BIBLIOGRAPHY

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ABSTRACT

This study was conducted in the Arabica coffee growing barangays in the Municipality of Kabayan, Benguet, namely: Batan, Duacan, Eddet, Gusaran, Kebajan, Pacso and Poblacion from December 2012 to January 2013. The study aimed to: identify the profile of the different stakeholders in the coffee commodity; determine the current status of coffee commodity system in Kabayan, Benguet; determine the issues and concerns affecting the coffee commodity flow.

A sampling with the use of survey questionnaires was done to gather the needed data from fifteen coffee producers, thirty consumers and two support services. The data gathered were analyzed using descriptive statistics such as frequency counts and percentage.

Results of the study showed that most of the respondents were male clustered under the age of 45-80 years old, degree holder and were farmers.

The evaluations of the respondents on the categories in each element were interpreted as a whole; consumers' acceptability to the physical attributes of Arabica coffee is tremendously like. On the other hand, the market outlets identified on the study

encountered problems on the lack of Arabica volume supplied by the producers and lack of promotional activities. Producers do not meet the volume required of their market outlet.

The study recommended that the researcher would inform the residents of Kabayan, Benguet on the current situation of Arabica coffee production locally and globally.

INTRODUCTION

Rationale

Coffee plays an important role in the world economy, being widely consumed as the most prestigious beverage. Coffee is second most consumed in the world after water, and the second most traded commodity after petroleum, grown in some 70 countries, 60 of which are exported (DTI, 2012). Arabica and Robusta are the two principle species of coffee harvested today. Approximately 70% of the world's production is the Arabica bean, used for higher-grade and specialty coffees, and 80% of this bean comes from Latin America. Robusta is grown primarily in Africa and Asia (www.globalexchange.com, undated).

The Cordillera, according to a Department of Agriculture report, is one of the top producers of quality coffee in the country. The Robusta variety is mostly grown in warmer areas such as Kalinga and Ifugao while Arabica variety thrives better in temperate and mountainous terrain areas like Benguet and Mt. Province (Dar, 2012).

There are various different concepts on coffee commodity chain locally and globally and according to Tagarino's version of coffee commodity flow, it involves string of farm suppliers, producers, traders, processors, government agencies, non-government agencies, exporters, dealers/brokers, roasters, and retailers before reaching the consumers (Tagarino, 2012).

Approximately 147,000 Arabica coffee seedlings are set to be propagated in Baguio City, the mountain resort city and the nearby town of Tuba, Benguet to make the Cordillera as the major producer of international quality coffee beans that will help provide a descent

source of livelihood for thousands of coffee growers in the coming years. Out of the aforesaid number of coffee seedlings, 100,000 Arabica coffee seedlings will be planted in a 50-hectare property of Camp John Hay (CJH) while 47,000 seedlings are now being raised in a 26-hectare private property in Tuba, Benguet to initially advance the promotion of the Cordillera as a primary producer of Arabica coffee production. The CJH coffee plantation was established through the partnership of the CJH Development Corporation and Rocky Mountain Café, a Canadian coffee company which is now investing in the mass production of Arabica coffee in various parts of the country to uplift the status of the Philippines in the world coffee industry (See, 2011).

Coffee grows best in warm, humid climates. Ideally the temperature would remain relatively stable. Coffee growers usually produce coffee beans on very small plots of land, in often times, remote locations. Coffee producers also might perform some value adding activity to the coffee. Some producers dry and haul the coffee themselves (http://www.thetimes100.co.uk, undated).Small coffee growers in Benguet have one more good reason to be glad. That's because the Philippine Center for Postharvest Development and Mechanization (PHilMech) has introduced postharvest technologies and systems to solve the laborious and tedious operation of processing green coffee bean (Embuscado, 2010).

On the other hand, the intermediary link in the coffee commodity chain can be very complex and complicated. They can be involved with many of the different links in the chain. Intermediaries may buy the coffee cherries directly from the growers and sell them to processors, brokers, or exporters. They often times do some form of processing to the coffee, but do not necessarily have to. Intermediaries often buy the coffee from many

different farmers, and then transport them to members higher up in the commodity chain (www.globalexchange.com, undated).

Moreover, processing coffee involves converting coffee cherries into green coffee bean, which can then be sold for export. Processing can be done by the growers themselves or by another independent member of the commodity chain. Processing does required machinery to perform the needed tasks, which limits the about of processing growers can perform. Often cooperatives can perform some of the converting processes if relationships amongst growers have been established. Coffee processing involves picking, drying and hauling, sorting, grading, and packing, bulking, blending and roasting (www.globalexchange.com, undated).

The coffee growing and producing industry is very large and labour intensive. It is estimated that 60 million people earn some or all of their income from coffee, which is1% of the world's population. In some countries the government controls the coffee industry. Governments often buy coffee cherries from producers or from processors for a set price and then sell the coffee to exporters or brokers. An exporter often buys coffee from cooperatives or from auction houses in various countries and then ships the beans to the desired location. Exporters must have an excellent knowledge of where coffee is grown and the quality of the coffee produced. They are looked upon to guarantee the quality of the coffee sold to brokers. Coffee brokers simply supply the beans to roasters in the right location at the right time. Dealers must form excellent relationships with exporters, as much of their business is dependent on the quality of the beans sold to roasters (http://www.thetimes100.co.uk, undated).

