

# Development of Coffee Value Chain for Value Added in Small Scale of Farmer\*

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This study is development of the coffee value chain in small scale of farmers on highland in the upper northern region of Thailand with case study of Pamieng community, Muangpan District, Lampang Province, Thailand. The objective is the use of the value chain model for the value added of product (coffee). The results from objective to conduct in the value chain of Pamiang's coffee bring economic benefits and community based environmental benefits and also show the cost and return of coffee production in the value chain of Pamieng's coffee which found that the farmers have a way to reduce costs in order to increase returns. The most coffee growing is on highland, therefore it is very important to take care of the entire value chain to deliver the highest value to society and customers.

*Keywords:* coffee, development, value chain, small scale of farmer

## Introduction

Coffee is an important economic crop of Thailand, earning about 3,000 million baths per year for the Thai farmers in the last 10 years. The coffee market has expanded considerably quick, resulting in an increased demand for coffee beans for the manufacturers: approximately 80,000 tons needed per year (The Office of Agricultural Economics of Thailand: The Coffee Strategy 2016-2020).

Despite an increasing demand in coffee beans, domestic coffee production continues to decline. This is because the coffee prices in the past have gone down significantly, causing the farmers to change to grow other crops that would provide them better profits. These include para rubber trees, palm trees, and other fruit trees. Seventy-eight percent (78%) of the cultivated varieties are Robusta which is grown mostly in the South of Thailand. The other accounting for 22% is the Arabica widely grown in the North of Thailand. The production that fails to meet the demand not only causes increased imports of unprocessed or raw coffee beans from abroad, but also forces the country to open the tax-free market for coffee beans and instant coffees to the AFTA, which has a great impact on the farmers.

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The manufactures may choose to buy coffee beans from abroad instead of buying it from the local farmers who sell the coffee at slightly higher prices. These countries can produce higher yielding coffee at lower production costs, and the countries competing with us in the production of coffee include Vietnam, Indonesia, and Laos. However, Thailand being in the international market is not entirely a bad thing. Like it or not, it forces the coffee industry in the country to excel and grow. We may not be able to compete with the low production costs, but we sure can create more value for the goods using and highlighting the potentials and identity of Thai coffee. Moreover, we also stress the importance of the green production and encourage this model to our coffee growers and farmers to best preserve the cultivated areas in the country.

Coffee is a global economic beverage plant. According to the statistics in 2012 Thai people in particular are increasingly consuming coffee approximately 67,620 tons per year, that is 9.99% higher than the year 2011. It is universally accepted that Thai coffee products are of the highest quality in the world. Unfortunately, the domestic production is a lot less than what is being demanded, so there is need to import coffee beans from other countries. Two varieties of coffee that are popular in Thailand are Arabica and Robusta. Arabica coffee is suitable for planting on high ground and is popularly processed into fresh coffee whereas Robusta is popularly grown in the southern region and is mostly to be processed into instant coffee. In addition, coffee is a plant that government agencies favor to encourage highland communities to cultivate to reduce forest destruction and generate income for the community.

Therefore, this research project will focus on developing the value chain for the Thai coffee industry, starting with the target group: Pamieng, Chae Son subdistrict, Mueang Pan district, Lampang province. The area of this target group is located 35 kilometers away from the district and covers about 12 square kilometers, with the total population of 469 people: 243 male and 226 female. The occupation characteristics of the community are mainly agricultural: with 99% accounted for farming, tea, coffee, and mushroom cultivation, and the rest are miscellaneous, and self employed. Average income per person per year is 33,541 baht (Pamieng community information, 2017. <https://banpameang.wordpress.com>). Nevertheless, the problem that community is facing is not being able to be self-reliant because there is a shortage of coffee processing equipment, as well as and especially the lack of knowledge and understanding of available 1-A resources. For this reason, local communities and government agencies came up with the idea of combining farmers groups to develop enterprises to produce coffee to generate income and strengthen communities. They also stress the importance of the coffee plantation area being in perfect harmony with the forest area, as well as provide knowledge on biofilm pest eradication. To generate sustainable income, this project therefore focuses on developing the value chain for local coffee growers which in return will bring the strength to the community. Acknowledging the meaning of coffee to the people of this town and the importance of income security for the townies, especially crop (coffee) growers, maximizing the available resources, and understanding the value chain are the goal to improve the quality of life and incomes for the people in this community.

