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DEVELOPMENT MODEL OF MANGO AGRIBUSINESS AS AN EFFORT TO ENSURE SUPPLY CONTINUITY

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Abstract

Gedong Lipstick Mango (reddish mango) is a commodity with economic and strategic value because it has a pretty good market opportunities in the local and export markets. Majalengka can be regarded as one of the Gedong mango production center that considerable potential in West Java, especially in the District of Panyingkiran. However, mango cultivation still has problems ranging from manufacturing to post-harvest which still modest. It has not applied the proper technology so that the harvest quality is still low with discontinuity production as well as relevant actors who do not have a good synergy which adds to the increase of complex problems in mango farming. This research aims to assess the occurrence of unstructured problems and is expected to offer a solution of adaptive mango agribusiness development. This study is a qualitative design using case study method and system thinking of soft system methodology (SSM) approach. The results showed that the formulation of improvements to be made in mango cultivation is the coordination and collaboration among related parties which are optimized through control activities by performing intensive coaching and mentoring. There is also dissemination of information and technology related to the implementation of innovation in supporting the continuity of supply that generates a model of agribusiness development in integration with related parties which supported government regulation. Similarly, a partnership with industrial companies or structured market through the principles of justice should be reorganized with the establishment and strengthening cooperatives as facilities for mango farmers in realizing a strong mango agribusiness system and implementing appropriate corrective measures according to SSM results.

Key words**:** *agribusiness, mango, continuity of supply, soft systems methodology*

INTRODUCTION

Mango is one of the commodities that possess economic and strategic value. This commodity has also sizeable market opportunities in both domestic and export markets. People fond of *Gedong Lipstick Mango* because it has a high nutrient content. Mango consumption per capita per year based on the national socio-economic survey of Central Bureau Statistical Agency since 2008 to 2014 is likely to increase. It reached the highest rate in 2011 with a number of 0.63 kg/capita/year or an increase of approximately 200% over the previous year and is considered the highest level of mango consumption in the last 5 years [2].

West Java province is counted as one of pillar region in the development of *Gedong mango*, particularly Majalengka regency. On one side, mango has prospective potential, but on the other hand, it still has problems that must be resolved. In general, the cultivation and development of mango are facing various problems, namely (i) it is greatly influenced by season/weather (ii) scale farming is still relatively small (iii) marketing is still done by *Tebasan* (a selling method by which the farmer sells his product to labor contractor/*penebas* for cash before the harvest), *Ijon* (similar to *Tebasan* by which the farmer mortgages his green crop for money) and contract that lead to the exploitation of production due to the insistence economic needs, avoiding the risk of production failure and large maintenance costs, (iv) benefit is mostly enjoyed by traders instead of the mango farmers [1]. Mango farmers in Majalengka are also experiencing pretty much the same problems in cultivating the crops. They are ranging from culture systems that have not been able to apply the proper technology yet which causes low- quality products and fluctuation of production whereby resulting to price fluctuations as well. An old system is still applied in the process of harvesting and post-harvesting, especially in

marketing which has not yet held the coordination and synergy among parties related.

Other problems frequently encountered in the development of mango agribusiness are the inability of farmers to fulfil market demand for continuity of product supply and products which have not met the quality of consumer preferences which clearly appear on the purpose to enter industrial and export markets. Institutional partnerships are weakened compared to the previous one which had been built several years ago, due to the lack of commitment and coordination which leads to the low access of markets among the mango agribusiness actors. The un-optimized application of the proper cultivation technology, inappropriate post-harvest due to the imbalance in the mastery of science and technology, and capital assets are also obstacles in mango agribusiness. A question arises from such complex problems would be how to describe these unstructured problems and offer a solution for real-world improvements in the sustainability of production and also produce an adaptive mango agribusiness development model.

MATERIALS AND METHODS

This study is a qualitative using case study designed to explore issues that are not structured, digging the cause of the discontinuity of production, and offers a range of solutions from actors and stakeholders in the development of mango agribusiness. A system thinking with soft system methodology (SSM) approach, is used to analyze the development of mango agribusiness. SSM defines and states the problems and conceptual models existed to support in understanding the issues so as to produce an agreement, the real action, and perception [6].