There are approximately 1200 roasters in the US today. Large roasters usually have one blend of recipes and sell to large retailers - the Big Three (Kraft, which owns Maxwell House and Sanka, owned by Philip Morris; Procter & Gamble, which owns Folgers and Millstone; and Nestle) maintain over 60% of total green bean volume. Micro roasters, or those who roast up to 500 bags of coffee a year, offer the product we know as specialty coffee. Most roasters buy coffee from importers in small, frequent purchases. Roasters have the highest profit margin in the value chain, thus making them an important link in the commodity chain (www.globalexchange.com, undated).Roasters turn the green coffee beans into marketable products. Retailers can perform the roasting process or it can be its own distinct process in the commodity chain. Roasters can also add value to their products through marketing, branding, and packaging. Retailers sell the final product to the final consumer. This can include supermarkets or small independent retailers. Starbucks is an excellent example of a large coffee retailer in the United States. The coffee chain is very long and can be very complex. Many different organizations handle the coffee at different times, which can complicate communication between its members. Communication, and the establishment of relationships, is the key in successfully managing any supply chain. These relationships can take a long time to develop and a lot of work to maintain. As with all strong relationships, they are built on trust and honesty (http://www.thetimes100.co.uk, undated).

Moreover, Arabica Coffee also known as highland coffee flourishes at higher altitudes making the Philippine Cordillera region suitable for its production as mentioned by Ledsey (2011).

It is claimed that the Arabica Coffee from Cordillera as one of the world's best coffee. This came the Canadian- based Rocky Mountain Café forged an agreement with the Benguet State University (BSU) for the mass production and marketing of the said coffee variety (See, 2011).

The Municipality of Kabayan has a total number of 10,255 of Arabica Coffee bearing trees within an area of 110,040 square meters. Unfortunately, most of the coffee trees are already 60 to 70 years of age and is in need of rejuvenation (William, 2012).

Statement of the Problem

The study had sought to know the commodity flow of Arabica coffee produced in Kabayan, Benguet. Specially, the study had aimed to answer the following questions:

1. What is the profile of the different stakeholders in the coffee commodity?
2. What is the current status of coffee commodity system in Kabayan, Benguet?
3. What are the issues and concerns affecting the coffee commodity flow?

Objectives of the Study

Generally, the study had aimed to analyze the commodity flow of Arabica coffee produced in Kabayan, Benguet. Specially, the study had aimed to:

1. Identify the profile of the different stakeholders in the coffee commodity;
2. Determine the current status of coffee commodity system in Kabayan, Benguet; and,
3. Determine the issues and concerns affecting the coffee commodity flow.

Importance of the Study

The concept of commodity system was where the farm suppliers provide the necessary inputs to the farmers, who then produced the commodity (which may or may not be processed), which is consequently passed on to wholesalers and retailers until the consumer finally purchases the produce (Tagarino, 2012).The study on the commodity system has provided information to improve the coffee industry in Kabayan, Benguet. In particular, the expected result of this study could provide relevant data about the industry like the opportunities, issues and concerns for development, and other potential programs and projects to be instituted. Thus, having knowledge on the commodity flow of Arabica coffee was an important instrument that can persuade and encourage the different stakeholders of the coffee industry.

Moreover, for the producers, knowing the commodity system is an important ingredient in the successful operation and management of the business. They can be able to formulate development interventions in production, marketing and processing of coffee.

Lastly, the study has served as a guide for some researchers or entrepreneurs who want to engage and further study on enriching Arabica coffee products in the area.

Scope and Delimitation of the Study

The study has focused on the documentation of Arabica coffee commodity system in Kabayan, Benguet.

REVIEW OF LITERATURE

Arabica Coffee

Arabica is characterized by waxy leaf margin, light green leaf colour, thin leaves, pulp and parchment, and known as "Kapeng Tagalog." It yields 500-1000kg of clean, dry coffee beans per hectare. It starts flowering one to two years after transplanting. The plants flower from December to January and harvesting is done from November to March (Pinhawk, 2010). This variety, however, is susceptible to coffee rust which almost wiped out coffee industry in the country (Tacio, 2009).

Arabica is a tropical plant which requires very specific environmental conditions for commercial cultivation. Temperature, elevation, rainfall, sunlight, soils and the pattern of rainy and dry periods are all important and do influence growth and development of the coffee plant. Arabica is a higher value coffee grown in cooler, elevated areas at 1000m (3300 feet) or more above sea level. Normally, higher altitudes produce better beans, not only because they have the effect of increasing the acidity of the bean and thereby improving flavor, but also because the cold nights mean that trees develop more slowly, which allows the beans to develop a fuller flavor (Frestl, 2009).

While Arabica coffee remains as a backyard crop because of the limited number of trees grown and the small farm sizes they allot for coffee farming, Benguet is still the highest producer of Arabica coffee in the Cordillera region. According to Benguet folks, it is considered as one of the best and expensive varieties of coffee. It is also known for its good aroma and distinctive taste. The Arabica coffee can thrive well in a partly shaded area and in Benguet it is grown organically because it does not use inorganic fertilizer and

pesticides. Moreover, it has also the edge with the other varieties because of the climatic condition and the good soil in the upland areas (Embuscado, 2010).

Arabica coffee is known worldwide because of its lasting aroma and caramelize taste that lasts on the tongue thereby making it one of the best types of coffee (See, 2011).

History of the Coffee in the Cordillera

Coffee production flourished in the municipality of Kabayan in 1873 and the quality was such that Spanish company Tabaclera was exporting the coffee to spain. While coffee production was opposed in other parts of Benguet, one ibaloi chieftain named Komising cooperated with the Spanish authorities in producing coffee. The produce was regularly exported to Spain (Killip, 2009).

Varieties of Coffee in the Cordillera

Four of the commercialized coffees cultivated worldwide thrive in the Cordillera and these are Robusta, Liberica, Exelsa, and Arabica (Ledsey, 2011).

Robusta is the second most important commercially, accounting of worldwide production. The tree is more widely adaptable than Arabica, but does best in warm equatorial climates. Large areas of Southeast Asia are suitable for its production. A well-tended one hectare field can yield about 1,200 kilos per year of green coffee beans (Ledsey, 2011).

Arabica coffee (Coffea arabica) is a promising economic crop for some areas of the Philippines with an elevation of 1,000-1,500m above sea level, a temperature range of 17-25°C, and with soil pH of 5.2-6.3 (Anonymous, 2012).

