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# RISK MITIGATION AND IMPROVEMENT OF COFFEE PLANT MANAGEMENT SYSTEM AT SUKAWANGI VILLAGE, SUMEDANG, WEST JAVA

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***Abstract:*** *This paper addresses the current condition of coffee plantations in the Sukawangi village, which is based on surveys and interviews with local coffee farmers. In this contribution, we aim to map and analyze the socio-economic problems and challenges encountered by the coffee farmers in Sukawangi Village as well as to identify the element of risk and the level of risk encountered by local farmers. In this paper, the data are directly collected in the field through surveys and interviews. Subsequently, such data are then analyzed to result in the formulation of solutions related to risk mitigation and improvement of the management system, which is presented systematically throughout the paper. In particular, the authors offer socio-economic solutions that are directly related to the economic conditions of the Sukawangi Village farmers and are directly related to the farmers' prosperity. The selection of socio-economic topics in this paper is based on the importance of the banking system, farmer assistance, product research and development, and guarding the government in formulating related policies so that the policy is adapted to the condition of the community. Implementation of solutions that the author gives will not be effective without cooperation between coffee farmers Sukawangi Village, solution formulator, and government as a supporter. This study is the first to analyze the risk mitigation and improvement for the coffee plant management system in Indonesia. The paper is also intended to be the first to pioneer the risk mitigation study for coffee industry in Indonesia. The findings will be useful for developing a generic risk mitigation plan for the coffee plantation in Indonesia.*

***Keywords:*** *Coffee Plantation, Indonesia, Risk Mitigation, Management, Farming*

## Introduction

Sumedang regency is one of the most prominent regencies in West Java, located approximately 45 kilometers away from the capital city of West Java, namely Bandung. Geographically, Sumedang spans 155,872 hectares of land dominated by mountainous areas. The area is further divided into 26 districts, 7 sub-districts, and 270 villages. Sumedang is rich in natural resources and hence is potential to be developed into the plantation, agriculture, forestry, animal husbandry and tourism areas. To date, the government has made use of these potentials to provide job opportunities for the local residents and to move the local economy forward. As stated in the official website of their government, Sumedang regency carries the vision that is to achieve a prosperous and religious society that advances towards a better and increased quality of human resources and development yet is still uniquely characterized by their local *nyunda* philosophy and values. To realize such goals, they aim to increase the effectiveness of local government performance while developing and improving both their human resources and their regional infrastructures. They also intend to continuously advance their economy, with the emphasis on protecting and nurturing small and medium business groups.

The latter is in line with the existing effort to actualize such a business climate in which local natural resources are transformed into high-quality local products. Such efforts also create job opportunities for local residents, particularly the working age population. Notably, the government also actively participates in empowering and nurturing small and medium business groups. The examples of local products that have been developed into high-quality products are the *hui* of Cilembu and the *peuyeum* of Cigendel. Furthermore, both products have been exported to other Asian countries, including Singapore, Japan, and Taiwan. In addition to those two, other product that has also been widely developed is the tofu of Sumedang, which has emerged as the icon for Sumedang area.

Despite the development of the local products, the diversification of such products from Sumedang regency is yet to be improved, considering the abundance of natural resources with different types. One of the products that could be categorized to still be at the development stage is the coffee-based product. One of the most prominent plantation areas of coffee in Sumedang is the Sukawangi Village. However, Sukawangi Village coffee farmers from the managerial perspective are facing these main problems, such as various social and economic constraints, lacking the ability to identify the risk and its respective mitigation, and the insufficient management knowledge to conduct their business sustainably and to obtain more benefits to improve their productivity and well-being.

In this paper, we address the current condition of coffee farmers group in the Sukawangi Village. The scope of this research is the socio-economic problems and challenges encountered by the farmers related to risk identification, management, and mitigation of coffee-based small and medium enterprises. The methodology used in this research are on-site surveys and interviews with local coffee farmers. The objectives of this study include:

1. To map and analyze the socio-economic problems and challenges encountered by the coffee farmers in Sukawangi Village.
2. To identify the element of risk and the level of risk encountered by local farmers.
3. To propose managerial solutions for Sukawangi Village coffee farmers.

In doing so, we are able to formulate the appropriate risk mitigation and managerial solutions to advance the business gradually and sustainably. This survey-based paper is expected to offer a feasible solution to solve the socio-economic problems encountered by the local coffee farmers. Moreover, we expect to provide a compilation of data in order to map the socio-economic problems and challenges to formulate effective risk mitigation and managerial solutions regarding such matters.

**Literature Review**

A study has been conducted on risk management for farming and agriculture in New Zealand (Martin, 1996). According to his findings, risk in farming environment consists of physical factors such as weather (Patt et al., 2010; Tucker et al., 2010; and Hansen et al., 2018), pests and diseases, and higher market uncertainty. As a result, they have been forced to re-evaluate source of risk which they faced and to take measures to protect their businesses against this risk.

