/Capability-building

Implementation Phase

1. Strengthening the People’s Organization (PO) and other stakeholders
   - Done to synchronize efforts for the development of the community
   - Trained and exposed them to successful projects for them to have idea in managing better-off projects
   - The PO was also directed to collect payments from the FCs
2. Establishment of Model Farms

- Established in the farmer’s field
- Served as an intervention over the farmer’s practices of monocropping
- Crop components introduced were based on the output of the Participatory Rural Appraisal (PRA)

Results

A. Project’s Impact to the PO

- The community initiated several development projects in support to rubber industry expansion.
  a. Establishment of rubber nurseries
  b. Expansion of budwood gardens
  c. Market linkages of rubber products
  d. Local legislations prohibiting exploitation of rubber trees and quality control of products.

- Banking and/or financing institutions came to the community to offer credit assistance for rubber farming
B. Farm Development through Intercropping

- The RBFS offered alternative sources of income for the farmers during the immature phase of rubber.
- On the 1st three years, corn was planted during the 1st cropping seasons followed by legumes as the 2nd crop.
- On the 4th to 5th year of cropping and while rubber trees developed wider canopy, farmers grew solanaceous vegetable.

Figure 1. Average annual production of intercrops.
- Results showed that RBFS obtained an average girth size of 49.7cm on the 5th year while the farmers’ practice had only 44.8cm average girth size.

- Yield performance, RBFS attained an average of 2,223.40kg/ha/yr dry rubber to 2,314.98kg/ha/yr dry rubber on the 5th to 6th year period of the plantation, while the farmers' practice had only an average yield of 2,084kg/ha/yr dry rubber.

Figure 2. Comparative growth performance of rubber trees.
Economic Analysis

- RBFS showed an increasing net income during the next seven years, from Php5,444.00 (US$126.6) in year 1, Php259,000 (US$6,023.3) in year 5, Php344,628 (US$8,014.6) in year 6 and Php393,547 (US$9,152) in year 7.

- Net income was observed very high in the 5th to 7th year; due to the income from the production of rubber.

- On the other hand, there was no income in the farmers’ practice or rubber monocropping during the 1st five (5) years of growing. Harvesting was done on the 6th year of the plantation. It only obtained a total net income of Php249,996.00/ha/yr (US$5,831)

- The Marginal Benefit Cost Ratio (MBCR) of the technology intervention over the farmers’ practice was 0.85 in year 2, 2.23 in year 4 and up to 2.99 in year 6.
Figure 3. Comparative net income performance of rubber-based farming system and farmer’s practice or rubber monocropping.

D. Job Generation in the Community

- Family labor was utilized to assist in different farm activities such as land preparations, planting of intercrops, farm maintenance and postharvest activities
There were 3 additional jobs per ha/year hired to complement the different farm activities such as rubber production and maintenance, prod’n and maintenance of intercrops.

The local government livelihood initiatives in the community also created jobs per recipient household.

The massive gradual adoption of farmers in the community on the technology interventions also produced job opportunities to the out-of-school youths and adults.

E. Technology Diffusion and Adoption

The technology is now widely adopted by smallholder farmers in Southern Philippines.

Adopters were primarily the farmer member of the PO who availed of the farm inputs paid by the direct beneficiaries.

There were also farmers replicated the same technology, availed the planting materials produced from the model farm including those who acquired budwood of recommended rubber clones for multiplication purposes.
G. Implication of the Project to the Philippine Rubber Industry Expansion Initiative

- Farmers consider rubber as potential crop that provides employment all year round since tapping is done every other day.
- Despite the viable and lucrative livelihood opportunities offered by rubber farming, there had been no substantial alternative for smallholders to generate food and income during the years when rubber trees are still immature for tapping.

- The RBFS had been introduced as a viable and sustainable approach in providing income, food and livelihood for the farmers.
- The project doubly supported for the massive expansion of rubber plantation by 34% in Southern Philippines compared to the past experiences 10-15 years ago.
- With the estimated 20-30% suitability of the farming system in relation to the topography of expansion areas, would mean an additional of more than 600,000 jobs to work in the industry.
Conclusions

- The RBFS assisted the expansion initiative of the Philippines
- The PO when empowered was observed to be the best partner to mobilize development initiative in the community
- Planting of cash crops and annual crops were profitable during the 1st four (4) years of the plantation while fruit crops supplemented income starting on the 5th year.

By adopting the technology and given all the positive conditions in the production of intercrops, a farmer can obtain a minimum net income of Php259,000.00 (US$6,023) during the first productive year of rubber.

The recommended girth size of 50cm is attainable on the 5th year after planting. It is a year earlier than the monocrop rubber farm.
The introduced system generated three (3) jobs per hectare per year in addition to the family labor exerted by the farming household.

The POs concerted effort with other stakeholders, also created significant results towards technology diffusion, rubber expansion, creation of other dev’t initiatives and also produced more job opportunities in the community.

**Recommendations**

- For the massive expansion and adoption of the technology, policy-makers should consider the rubber-based farming system as an indispensable approach for the economic development of the rubber farmers in the Philippines.
- Intensify adoption of intercropping practices with rubber to maximize utilization of space while the rubber tree are still small/young at the same time improving farmer’s productivity and profitability.