It offers bright prospects for enterprising farmers because of the following reasons: its dried bean commands a price of 80-130 pesos per kilo (twice the price of other coffee varieties); about half of annual domestic demand of 58,000mt is imported (a potential market of 20,000-30,000mt); domestic consumption is increasing at 3% annually; it is one of the priority crops of the Department of Agriculture (Anonymous, 2012).

Liberica commonly called "Kapeng Barako" produces the biggest berry. It is noted for its very strong taste and colour. Trees are upright with straight trunk; berries are round borne singly or in small cluster with thick and firm pulp. Its berries are the biggest among the three varieties. This variety is drought- resistant and bears berries four to five years after transplanting. A one- hectare farm planted to Liberica can yield about 1,000 kilos per year (Ledsey, 2011).

Exelsa is coffee similar to Liberica except for its smoother, thinner and more rounded leaves with smooth edge. The berries are void and a little compressed having flat form. Like Liberica, its bearing age is four to five years after transplanting and has an approximate annual yield of 1,000 kilos per hectare (Ledsey, 2011).

Establishment of Arabica Coffee Plantation

Planting distance depends on a combination of factors such as variety, topography, soil fertility and management. Varieties with big plant characteristics grown on good soil and favourable climate require wide spacing between plants. The usual distancing of the different varieties are Arabica, 2 x 3 meters; Robusta, 3 x 3 meters; Excelsa and Liberica, 4.5 x 4.5 meters. Regular pruning has to be done when using this distances. According to other reference like the one which is recommended by department of Agriculture, spacing are: Arabica 3 x 1 to 3 x 2 meters and 2 x 2 x 2 x 3 m in double row; Robusta 3 x 1.5 to 3

x 3 m and 2 x 2 x 2 x 4 m in double row; Liberica and Excelsa 4 x 5 to 5 x 5 x 5 m (Ledsey, 2011).

Coffee seedlings are ready for transplant when 6 pairs of leaves have been fully developed and with no lateral branches yet. Dig holes and transplant in the filed at the start of rainy reason. This will give sufficient time for young plants to establish roots before dry season sets in. Dig hole wide and deep enough to accommodate ball of earth with roots intact. Return topsoil in the hole, then add tablespoons phosphorous fertilizer and mix thoroughly (Pinhawk, 2010).

Common Disease Management of Coffee

Initial surveys conducted by Macanes and Basalong in 2009 in some Arabica coffee producing areas in the Cordillera particularly in Benguet and Mountain Province revealed that the rust fungi Hemeiavastratix B. and Br. is the most common disease affecting the coffee plants.

Coffee rust (HemileiavastratixB. or Br.), the most common disease, is caused by molds which develop during rainy season. A leaf infected by coffee rust develops spots which eventually spread to the entire leaf. The first symptom are yellowish spot on the lower leaf as the spot enlarge, powdery yellow to orange spore are produced on the lower surface of the leaves, adjacent spots may coalesce farming irregular spots which the edge turn into brown due to destroyed leaf cells (Mangubat and Vallejos, 2009).

Macanes and Luis in 2006 revealed that the most prevalent disease associated with Arabica coffee variety typica were coffee rust and sooty mold. On the other hand, the Arabica coffee variety Red Bourbon was dominantly affected by brown-eye leaf spot and

leaf blight. These diseases were observed infecting the leaves, berries, stems and twigs. Sooty mold coffee rust was also seen to attack this coffee variety but infection was minimal.

Common Pest Management

Coffee Berry Borer is a small beetle, dark brown to black and approximately 1.5 to 2 mm long. The female beetle makes its entrance to the coffee bean boring a hole at its tip and tunnels within the bean to lay five to twenty eggs (Ledsey, 2011).

The insect attacks the small berries. They enter through the calyx or the base of the developing flowers or at the tip of the berry. Infested mature ripe barriers remain attached to the tree. The presence of empty or partially filled fruits underneath the tree is a positive sign of infestation. Avoid over ripening of berries, pick damaged coffee bean and burn to avoid scattering the pest (Colting *et.al*, 2003).

Other insects which are equally harmful include aphids, ants and mites and stem borers which rot the coffee tree coating it with a substance that causes gradual decay of the tree (Madrid Digest, 1990).

Coffee Importance

Killip (2009) said that aside from the income gained from coffee; the plant is known to help protect the environment especially on slopes.

Other than casual drink, coffee can also give positive health effects. When taken in moderation, meaning not more than two to three cups a day, coffee can lower the risk for various diseases including diabetes. This can be attributed to the chemical Paraxanthine found in coffee, which increases the breakdown of fat, inhibits the production of sugar and breaks down glycogen, a sugar- supply reservoir in the liver.

Moreover, coffee is rich source of anti-oxidants that linked with fighting heart disease and cancer. It is also rich in polyphenols which are valuable nutrients that help keep your body in good health over time (Balangen, 2012).

Also, coffee, being a stimulant, can improve endurance performance in physical activities. The chemical theobromine present in coffee is responsible for the widening of blood vessels increasing blood flow to muscles, thus increasing the level of alertness (Lampac, 2007).

Stakeholders

In general, stakeholders are defined as people, groups, or institutions which are likely to be affected (either positively or negatively) by a proposed intervention of those which can affect the outcome of the invention (Tagarino, 2012).

The coffee stakeholders have been conducting meetings and seminars to address the lack of supply of Arabica from the Cordillera Administrative Region (Juan, 2012).

Stakeholder Analysis

Stakeholder Analysis is a vital tool for understanding the social and institutional context of a project or policy. Its findings can provide early and essential information about who will be affected by the project (positively or negatively) who could influence the project (again positively or negatively) which individuals, groups, or agencies need to be involved in the project, and how and whose capacity needs to be built to enable them to participate (Tagarino, 2012).