Gabriel and Baker (1980) mentioned two categories of risk: business and financial risk. These risks were found to be correlated with each other but incorporated in different sections. Business risks affect the input and output prices of the product whereas financial risks explain the risk of inability to pay back the debt or the obligation that the farmers may have. To overcome the risks, the risk management is divided into objectives of risk management, effects of risk management, and risk management strategies.

In the agriculture industry, risk sources mostly stem from the market risk (, followed by financial risk, production risk, regulatory risk, human risk, and miscellaneous risk. In addition, Moschini and Hennessy (2001) stated that regarding the uncertainty and risk in the agriculture industry, the dominant factors include production uncertainty, price uncertainty, technological uncertainty, and policy uncertainty. Production uncertainty is defined as the yield of production in comparison with the amount of input. As an impact of the production uncertainty, production decisions in term of market price are rather difficult to predict in order to adjust with the market. Technology uncertainty is related to the investments in technological equipment which will affect the productivity. Policy uncertainty is mostly resulted from the change in governments' policies and regulations in the economic sector both in national and international level (Hanson et al. 2004). For instance, Anton et al. (2011) proposed a holistic approach that considers the interactions between all sources of risk, farmer's strategies, and their policies to improve risk handling in Canada. The policy analysis proposed includes AgriInvest, AgriInsurance, AgriStability, AgriRecovery, and *ad hoc* measures to minimize and diversify the risks.

Weather condition proves to be one of the critical risk factors when it comes to agriculture and agri-business (Martin, 1996, Hess et al. 2002, Aimin, 2010). The studies are supported by the findings from Howden et al. (2007) concerning the need for agriculture business to adapt towards the threat of climate change. Strategies to anticipate the effect of climate change should be formulated by the agriculture sector stakeholders such as governments as the policy makers, researchers to provide strategic recommendations, business practitioners who determine the dynamic of the market, and farmers themselves as the individual producer.

For managing the risk, Huirne et al. (2000) proposed two approaches to mitigate the risks: 1) by conducting on-farm risk management strategies, 2) by planning strategies to share the risk with others. On-farm risk management approaches were further elaborated in the following actions: collecting information, avoiding or reducing exposure to risks, selecting less risky

technologies, spatial diversification, and farming operational flexibility. Additionally, farmers can also plan such strategies in order to mitigate the risks by sharing them with others. This can be conducted via farm financing, insurance, contract marketing and futures trading. By tackling the risks as well as formulating and implementing the right strategies, it is expected that farmers can conduct their business more thoroughly and with less risk to handle.

## Theoretical Framework

Based on literature review, we are able to extract the crucial points that form the theoretical framework of the paper (Figure 1). The theoretical framework starts with a risk management process that consists of risk identification, risk analysis, and risk mitigation. Subsequently, it is followed by a management solution such as planning, organizing, directing, controlling, and evaluating the potential solutions. Ultimately, those actions will improve the business performance of the coffee plant management system.

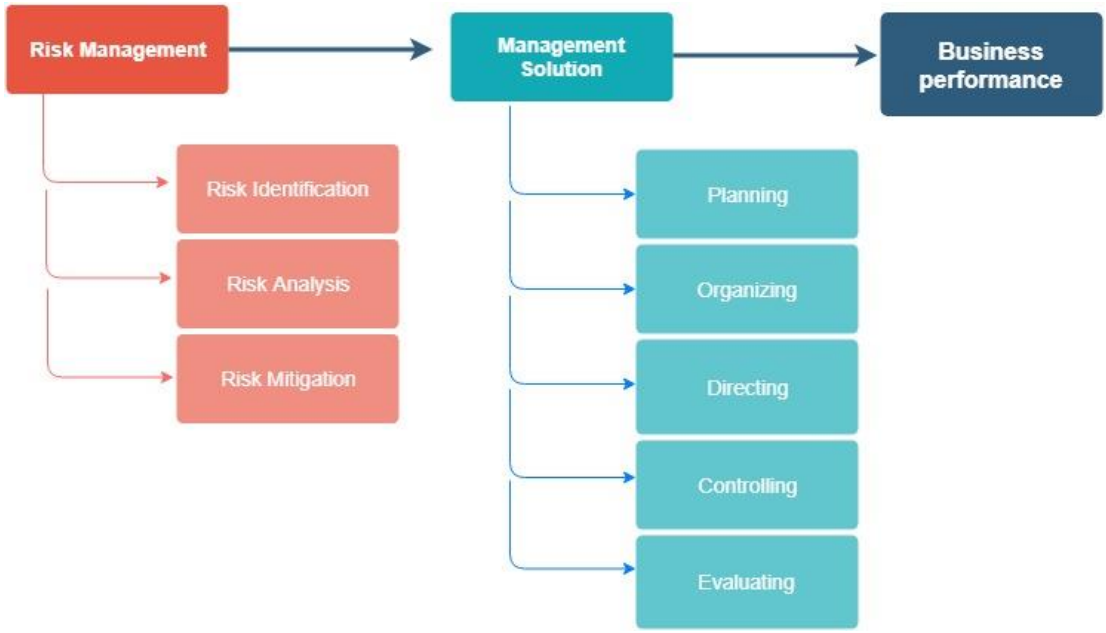


**Figure 1. Theoretical Framework for the Study (Source: Authors' Analysis).**

## Research Methodology

The paper focuses on a study of the current socio-economic state of the coffee farmers in Sukawangi village to formulate feasible risk mitigation solutions from a socio-economic and managerial perspective. As this research is the pioneering study on the risk management of coffee-based small and medium enterprises in Sukawangi Village, it lacks evidence from past research. Therefore, primary data and direct observation are required for a thorough understanding of the current socio-economic situation. The methodology is hence based on a qualitative approach through on-site survey and interviews.