This research study focuses on value added in value chain management model for coffee production in highland area.

### **Materials and Methods**

(1) Study the area, population, coffee sellers, and buyers, the marketing, as well as the cultural aspects of the community.

- (2) The technology used in the production process in which the coffee fruits are turned into millions of coffee beans.
- (3) Co-existence between coffee businesses in the community and its ways of life.
- (4) Adding value to the products (value chain) by preserving the green production.

### Results

The study of the coffee value chain process in the upper northern region of Thailand, specifically in the area of Banpamieng concludes that farmers sell the products in the form of cherries (fresh coffee fruits) to the one-two manufacturers in the community where cherries are turned into coffee beans. The coffee beans then get distributed to either the central market or smaller businesses. The central market or small businesses can sell coffee beans as whole or as processed coffee and sell it to buyers or consumers.

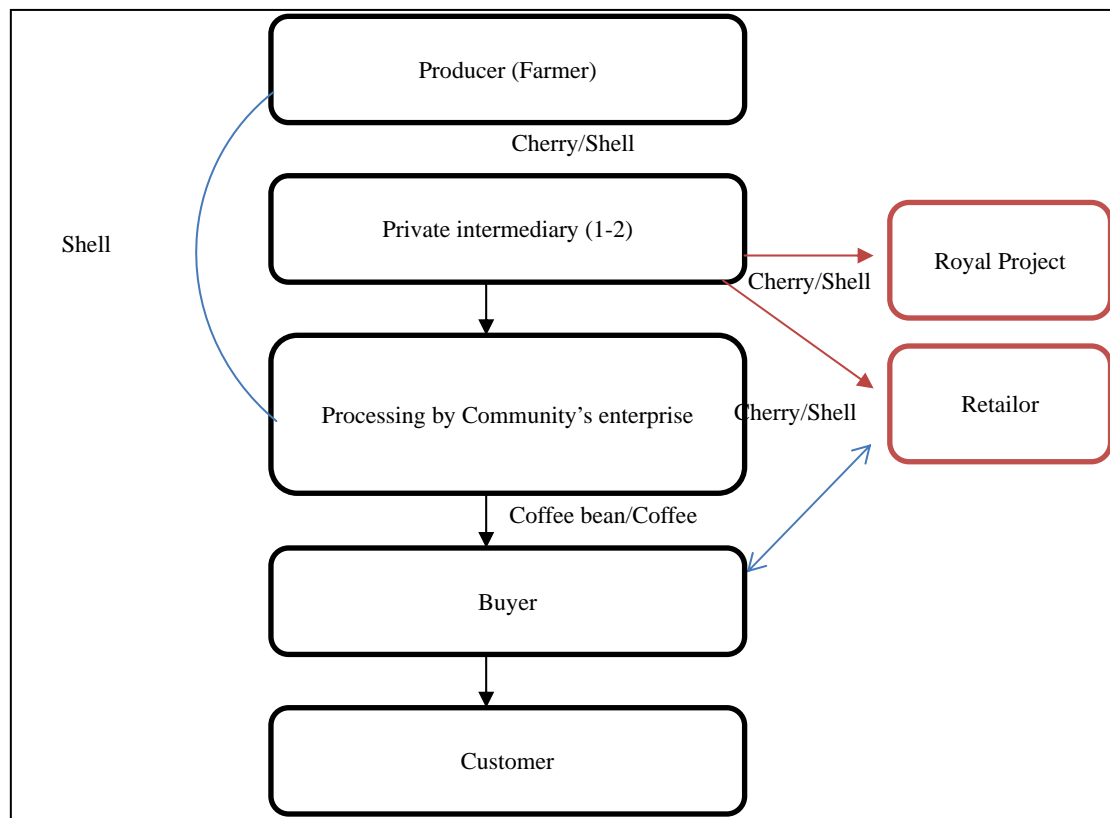


Figure 1. The processing from producer to customer of Pamieng community.