Stakeholder therefore provides a foundation and structure for the participatory planning, implementation, and monitoring which follows (Tagarino, 2012).

Production

According to Palangchao (2009) as cited by Ledsey (2011), the country was once top coffee producer in Asia but there was a significant decrease in production within the past three decades from 40, 000 metric tons production in 1990 to 30, 000 metric tons in 2007. The country started to import coffee in 1977.

The Philippine Department of Agriculture's Bureau of Agricultural Statistics (BAS) mentioned that the total coffee production declined slightly from 97,430 MT (dried berry basis) reported in 2008 to 96,433 MT last year. The source said that the downtrend in coffee production of 1.02 percent was a result of prevailing peace and order situation in Sulu and excessive rains during the flowering stage hampered harvesting in coffee farms. In addition, production was affected by the low-buying price of coffee in Caraga provinces as well as the continuous neglect of coffee farms in Cavite and Davao del Norte. In 2009, the total area planted to all varieties of coffee dropped by 0.88 percent from 123 to 122 thousand hectares. Coffee production in MY 2010 (which starts in July 2009) is projected to decline by 2-3 percent as a result of the hot and dry weather conditions experienced due to the El Nino phenomenon (DOST-PCARRD, 2012).

However, the latest records of the Bureau of Agricultural Statistics (BAS –CAR) showed increased in coffee production for 2011 at .34 percent. From 5,608.13 in 2010, coffee production in the region grew to 5,627.13 in 2011 with Kalinga (3,857.20 metric tons) as the top producer followed by Ifugao (1,053.81 mt), Benguet (486.55 mt), Mountain Province (162.15 mt), Abra (54.05 mt) and Apayao (13.37) (Balangen, 2012).

Unfortunately, the increase in production in 2011 is still not enough to sustain the needs of the market. Therefore, the Department of Agriculture (DA) is furthering its efforts

in promoting the production of coffee, not only for local consumption but a well as for export (Balangen, 2012).

The production of Arabica accounts for only 5-10% of the county's total coffee, but it is well worth looking out for it. Arabica as a high-value crop is known to fetch higher prices and to provide an important source of income and employment for many upland farmers and their families in the Cordillera provinces and Mindanao (Anonymous, 2012).

Moreover, the extension materials on Arabica coffee cultivation are in very limited supply; especially in the more remote areas where opportunities for coffee are often greatest. Thus, these coffee production guidelines aim at providing farmers with basic knowledge on coffee management practices for improving the yield and quality of coffee beans. Topics such as factors influencing coffee production, cultural requirements, harvest and post-harvest management are covered. The information may be used by farmers, extension officers, and those interested in coffee (Anonymous, 2012).

Marketing

With the growing domestic demand at an average rate of 3.1% annually and the big potential for exports, without significant increases in coffee production, coffee bean imports will likely remain high at estimated nearly 40 to 50 percent of total annual domestic requirement. According to Euromonitor, specialty coffee shops in the Philippines are expected to continue growing in coming years. Specialty coffee shops grew in terms of number of outlets, transactions and value sales. With Starbucks gaining more popularity and other specialty coffee shops following suit, more such outlets are likely to appear. The strong growth is mainly attributed to good consumer demand, as coffee drinking has become a very popular social activity. Increasingly, Filipino consumers are settling for a good coffee instead of alcohol on a night out. Coffee shops have become a status symbol

for younger consumers. Working people find these specialty coffee shops to be convenient places for afternoon business meetings, and night escapades. With the growing popularity of coffee drinking in the country, Filipinos have started to be more discriminating in their preferences for coffee, according to Euromonitor. Multinational specialty coffee shops dominate local chains. Led by Starbucks, specialty coffee shops have been enjoying robust growth since appearing in the late 1990s. Other popular foreign franchised specialist coffee shops include Seattle's Best, The Coffee Bean & Tea Leaf and UCC Coffee. Figaro Coffee Company, the most popular local specialty coffee shop in the Philippines, was actually established earlier than Starbucks in the country (Anonymous, 2012).

The International Coffee Council is currently seeking to increase the coffee consumption of the 80% of the world that does not consume coffee. The Chinese and Russian markets are going to be major markets that promotion and marketing will be conducted. The International Coffee Council will look to increase coffee consumption by holding coffee festivals and associated coffee with cultural events. The main objectives are to develop, through education, promotion and media coverage, a coffee culture that would enhance the image of coffee drinking. Imports of coffee into China have more than doubled and imports into Russia have gone up 75% since promotional activities began. They are also looking at promoting coffees' positive health features to the 8markets that coffee already has a strong market share, such as, the United States (www.ico.org, undated).

Recognizing the good growth potential for specialty coffee shops, many Filipino companies and even growers of locally produced coffee beans have opened their own businesses. The support of the local government and agriculture sector has also helped to

rejuvenate the Philippine coffee industry. Major players in the instant-coffee segment include Nestlé Philippines Inc., Universal Robina Corp. and San Miguel Foods. In ground and brewed coffee, the significant local players are Figaro, Monk's Blend, Café Amadeo, Batangas Brew and Cordillera Coffee. Nestle Philippines Inc., maker of Nescafe products, reportedly supplies 85% of the instant/soluble coffee in the market. The remaining 15% is shared by Commonwealth Foods (Café Puro), General Milling Company (Kaffee de Oro), and Universal Robina Corporation (Great Taste) (Anonymous, undated).

The DA officials reported the annual demand for coffee in the country is 53, 000 metric tons. Region 12 is the current top producer of the country as of 2009 (Baluyan, 2012). According to Macanes and Basalong (2009), marketing system of coffee in Kabayan, Benguet as in other areas in the CAR is through middleman, however due to the entrance of big coffee companies in the region farmers can spell directly through companies.