Surveys were conducted for 6 months to observe the condition of Sukawangi village and the socio-economic impact caused by the coffee cultivation activity towards farmers and Sukawangi village. As to get necessary information for the risk analysis, we interviewed 13 Sukawangi coffee farmers within the age of 30 - 53 years old with the latest education varies from elementary school to senior high school, and their occupation includes land-owning farmers, tenant/land-renting farmers, and housewives. Interview protocols were prepared prior to the interview process. The interviews result in data for SWOT analysis about coffee-based

small and medium enterprises in Sukawangi village. Subsequently, such data are then analyzed to result in the framework of solutions (Rahim & Hastuti, 2005) related to risk mitigation and improvement of the management system, which is presented systematically throughout the paper.

## Results and Analysis

### *Socio-Economic State of Sukawangi Village*

Sukawangi village is a part of Pamulihan subdistrict, Sumedang regency, West Java, and is bordered by Cijambu, Pasirbiru and Sukasirnarasa villages in the north, Pamulihan village in the east, Citali and Gudang villages in the south, and by Pasigaran and Kadakajaya villages in the west. By 2013, the total population in Sukawangi village is approximately 5100 people, consisting of 2450 men and 2650 women. Based on data from the Central Bureau of Statistics of Indonesia and Sukawangi Village data, about 1699 people are the breadwinners of the family (Imanuddin, 2017). Most residents work as land-owning farmers, land-renting/tenant farmers, laborers, traders, soldiers, police officers, and civil servants. Especially for small-scale farmers, the average monthly income is still below the minimum wage of employees (around Rp 2.6 million per month), reflected in the level of welfare of the average population of Sumedang.

To improve the welfare of the farmers, there are initiatives to make Sukawangi village as a "Kampung Kopi." The village of Sukawangi has been the center for coffee plantation for a long time ever since the Dutch colonial era. In those days, the types of coffee grown were Liberica, Excelsa, and Robusta coffee. However, in the last few years, the farmers have started to plant Arabica coffee as well. To realize the plan to make a "Kampung Kopi," in 2017, the farmers' association in Sukawangi called the Kelompok Tani Karya Mandiri Prima received aid from the Agricultural Service of Indonesia in the form of 12,000 stems of coffee tree seedlings. This year, the procurement of 5,000 coffee tree seedlings is sponsored by the community and the seeds are purchased to the breeder. The purchased seeds are labeled seedlings that have been certified by the Indonesian Coffee and Cocoa Research Center in Jember at a price of Rp 3.000 per trunk, or a total of Rp 15.000.000. From the newly planted coffee trees, a total intake of Rp 11.640.000 can only be obtained within the third year after planting. 5000 of such coffee seedlings can produce approximately 2 tons of coffee per year at a price of Rp 6.000-8.000. This calculation is based on the experience of an expert (i.e., Mr. Adha from Pers. Comm.).

Coffee cultivation in the Sukawangi village was started on mutual cooperation of the community members to manage their land for a common goal. Coffee planting is also conducted around the housing areas, such as the back of the houses, yards, and roadsides. Tree planting is adjusted based on the availability of land; hence the distance between the coffee trees are mostly about 2 meters. However, for larger areas, the distance between rows of planting could reach up to 2.5 meters. Consequently, coffee cultivation is not calculated based on the area of the land but rather based on the number of trees planted.

Within the Sukawangi village, there are currently three farmer associations, namely: Kelompok Tani Mekarwangi, Kelompok Tani Medal Asri, and Kelompok Tani Karya Mandiri Prima. The first group focuses on the cultivation and crop production, the second group focuses on the processing, while the third group initially focuses on the cultivation and processing of tobacco. Recently, Kelompok Tani Karya Mandiri Prima focuses on four fields, which are the plantations (cassava, coffee), horticulture (chili, cabbage, eggplant, cucumber, beans, tomatoes, and onion), farms and MSMEs. Initially, the farmers' group capital was raised from personal savings. However, more recently, funding has been obtained from sales profits, support from other

agencies and institutions - including the Bandung Institute of Technology (ITB), and the rest is deducted from the procurement of an event. In general, fund management is conducted for each field, but the financial record is kept manually and gathered within the farmer groups. To date, the assets and capital managed by this farmer group are as follows:

1. The farm sector managing the funds of Rp 70.000.000.
2. The horticulture sector managing the funds of Rp 18.000.000 and leasing the land within the village;
3. The tobacco sector managing the funds of Rp 72.000.000 and a number of untested assets (data not updated regularly);
4. Self-owned coffee and tea plantations.