After looking at the whole picture of the value chain of Pamieng community's coffee, the research team concluded that the result went in the right direction and as expected by both the research team and the community. The outcome reflects the readiness for the next phase, which is the objective of system management in the community for step for value chain.

The image above shows Pamieng Community's production process. It is a system that takes into account the environmental conditions and makes use out of the residue/waste produced in the production process which brings more value in value chain of Pamieng coffee green production.

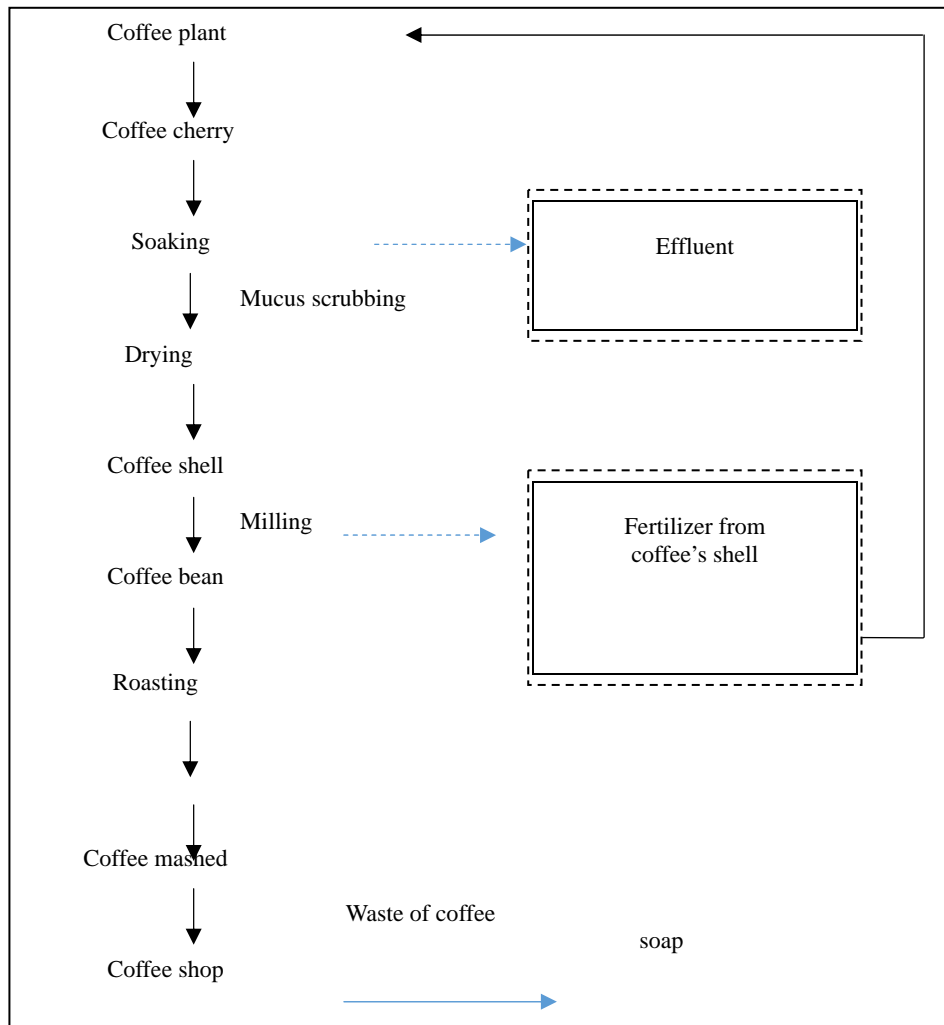


Figure 2. The value chain management for value added in community.



Figure 3. Fertilizer from coffee's shell.