Moreover, the domestic demand currently stands at 65,000 metric tons, domestic production is forecast at only 30,000 metric tons in 2009. The shortfall of 35,000 metric tons has to be imported. The production of Arabica accounts for only 5-10% of the county's total coffee, but it is well worth looking out for it. Arabica as a high-value crop is known to fetch higher prices and to provide an important source of income and employment for many upland farmers and their families in the Cordillera provinces and Mindanao (DOST-PCARRD, 2012).

Coffee produced in the Cordillera is usually sold as green coffee beans; however the municipal Agriculture offices with the help of Non-Government Offices farmers are now beginning to package their product as roasted bean (Macanes and Basalong, 2009). At

the present Arabica coffee is being sold at P180.00 per kilo gram in the market (Baluyan, 2012).

Aggressive marketing will also be done to promote Philippine coffee while market research will be implemented to study the industry's options ahead. The interventions will increase the present yield level of 400 kg of coffee beans per hectare to 800-1,000 kg. The increase in yield of coffee farms brought about by the S&T interventions and the production in new areas will translate to about P1.36 billion worth of coffee beans per year (DOST-PCARRD, 2012).

The Agribusiness Commodity Flow

Agribusiness is an input-to-consumer system composed of series of closely- related activities that together enable agricultural produce to follow from the farm to the market places. The diagram shown in Figure 1 articulates the simplified framework of this commodity system, where farm suppliers provide the necessary inputs to the farmers, who then produce the commodity (which may or may not be processed), which is consequently passed on to wholesalers and retailers until the consumer finally purchases the produce. Throughout this commodity flow, the coordinating institutions and mechanisms play active roles. As an expanded version of this diagram, is the input-output chart in Figure 2, where the user is provided a total grasp of agribusiness system showing volumes and amounts for all agricultural commodities. The same approach can also be used in analysing just a single commodity (Tagarino, 2012).

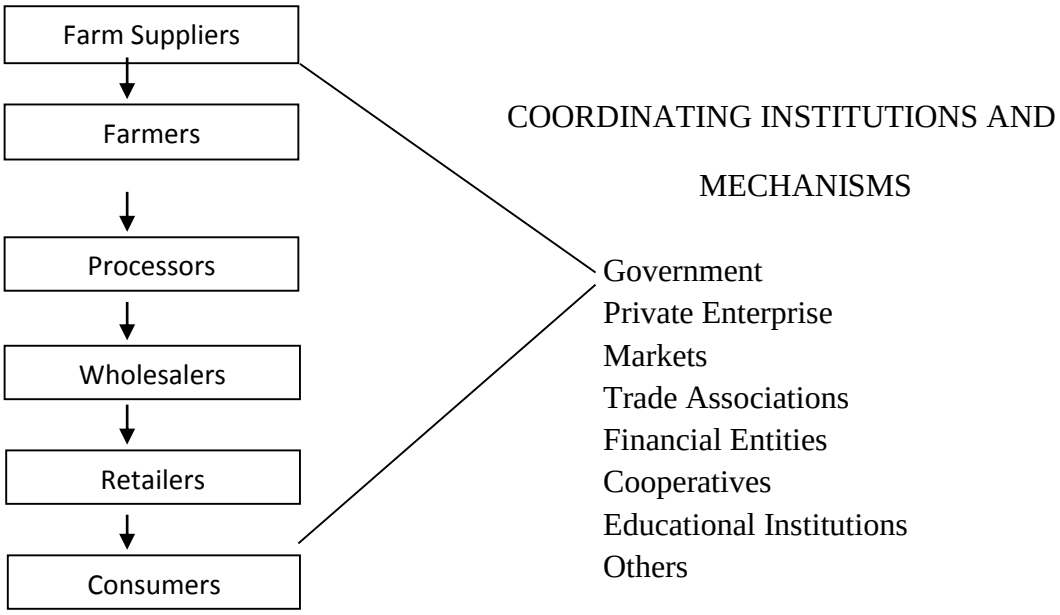

Figure 1. The Agribusiness Commodity System

Agribusiness System

According to Tagarino (2012), agribusiness can be visualized as a continuous flow and transformation of various commodities into products and services desired by ultimate consumers, as represented in Figure 2. The agribusiness system involves three sectors involved in agribusiness.

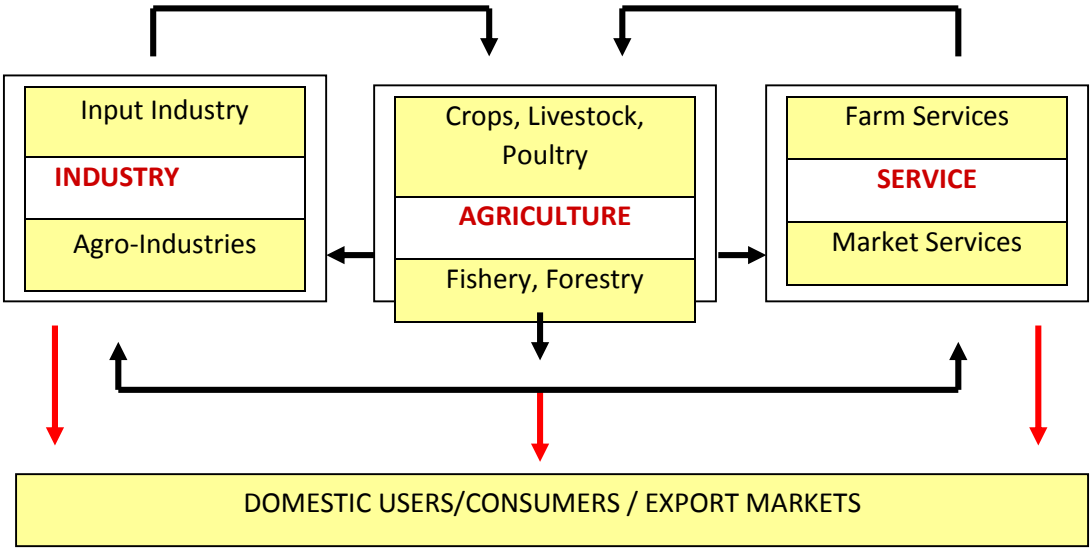

Figure 2 - The Agribusiness System

1. Industry Sector (Input Industries and Agro-Industries)

1.1 Input Industries. Not many people think of the farm input sector as a part of agribusiness. This sector is composed of manufacturers, producers and suppliers of production inputs such as: feeds, seeds, fertilizer, insecticides, farm equipments and processing equipments (Tagarino, 2012).