In general, the commodities produced depend on the weather, and thus both the quality and the quantity of the products cannot be predicted. Some commodities (tobacco, chili, cabbage, eggplant, cucumber, beans, tomatoes, and onion) are directly sold as raw materials, while the coffee is packaged and sold in the form of coffee beans with manual roasting process. Here, the farmer association could act as the collector of the cherry (i.e., the fruit of the coffee) from internal members and external members at a price (directly weighed after picking) of Rp 3.000 - 4.000 for Liberica coffee and Rp 6.000 - 7.000 for Arabica coffee. Every year, the coffee beans produced by farmer groups' amount to approximately 7 quintals.

The products which are owned by Kelompok Tani Karya Mandiri Prima include the Liberica Baheula Coffee, the Kasreng Mekarsina Tea, Mocaf and its derivatives, and several raw commodities (such as tobacco, chili, cabbage, eggplant, cucumber, beans, tomatoes, onion). Coffee product of Kelompok Tani Karya Mandiri Prima is given the brand "Kopi Liberica Baheula" because Liberica coffee has been harvested since ancient times (baheula in Sundanese). On the other hand, mocaf (modified cassava flour) is fermented cassava flour that is currently used as a replacement of aci kawung (palm flour) as the main ingredient of meatballs, bread, and fried snacks.

***The Coffee Plantations of Sukawangi Village***

The coffee plantation area, which was visited during the survey and interviews, is located at the north of Sumedang city, approximately 23 kilometers away (Figure 2).

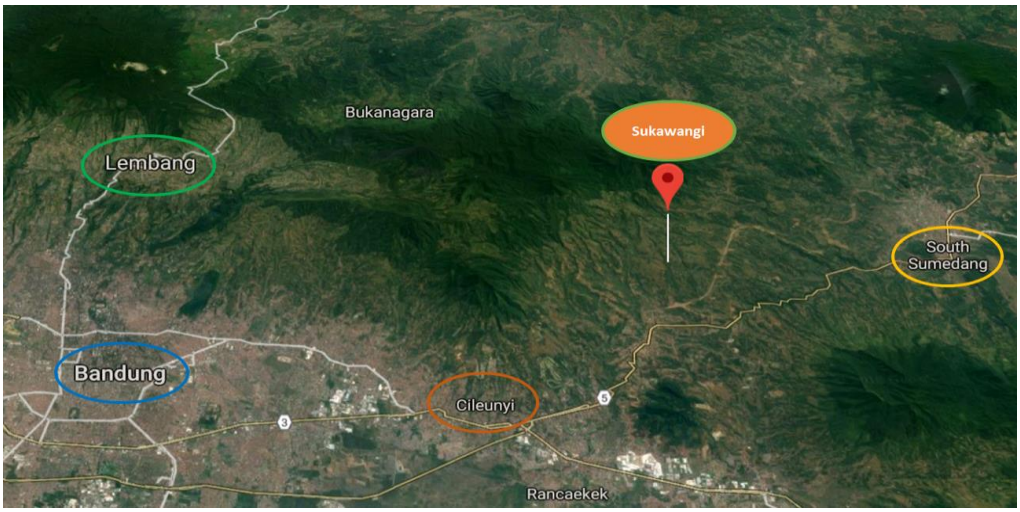


**Figure 2. The Location of Sukawangi village coffee plantations (Source: Google Maps with Modification by the Authors)**

***Observations and Interview Results***

During the visit to the plantation area, we interviewed 13 farmers within the age of 30 - 53 years old and obtained the following information:

1. Farmers generally earn a turnover of Rp 10.000.000 per year. However, such income tends to be non-permanent, and farmers rarely calculate their profit and loss. Hence, in financial terms, many business actions are not well recorded, even the capital is generally not counted by the farmers. Such record is considered useless for them because they feel that it does not bring any added value to their business. However, it is not uncommon that the cost to harvest is more expensive than the price of a product itself.
2. Farmers are reluctant to access formal financial institutions to borrow money to raise the capital and generally rely on mediators to provide such capital.
3. Generally, farmers have a side job to sustain their family income, including planting other crops, being porters to transport vegetables, and being laborers. Farmers also grow rice on their own, which is generally used as their daily staple food.
4. Farmers feel that their skills are lacking, especially in the processing of the plantation land and the subsequent processing of coffee crops into high-value derived products.

Therefore, the initiative to make the Sukawangi village as a "Kampung Kopi" is expected to increase the income of farmers as well as their skills in planting and processing the coffee. However, the mechanization of the agriculture and the availability of coffee processing equipment to produce derived products with high-added value are still a considerable concern among the farmers.

Taken together, from a managerial perspective, we identify the main problems encountered by the farmers are as follows:

1. There are various social and economic constraints affecting the coffee farmers, mainly regarding raising the capital and funding to ensure the sustainability of their business.
2. The farmers felt that they are lacking in the ability to identify the risk and formulating the following risk mitigation regarding the existing threats.
3. The farmers felt that they lack in the management knowledge to conduct their business sustainably and obtain more benefits to improve their productivity and well-being.