### Discussion

The expected outcome of this research study was to map the value chain of Pamieng Community coffee plantation in relation to the green production, this in addition, reflects the understanding of both the researchers and the community. As shown below, it can be seen that coffee tree produces coffee cherry, product from coffee tree that contains pectin, which according to James Hoffman (2017) causes damage to living things such as plants. The coffee cherry then turns to coffee shell when dried. The green bean from coffee shell can be processed into coffee bean. The coffee ground left from brewing can be used as a fertilizing product for baby coffee tree, and the cycle repeats.



Figure 4. Green production of Pamieng coffee.

The study to increase community product value of Pamieng Community, according to Lelakaweewong (1998), began with data collected from 120 households in the target area approximated for 2.4 square kilometers, and several different and repeated processes. Although this study focuses on coffee, the other income generating products include but are not limited to:

(1) Avocados, macadamia nuts, figs, and passion fruits. These produces are economical and can also be sold to the Royal Project associating market. In this way, the farmers do not have to run around looking for someone to buy from them, and as a result they are able to get rid of all of their produces.

(2) Tea leaves, whether it is fresh or fermented (semi and wet processes accounted for 1% and 94%).

(3) Pillows with tea leaf fillings (dry process which accounts for 5%).

(4) Besides these products, natural resources such as, waterfalls and rain forests are also great tourist attractions. At least nine homestays have been built in Pamieng Community to welcome tourists and visitors. In addition, the tourists who pass by and stay at Pamieng community will get to try our ecofriendly coffee as well as to experience the steps in our coffee production.

(5) Last but not least, coffee farming in both the forest area and the area in the community.

The mentioned income generating vocations above are beneficial to the community as it generates income for the locals all year round (PramoteInsawang and Team, 2002). You can see here that farmers and the people in the community understand and are able to successfully utilize value or benefit transfer, as seen in a variety of products from tea leaves. Not only did they come up with a plan, but they were able to execute the plan creating revenue for the people. The coffee from Pamieng community is not only sold in the northern region of Thailand but it is sold all over the country, at the convenient local coffee shops.

The average cost and return for 41 rai of coffee cultivation as follow;	
Average income per rai	$= \frac{\text{All income}}{\text{Number of rais}}$
=	$\frac{107,220.00}{41}$
=	2,615.12 Baht per Rai
Average income per kilogram	$= \frac{\text{All income}}{\text{Product Quaitiy}}$
=	$\frac{107,220.00}{5,680}$
=	18.88 Baht per kilogram

In conclusion, the farmers who grow and sell fresh coffee (cherries), have an average cost of planting per rai in the amount of 2,060.81 baht. Most of the cost of planting is a 50% maintenance cost from all cost. The costs in the maintenance in production will consist of chemical fertilizers, manure, and labor costs. The average return per rai is 2,615.12 baht, the average cost per kilogram of 14.88 baht and the average return per kilogram is 18.88 baht.

The results of study show the cost and return of coffee production in the value chain of Pamieng's coffee found that the farmers have a way to reduce costs in order to increase returns such as reducing fertilizer in case of selling coffee and using technology to help in the processing process for low cost high returns such as coffee cracker's technology, polishing machine, coffee backing machine. The problem of famers is the processing process; sunshine for dry seeds, and working capital for more market places.

From above it can lead to the results of the project obtained from the study area Pamiang coffee business management and community forest in community value chain. Community forest management and natural laws cause the development of the coffee production process from community's nature. The benefits caused by conservation and preservation of trees, soil, and water from everyone in the community realize that the rules of the village and the coffee production process are concerned about the environment as Allen et al. (2004) said that we use water from the underground, should return to the soil fertility by the production process that benefits the soil as well and Travis Idol (2012) told that the ecosystems come from small and medium-sized farming or even agriculture in the forest often return profits and benefits to a wider society and what will guarantee this sustainable benefit is what happens around the coffee trees and coffee plantations in that area.

The most coffee growing is on highland, therefore it is very important to take care of the entire value chain to deliver the highest value to society and customers.

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