1.2 Agro-Industries. These are the enterprises that process farm products into final consumer goods (foods and clothing) and into industrial raw materials. The sector is

given short shrift (absolution) in current discussions of agribusiness. This is regrettable, since agro-industries are important not only to agribusiness but also to the industrial sector because they account for a large part of industrial activities. The agri-industries may be classified according to the nature of operations. They could be simple or integrated. The classification is by no means complete: there are intermediate operations. The basic difference is that "simple" covers only processing while "integrated" include raw material production, or backward linkage (Tagarino, 2012).

2. Agriculture Sector (Production)

Agriculture is the process or art of cultivating the soil, producing crops, raising poultry and livestock including fisheries and forestry and/or the art and science of growing crops and animals that have economic value. Agriculture is the core of the agribusiness system. It serves as a market for a host of industrial products. It supplies the food and raw materials that other economic sector needs. Agribusiness is either land extensive or land intensive (Dy, undated as cited by Tagarino, 2012). The classification however is by no means mutually exclusive: the use of higher technology can spell the difference.

Land-extensive agribusiness ranges from widely grown crops like rice, corn, and coconut to emerging crops like cotton, soybeans and hybrid corn. Examples of land – extensive are: (1) Annual – rice, corn, soybeans, vegetables, sugarcane, mungbeans, tobacco, cotton, sweet potato; (2) Multiple – Corn-soybeans, rice-corn, corn-mungbeans, coconut-cocoa, coconut-coffee, coconut-pineapple; and (3) Perennial – coconut, coffee, cocoa, fruit trees, rubber, oil palm. Land-intensive agribusiness includes aquaculture, cattle fattening and horticulture. Examples of land-intensive are: (1) Aqua-culture – tilapia,

prawns, shrimps, mussels; (2) Floriculture – roses, carnation, orchids, chrysanthemums; (3) High value horticulture – vegetables, strawberries; (4) Livestock/poultry – piggery, poultry (layer/broiler, ducks, turkey, quails), cattle fattening; (5) Seeds – all kind of certified seeds; (6) Nursery – planting materials of fruit trees, coconut, oil palm, rubber and ornamental plants (Tagarino, 2012).

One of the distinguishing features of this classification is the gross returns per hectare, which is dependent on both yield and price. Agriculture also covers agro-forestry i.e. planting of ipil-ipil, eucalyptus, acacia, bamboo, gmelina, mangium and tropical hardwood. One of the important elements of agribusiness is gestation, defined as the time required before a crop or enterprise generates returns. Annual crops have gestation periods of less than one year; perennial crops have gestation periods of more than on one year (Tagarino, 2012).

3. Service Sector (Farm Services and Market Services)

The agri-services sectors consist of industries providing services to farmers. There are two main groups of businesses within this sector: farm services and marketing services. Farm Services is a heterogeneous group of enterprises that provide services to farmers. It includes those who are engaged in technology and those who provide special custom-type services among others. Market Services is a group consists of businesses engaged directly or indirectly in the distribution and flow of agricultural products. It includes the market intermediaries and firms in ancillary industries. In developing countries like Philippines, the role of agricultural marketing is crucial to the growth of agriculture (Tagarino, 2012).

This agribusiness support services sector however can be further classified into: Product marketing and distribution: (1) distribution, wholesale and retail trade; (2) export marketing; (3) transportation; (4) port handling; (5) packaging;(6) storage; and (7) advertising (Tagarino, 2012).

Definition of Terms

1. Arabica Coffee Commodity Flow. It is a process which involves a group of farm suppliers, Arabica coffee growers, intermediaries, processors, government agencies, non-government agencies, exporters, dealers/brokers, roasters, and retailers before reaching the consumers.

2. Broker. One who buys and sells coffee for another on commission or who arranges for the negotiation of contracts of various types.

3. Retailer. A person sells coffee in small quantities directly to the consumers

4. Roaster. A person roasting coffee. A person who dries and parched coffee under the action of heat.

5. Trader. One who trade, deal, bargain or exchange of a coffee commodity.

6. Value Chain. A value chain is a chain of activities of Arabica coffee that a firm is operating in the coffee industry performs in order to deliver a valuable product of Arabica coffee or service for the market.

7. Wholesaler. One who sells coffee in large bulk or quantities to the consumers.

METHODOLOGY

Locale and Time of the Study

The study was conducted in the Arabica Coffee growing barangays in the Municipality of Kabayan, Benguet (Fig. 3), namely: Batan, Duacan, Eddet, Gusaran, Kebajan, Pacso and Poblacion where Arabica coffee can grow because of its favourable climate and elevation suitable for coffee production. This study was conducted from December 2012 to January 2013.

Respondents of the Study

There are around 85 growers of Arabica coffee in the Municipality of Kabayan. A representative sample of at least 15 from the seven producing barangays and at least 30 coffee consumers had served as respondents of the study. And also, at least 2 support services.

Data Collection Method

In the gathered data, questionnaires were distributed to the respondents. A follow up interview was done to validate their responses and additional information was taken. Key informants were used in gathering data.

Data Gathered

The data gathered was the socio-demographic characteristics of the Arabica Coffee Growers, their production and group, sectors providing assistance and common problems encountered. The secondary data was gathered from the Municipal Agriculture Office.