**Solutions Offered**

Based on the description of the current condition that occurred in Sukawangi Village, Sumedang, this paper proposed 6 (six) solutions to help improve the welfare of these coffee farmers, viewed from the social and economic side.

***Identify the Social and Economic Constraints Faced by Coffee Farmers***

For the first solution, we propose to establish a fundamental analysis of the shortcomings and advantages of coffee plantations in this Sukawangi Village. For that, we will use the SWOT (Strengths, Weaknesses, Opportunities, and Threats) approach initially introduced by Albert S. Humprey (SRI Alumni Association, 2005).

SWOT Analysis (or SWOT matrix) is a strategic planning technique used to help a person or organization identify the Strengths, Weaknesses, Opportunities, and Threats associated with the conduct of a business. In the SWOT analysis, Strengths and Weaknesses are often associated

with internal company conditions, while Opportunities and Threats generally focus on conditions outside the company.

From the below data, based on the results of interviews with farmers, the team of authors obtains information that the problems faced by farmers quite a lot, where most of the problems are fundamental. In general, the authors define the core problems faced by these farmers into three main categories:
1. The weakness of Plantation Management System
2. The weakness of Plantation Finance System
3. The weakness of Appropriate Technology System of Plantation.
This paper will analyze solely on the weaknesses of the plantation financial and management systems.

**Table 1: SWOT Analysis for Sukawangi Village Farmers, Sumedang (Interpretation of Authors)**

| **Strengths** | **Weaknesses** |
|---|---|
| 1. The land is privately owned, not as a cultivator.<br>2. The air condition is very suitable to produce four types of coffee (arabica, robusta, excelsa, and liberica)<br>3. The number of workers is quite a lot. | 1. Weak knowledge of how to farm properly.<br>2. Weak knowledge to process coffee well.<br>3. Lack of capital.<br>4. Lack of facilities and infrastructure to cultivate the land.<br>5. At least a connection to market the crop.<br>6. Reluctance to borrow money from formal institutions.<br>7. Income that is not fixed.<br>8. This year's sales are sometimes related to the previous year's sales performance. |
| **Opportunities** | **Threats** |
| 1. There is a direct connection (direct link) to the cafe owners around Sumedang.<br>2. Brand coffee (Coffee Boehoen) has started to be known by the cafe owners around Sumedang | 1. Dependence on the middleman<br>2. Low demand from consumers.<br>3. The high cost of harvest compared to the price of production.<br>4. Weak knowledge of financial management.<br>5. Many jobs are not recorded properly.<br>6. Not the focus of the farmers to carry out this coffee business on a regular basis.<br>7. A number of side jobs done.<br>8. Unfavorable weather factors. |

### *Identification of Risk Elements faced by Coffee Farmers*

Based on SWOT analysis above, we conclude that the threat faced by coffee farmers is 8 (eight) elements.

1. Dependence on the middleman
2. Low demand from consumers.
3. The high cost of harvest compared to the price of production.
4. Weak knowledge of financial management.
5. Many jobs are not recorded properly.
6. Not the focus of the farmers to carry out this coffee business on a regular basis.
7. A number of side jobs done.
8. Unfavorable weather factors.

### *Risk Level Identification Faced by Coffee Farmers*

Based on the results of discussion and analysis by the author, we set the level of risk faced by coffee farmers in Sukawangi Village, Sumedang, with the following results (Table 2):

**Table 2: Risk Level Identification Analysis (Interpretation of Authors)**

| No. | Risk | Probabilities (1-5) | Consequences (1-5) | Score (1-25) |
|---|---|---|---|---|
| 1 | Dependence on the middleman | 4 | 5 | 20 |
| 2 | Low demand from consumers. | 3 | 5 | 15 |
| 3 | The high cost of harvesting compared to the price of production. | 4 | 5 | 20 |
| 4 | Weak knowledge of financial management. | 5 | 3 | 15 |
| 5 | Many jobs are not well recorded. | 4 | 3 | 12 |
| 6 | Not the focus of the farmers to carry out this coffee business on a regular basis. | 3 | 2 | 6 |
| 7 | The number of side jobs done. | 4 | 2 | 8 |
| 8 | Non-Supporting weather factor. | 2 | 3 | 6 |

*Information:*
*Probability 1 = unlikely; 5 = very likely to happen*
*Consequence 1 = does not affect company performance; 5 = greatly affect company performance*
*Value = Probability * Consequences*

Based on the above information can be categorized level of risk faced by these coffee farmers as follows (Table 3):

**Table 3: Risk Level Matrix (Interpretation of Authors)**

| Probability / Consequences | Not affecting performance (1) | Slightly affect performance (2) | Affect performance (3) | Disrupt performance (4) | Strongly disrupt performance (5) |
|---|---|---|---|---|---|
| **Very likely (5)** | | | **4** | | |
| **Most likely happens (4)** | | **7** | **5** | **1,3** | |
| **May occur (3)** | | **6** | **8** | | **2** |
| **Less likely (2)** | | | | | |
| **Not likely to happen (1)** | | | | | |

Based on the result of the matrix of coffee farmer's risk level, it can be concluded that from the perspective of urgency, the problems faced by these farmers must be faced with sequence flow as follows:

1. Reduce/eliminate dependence on mediators.

2. Reduce the cost of harvesting to be lower than the price of production so that farmers can benefit.
3. Increase the level of demand from consumers.
4. Improve farmers' knowledge systems on financial management.
5. Preparing the improvement of the bookkeeping system of the farmers so that no more jobs are not recorded properly.
6. After profits start, farmers are no longer doing side jobs and can focus on coffee business.
7. Once the profit starts, it is hoped that farmers can focus on the coffee garden business.
8. Adjust product condition with weather factor in Sumedang.

***Risk Mitigation Formulation***

Based on the above risk matrix, several risk mitigations that can be implemented by coffee farmers to maintain the sustainability of their business (Table 4).

**Table 4: Risk Mitigation (Interpretation of Authors)**

| No. | Risk Formulation | Risk Mitigation |
|---|---|---|
| 1 | Reduce / eliminate dependence on middlemen. | Introducing farmers with a banking-based or fin-tech based financial system. |
| 2 | Reduce the cost of harvesting to be lower than the cost of production so that farmers can benefit. | Provide counseling for farmers to be able to apply appropriate technology in the process of processing the land until the production process is complete. |
| 3 | Increase the level of demand from consumers. | Provide counseling for farmers to pack the product better and more selling, especially to consumers (B2C).<br>Establish/introduce these farmers' products to prospective customers by establishing strong networking with institutions/associations of companies that have interests (coffee shops, restaurants, hotels). |
| 4 | Improve farmers' knowledge systems on financial management. | |
| 5 | Prepare improvements to the bookkeeping system of the farmers, so that no more jobs are not recorded properly. | Provide counseling for farmers to begin to set up a transparent and sound accounting system and financial reporting system. |
| 6 | After profits start, farmers are no longer doing side jobs and can focus on coffee business. | This point can be implemented before / after coffee farmers can enjoy the benefits. It is hoped that with education to raise awareness, and risk mitigation applications from points 1 through 5, it is expected that farmers will be called to be able to focus on conducting coffee business on a full-time basis. |
| 7 | After profits start, farmers are expected to focus on the coffee plantation | |
| 8 | Adjust product condition with weather factor in Sumedang. | After earning a profit, the retained earnings from the coffee business can be used to build a system that can keep the coffee production level consistently. |

**Formulation of Appropriate Managerial Solutions**

To formulate appropriate managerial solutions for these coffee plantations, we try to use the research reference that has been implemented, in this case, we use references from Rahim & Hastuti (2005) regarding plantation agribusiness management system (Figure 3). The chain of plantation agribusiness management system includes input subsystem (seeds, fertilizer, and pesticide procurement), production process subsystem (cultivation), output subsystem (processing/agroindustry and marketing), and supporting institution subsystem, and management (Rahim & Hastuti, 2005).

In accordance with the design of plantation agribusiness management system mentioned above, it appears that the problems emerging in the social and economic segments mentioned in the previous section fall into the subsystems of supporting services. Banking support, extension and plantation consultancy, research and development, and government policy are an essential part of the entire management system.