Data Analysis

The data gathered was tabulated and analysed using simple statistical tools such as frequency counts and percentage.

RESULTS AND DISCUSSION

Socio-Cultural Dimension of Arabica Coffee Production in Kabayan

In Kabayan, coffee production is now being practiced and done by farmers aside from vegetable production. Most of the barangays are planting Arabica coffee seedlings. There are many producers of Arabica coffee, however, only few are utilizing it for market disposal. Most of the producers utilize the produced coffee for home consumption and use it during special occasions like fiestas. The produced coffee is used as their coffee supply for the whole year. They also share it to relatives and friends.

Arabica coffee is usually produced in small scale backyards. Farmers usually processed their own coffee beans. But most of the farmers cannot process larger volume of coffee beans because they lack facilities to make the work easier and faster.

Before, coffee is only utilized by the producers for home consumption and usually used during special occasions. Most of the farmers processed and produced coffee for how many decades. It is only for the recent years that they started to market the product.

Profile of the Coffee Growers

Table 1 shows the profile of the coffee growers as to gender, marital status, age, highest educational attainment, household size, number of years in coffee farming, source of income aside from coffee production and year started planting coffee.

Gender. The table presents that sixty percent of the respondents were male and forty percent were female. The result implies that coffee farming is also done by female especially that production system is not as complicated as that of vegetable farming.

Age. Table 1 shows the different age bracket of the respondents. Thirteen percent of the respondents belong to 31 to 40 years old, thirteen percent also were 41 to 50 years old, and another thirteen percent were ages 51 to 60. Moreover ages 61-80 composed of sixty percent of the respondents. The result showed that most of the respondents belong to old age 61 and above.

Educational attainment. Most of the respondents have attended formal education. Majority (33%) have finished the secondary/high school level, twenty seven percent have finished college level, there were twenty percent who have gone to elementary and thirteen percent are high school undergraduate and seven percent of the respondents had no formal education. This implies that most of the respondents were literate.

Household size. The respondents have big family size. There were only two respondents who have 1-3 members of the household, most (87%) have 7-9 household members.

Number of years in coffee farming. Majority of the coffee farmers (40%) were into coffee farming for 10 years or less. There were thirteen percent coffee farmers who were into coffee farming for 51 to 60 years. This shows that their coffee trees have been planted

for more than 60 years. These results show that majority of the coffee farmers were still young in terms of coffee production.

Year respondents started planting coffee. Since 1950 to 1960 older farmers in Kabayan already started planting Arabica coffee trees. In the year 2001 to 2010 there is already increase in production because many farmers decided to plant more coffee trees for they realize that they can generate extra income and less input required and can make use of idle time in coffee farming (Table 1). Coffee trees are perennial plants but need also to be replaced when it is already old to maximize production and are pruned to rejuvenate stems.

Figure 4 present the backyard production of the coffee producers in Kabayan, Benguet. The coffee tree is at the age of 60 – 70 years which needs to be rejuvenated.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study was focused on the Arabica commodity flow in Kabayan, Benguet. The study was conducted in the different barangays of Kabayan. The study aimed to identify the producers, the buyers of Arabica coffee in market outlets, the consumers of Arabica coffee and the agencies supporting the Arabica coffee production; identifying present facilities and resources of coffee farmers, basic production, processing and marketing practices of the producers, volume of production and the value of their annual harvest and the basic problems faced by farmers; identifying the market outlets and volume being supplied; identifying the value added activities of market outlets, determine the market acceptability in terms of price, physical attributes and lastly, determine the constraints or problems in the production and marketing of Arabica coffee.

The data needed were gathered through survey questionnaire and personal interview with the respondents. Fifteen producers, thirty consumers and two support services have served as respondents of the study. Majority of the producers and consumers were at the middle to senior age. Most of the producers reached elementary level while majority of the consumers are degree holders. Most of the producers still practice the traditional way of producing coffee wherein they use wooden mortal and pestle to dehulled their coffees. Majority also sell coffee per kilo.

There were no identified as market outlet outside Kabayan. Buyers are local residents who directly purchase from coffee producers in small quantities.

The main production problems encountered by producers are lack of capital and facilities and occurrence of disease. Lack of promotional activities and limited market outlet and lack of supply are the major problem in marketing for the producers of coffee.

On the other hand, the market outlets identified on the study encountered problems on the lack of Arabica coffee volume supplied by the producers and lack of promotional activities. Producers do not meet the volume required of their market outlet.

Conclusions

The following conclusions were drawn from the findings of the study.

1. There are many producers of Arabica coffee but only few utilize it for market disposal.

2. There is a high demand for Arabica coffee but the producers lack in supplying Arabica coffee. They cannot meet the volume requirement of their market outlet within Kabayan that is why customers are going Baguio City to buy coffee.

3. The producers are having difficulties in processing larger volume of coffees because they lack of facilities to make their work faster and easier.

4. Production of coffee is very low because most of the coffee growers are in their juvenile stage of growing Arabica coffee.

5. The market outlet of the coffee growers is limited within Kabayan.

6. Coffee growers encountered problems in production due to lack of capital and facilities, occurrence of coffee disease, pest and weeds, lack of government support, slash and burn, water drought and lack of labourers.

7. Lack of promotional activities was the main marketing problems encountered by the coffee growers.

8. There are few organization/person/institutions that are helping and assisting farmers in production, harvesting, processing and marketing.

9. Even though the municipality have an organization for the coffee producers, which is the Kabayan Coffee Council, there is less cooperation implemented within the farmers and the municipality.

10. Most of the residents are neglecting Arabica coffee production because they are not aware of the rapidly growth of the demand of Arabica coffee and that they are not aware of the fortune Arabica coffee could give them.

Recommendations

1. Coffee growers must follow the right procedure of production and processing to come up with good quality processed of Arabica coffee beans.

2. Coffee farmers should increase their number of coffee trees they are planting in order for them to produce more coffee beans.