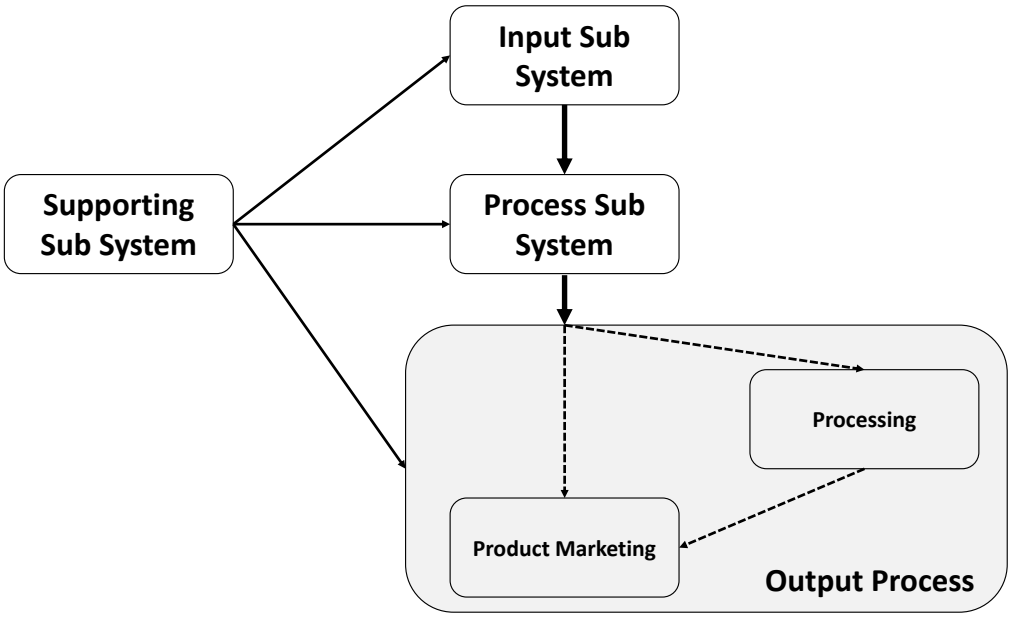


**Figure 3. Agribusiness Estate Management System (Source: Rahim & Hastuti, 2005)**

To that end, we formulate some appropriate managerial solutions that will help to improve the welfare of coffee farmers in Sumedang, as follows (Table 5):

**Table 5: Formulation of Appropriate Managerial Solutions (Interpretation of Authors)**

| No. | Factors Subsystem | Offered Solution |
|---|---|---|
| 1. | Banking | 1. Increase awareness and willingness of the farmers regarding the functioning of formal financial institutions such as banks.<br>2. Increase awareness from farmers about the dangers of mediators.<br>3. Introduce to farmers the existence of alternative financings outside of conventional banking institutions and mediators, such as crowdsourcing, crowdfunding, and fin-tech in the form of peer-to-peer (P2P) lending.<br>4. Establish relationships with these institutions to strengthen the networking network better that can improve the welfare of coffee farmers in Sukawangi. |

| | | |
|---|---|---|
| 2. | Counselling and Plantation Consultants | 1. Conduct periodical extension on ways to improve production, improve the efficiency of company's management performance, improve the company's financial management system, as well as useful product marketing techniques.<br>2. Invite other coffee farmers who have succeeded to provide input and share success stories as part of counseling and consultation.<br>3. Invites mentors from education, industry, government and non-government organizations to assist in training related to improving the welfare of coffee farmers.<br>4. Build relationships with interested parties from the sales and management side to be able to open a more extensive network and market. |
| 3. | Research & Development | 1. Conduct incentive studies to analyze the advantages and disadvantages of location, product type, weather conditions, existing processing systems, and other production factors contained within this agricultural site.<br>2. Inviting interested experts in the field of research and development of coffee plantations to analyze the improvements of existing product shortages, and to highlight the advantages of existing products, to maximize the potential of coffee products in Sukawangi. |
| 4. | Government policy | 1. Invite the government to be present to see the current condition of the coffee farmers in Sukawangi, to raise awareness from the government.<br>2. Carry out two-way dialogue and focus group discussions on opening lines of communication and formulating existing problems related to the policy of Sumedang city government.<br>3. Encourage Sumedang city government to formulate and develop government policies in the form of regulations that can help improve the welfare of coffee farmers in Sumedang in general, and in Sukawangi in particular. |

***Formulation of Sustainable System that can support Performance***

According to Rahim and Hastuti (2005), in the management function of agribusiness company consists essentially of planning, organizing, directing, controlling and evaluation (Figure 4).

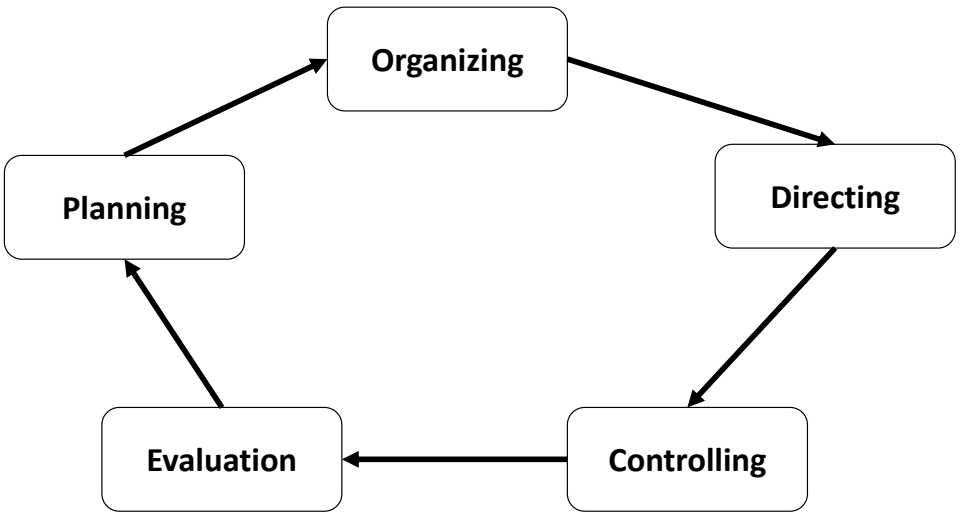


**Figure 4. Agribusiness Managerial Functions from the Process Side (Source: Rahim & Hastuti, 2005)**

The actions that can be taken include:

1. Planning is the initial planning in the form of determining the implementation of actions to achieve the expected results.
2. Organizing is the process of grouping activities that need to be implemented in accordance with the planning process plan.
3. Directing is the process of providing direction, advice, orders, and instructions for the company to run properly.
4. Controlling is one of the management functions to conduct assessment and correction for the company to achieve the desired goals.
5. Evaluation is the process of evaluating the results of the implementation of the management function, to assess whether the desired target is achievable or not, and if not, what steps must be taken to enable the company to move sustainably.

From the above information can be concluded that in order for an agribusiness company to function properly, it needs a sustainable system that can guarantee the company can run well and sustainable.

Some of the proposed work plans that can be done by farmers to maintain a sustainable process in Sukawangi Village, Sumedang can be seen in Table 6.

**Table 6: Formulation of Sustainable Management System (Interpretation of Author)**

| No. | Management Functions | Work Plans |
|---|---|---|
| 1. | Planning | 1. Compiled a comprehensive work system from the start of the seed planting process to the processing and packaging of the product.<br>2. Establish an effective and efficient production management system.<br>3. Compile a comprehensive and comprehensive financial plan (feasibility study) with short, medium and long-term targets.<br>4. Develop a reasonable and realistic marketing plan that can be implemented realistically, supported by a targeted product promotion plan.<br>5. Develop a legal system to improve the legality and status of the coffee farmers in this Sukawangi Village. |
| 2. | Organizing | 1. Establish an excellent organizational structure system with a clear level of accountability, with the right and the right obligations in accordance with their job descriptions.<br>2. Establish comprehensive AD / ART for the organizational structure that has been prepared.<br>3. Determining the right personnel to hold each position within the organizational structure.<br>4. Determine a clear reward and punishment system for each position of the organizational structure, so that it can be a primary reference for the organization. |
| 3. | Directing | 1. Implementing the company management process in accordance with the work plan (planning) and organizations that have been agreed.<br>2. Implement a reward and punishment system in accordance with AD / ART and applicable company regulations. |

| | | |
|---|---|---|
| 4. | Controlling | Setting up the company's performance indicators to see how the company is running.<br>Conducting the checking process on the indicator in question, so that problems that appear can be identified quickly and not deviated from the target companies that have been prepared in the planning phase. |
| 5. | Evaluation | 1. Conducting periodic evaluation process to see the performance result from the company compared with the initial work plan that has been prepared.<br>2. Make adjustments to the implementation of corporate management so as not to deviate from the target companies that have been prepared in the planning phase.<br>3. Documenting changes/adjustments that occur in one cycle so that later can be reference material for the future planning process. |

**Conclusions**

Sumedang with all the potential of natural and human resources has duly developed into a district with a good local economy. The abundance of natural resources in Sumedang area should be able to raise the level of the people of this regency. Coffee as one of the potential of natural resources can be used as a leading commodity trading in this area. The diversity of coffee species in Sumedang area is a plus for Sumedang, so Sumedang should be aligned with other coffee producing regions in Indonesia.

Coffee farming in Sumedang, which is still relatively newly promoted by the community should get more attention from the local government. The development of coffee farming should be supported by related parties so as to form a synergy that can have implications for the progress of coffee farming in Sumedang.

Currently, cooperation between the community, the government, in this case, the Department of Agriculture and Food Security District. Sumedang and educational institutions namely Institut Teknologi Bandung has been running. Education of farming communities, farming training, giving of capital and seeds of coffee crops have been done in the hope that the sustainability of this program can have sustainability until the farmers of Sukawangi Village are able to manage their farm and coffee business independently. Promotion of this coffee farm is the first step that has been done by the Department of Agriculture and Food Security District. Sumedang, Sukawangi Village community, and ITB. Henceforth, post-harvest and commercialization are crucial stages that need to be considered because of its close relationship with the development of the local economy.

In the case of post-harvest, coffee processing by the community should be supported with information on appropriate technology and quality assessment from research or education institutions. Therefore, through a program of community service, ITB lecturers hope to be able to take part in supporting the progress of farmers by engaging in the formulation of solutions to the problems identified in the community. In this paper, the mapping and analysis of the problems and socio-economic challenges faced by coffee farmers in Sukawangi Village was put forward. In addition, the results of risk element identification and risk level faced by coffee farmers have also been elaborated. So, at the end of this paper, risk mitigation and appropriate managerial solutions to advance the coffee farmers business gradually and sustainably were successfully formulated.

In particular, the authors offer socio-economic solutions that are directly related to the economic conditions of the Sukawangi Village farmers and are directly related to the farmers' prosperity. The selection of socio-economic topics in this paper is based on the importance of the banking system, farmer assistance, product research and development, and guarding the government in formulating related policies so that the policy is adapted to the condition of the community. Through these points, it is expected that members of the coffee business activist group in Sukawangi Village and local government can look at the solutions that the authors offer and try to get together to be involved in their application.

Implementation of solutions that the author gives will not be effective without cooperation between coffee farmers Sukawangi Village, solution formulator, and government as a supporter. Therefore, it is hoped that the cooperation that has been established can be continued until the implementation of this paper is done continuously so that it can be evaluated periodically and continuously improved in order to create a better local economy condition of Sukawangi Village community.

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