3. Coffee growers must be attending seminars and trainings about coffee farming so that they would know how to handle problem situation of production, harvesting and marketing.

4. Market outlet should be expanded not only in Kabayan area.

5. The government should support the producers of Arabica coffee. They can help by providing processing equipments to barangays and continue in conducting trainings on coffee production, both technical and assistance.

6. Create awareness of producers on the high demand of Arabica coffee. Having knowledge on the high demand of Arabica may persuade them to produce Arabica coffee more and market the product.

7. Further development or research on the things that improve product quality.

8. Promote Arabica coffee production among residents of Kabayan. According to the 2000 census, it has a population of 12,344 people in 2,063 households.

Based on the regional poverty threshold of P78,000 per annum in 2000, majority of the families (89%) live below poverty level and 11% are within the comfortable and above subsistence level.

Among the factors that contribute to low income is dependency on agriculture, therefore alternative livelihood is necessary and coffee production could be potential source of income. Moreover, idle lands will be utilized and there will be a substitute additional income.

9. The Municipality could promote their coffee by including picking of coffee berries by the visitors or tourists within the coffee producing barangays in Kabayan as one of their tourism activities.

LITERATURE CITED

ANONYMOUS. Undated. "About Coffee". Retrieved November 21, 2012 from http://globalexchange.org/campaigns/faretrade/cofee/fag.html.

ANONYMOUS. Undated. "Coffee Supply Chain."Retrieved December 4, 2012 from http://www.thetimes.100.co.uk.

ANONYMOUS. Undated. "Market Development". Retrieved November 21, 2012 from http://www.ico.org.

ANONYMOUS. Undated. Retrieved September 10, 2012 from http://www.mixph.com//arabica-coffee-production-and-management.html.

BALANGEN, C.F. 2012. Retrieved December, 2012 from http//www.sunstar.com.ph/Baguio/local-news/2012/02/11/agri-department-helps-revive-regions-coffee-industry-205481.

BALUYAN, G.F. 2012. "Value Chain Analysis for Cordillera Coffee". DTI-Kalinga. October. 2012.

BUREAU OF AGRICULTURAL STATISTICS. 2011. Philippine Coffee Industry Cluster". Retrieved December, 2012 from http://www.niccep./dti.gov.ph/cluster.php.

CAYSOEN, D. 2012. "Supply Chain of Muscovado Produced in Besao, Mountain Province". BS Thesis. Benguet State University. Pp. 35.

COLTING, R.L., B. S. LIGAT, L. LIRIO, J.C. PEREZ, J. PABLO. 2003. "Compendium of Insect Pest and Weeds Associated with High Value Crops in the Cordillera". Benguet State University. P. 67

DAR, C.C. 2012. "DOST Pushes for Development of Cordillera Coffee Industry". Retrieved July 11, 2012 from http://www.philmech.gov.ph/.

DEPARTMENT OF TRADE INDUSTRY. 2012. "About Coffee". Retrieved November 21, 2012 from http://globalexchange.org/campaigns/faretrade/cofee/fag.html.

http://www.philmech.gov.ph/.

EMBUSCADO, E.S. 2010. "Processing of Arabica Coffee Now Easier". Retrieved December 3, 2012 from FRESTL, R.A. 2009. "Production Guide for Arabica Coffee". Retrieved July 12, 2012 from http://www.arrengga.com.

JUAN, C. 2012. “Coffee from Cordillera in Demand”. Philippine Daily Inquirer. July, 2012.

KILLIP, T. 2009. “Coffee as Another Livelihood Sought”. Baguio Midland Courier. 44. January. 2009. Pp. 14-16.

LAMPAC, J. 2007. “Coffee: Breaking Myths”. Mountain Collegian. June-July. 2007. Volume 36. Pp. 10-13.

LEDSEY, W. 2011. “Benchmark Study of Arabica Coffee Enterprise in Kibungan, Benguet”. BS Thesis. Benguet State University. Pp. 10-15, 38-39.

MACANES, V.L and A. BASALONG. 2009. “Growing Arabica Coffee Under Pine Trees”. Agriculture Magazine. October. 2009. Pp. 26-27.

MACANES, V.L. and J.S. LUIS. 2006. “Assessment on the Occurrence and Severity of Disease Infecting Arabica Coffee in Benguet Province”. BSU Research Journal. Pp. 46-87.

MADRID DIGEST. 1990. “Focus on the Coffee Industry”. July 1990. Pp. 10-12. Hotel Danarra. 121. Mother Ignacia. Avenue. Quezon City.

MANGUBAT, R. G. and VALLEJOS, C.R. 2009. “The Coffee Industry”. Maldrid Digest. July 1990. Pp. 11-12.

PINHAWK. 2010. “Coffee Production in the Philippines”. Retrieved May 8, 2010 from http://hubpages.com/hub/coffee-production-philippines.

SEE, D. 2011. “Arabica Coffee Seedlings to Boost Cordillera Coffee”. Retrieved December, 2012 from http://www.mb.com.ph/node/307140/arabica-coffee-#.ULwaNK7M2W8.

SEE, D.A. 2011. “Organic Arabica Coffee from Cordillera to Conquer World”. Retrieved January 7, 2011 from http://www.mb.com.ph.../organicarabica-coffee-cordillera-conquer-world.

SIM, J.M., D.A. Basquial, V.L. Sim. 2012. “Supply Chain Improvement of Organic Arabica Coffee Beans in CAR”. Benguet State University. August. 2012. Pp. 24-27, 29-31.

TACIO, H.D. 2009. “Coffee Now The Good News”. Agriculture Magazine. August 2007. Pp. 20-21.

TAGARINO, L. 2012. “Agribusiness Management Manual”. Pp. 5-6, 16.

WILLIAM, A.F. 2012. “List of Coffee Growers in Kabayan, Benguet”. October. 2012.