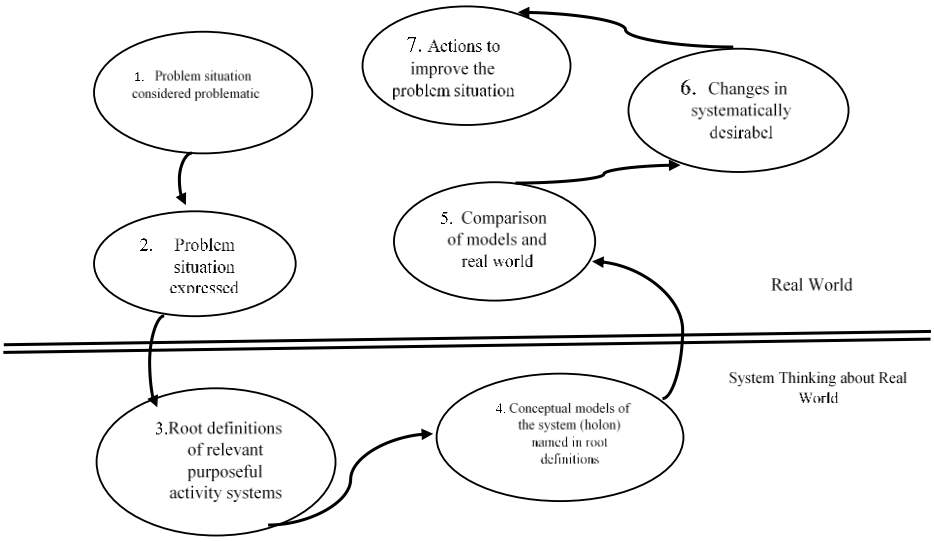


Fig. 1. Stages of SSM (Source: Checkland & Scholes, 1990)

Soft system methodology (SSM) developed by Checkland in the 1980s as a process of research and study measures to improve the situation of unstructured problems where issues are vague perceived but not clear. SSM is an organized way to handle a situation of social problems. SSM approach is the intellectual tools used to design and implement changes in the social issues of the reality/reality in ways it needed to improve something better. Changes proposed by the SSM can be a strategic issue or at the operational level in social problems [7]. In the SSM approach, some illustration of the interactive process covered in seven stages. Those stages are: (a) examining the unstructured problems (Rich Picture); (b) expressing the problem situation (cultural analysis); (c) establishing the definition of the

problems associated with problem situations (CATWOE); (d) building conceptual models (HumanActivitySystem-HAS); (e) comparing conceptual model with problem situation; (f) establishing a feasible and desirable changes; (g) taking corrective action on the problems [4]. Stages in detail can be seen in Figure 1.

RESULTS AND DISCUSSIONS

Mango Cultivation Agribusiness

Majalengka regency is one of the centers of mangoes production in West Java province. The main mango species developed in the central areas are *Harumanis mango, Gedong Lipstick, Golek, Cengkir,* and others. Among those, *Gedong Lipstick mango* is a superior product in the region that has the competitive value which is expected to increase the income of mango farmers who cultivate it. Cultivation of mango agribusiness is still considered modest starting from maintenance activities, harvest, post-harvest to marketing. In general, it is a plant that has been cultivated since long ago, while a process of planting new mango can be regarded as a complete stage of mango agribusiness [1].

Since 2001, there is an enactment of leading commodities in Majalengka, one of which is fruits including mango *Gedong lipstick, durian* (king of fruit), banana, and avocado; all based on the suitability of agroecosystem in each region of development-production center. Since the establishment, until now Majalengka becomes one of the central areas of mangoes in West Java and it has become the plant that the public interest to cultivate, although there are still many farmers who undertake mango only as secondary crops. However, there are also some farmers who have started to commercialize this mango crop in semi-intensive planting system, even monoculture cropping pattern has already spread in the area of wetland and upland. Nevertheless, by overviewing the general conditions on the ground, most of the mango farming has not been carried out intensively for commercial purposes. In mango cultivation, activities starting from maintenance such as land clearing, fertilizing, and pest eradication are still applying the old/ modest system, so did the harvest and post-harvest activities.

Due to a number of labour costs to be incurred by farmers for the harvest and post-harvest, the majority of them choose systems to harvest as follows: (1) *Ijon system* (bonding system), as a system of debt confinement by which the transaction is carried out during the mango plants are in bloom with the calculation through an assessment of mango tree per unit, (2)*Tebasan system* (slash system), this harvesting system is executed by purchasing at the time young mangoes has been formed which make it easier for farmers and buyers to set the price. However, there is a delay in payment to the farmer due to the traders who wait for the payment from the "big buyers" or wholesalers. The farmers find no objection for such systems because they have already established business ties with traders villages and wholesale traders. There is even a close attachment when farmers need capital for their mango farming and the wholesalers immediately give them which also means indirectly bind them for their mango marketing. That way, the farmers have a very low bargaining position because the price for mango selling can only be determined by the buyer, in this case, those traders or wholesalers.

In general, marketing on mango crops is established through linkages between traders or wholesalers and farmers which have already been patterned before, despite there is a higher price offer. This is due to the dependence relationship and habit among actors in the marketing. the farmers find it rather hard to sells products by themselves since the traders or wholesalers actively approach farmers, especially those who desperately needs money for their business or family needs. They would borrow money from that traders or wholesalers by installments and make obvious attachment and dependence to them. Similarly, the provision of pesticides/insecticides is also obtained from traders/wholesalers.

Soft Systems Methodology (SSM)

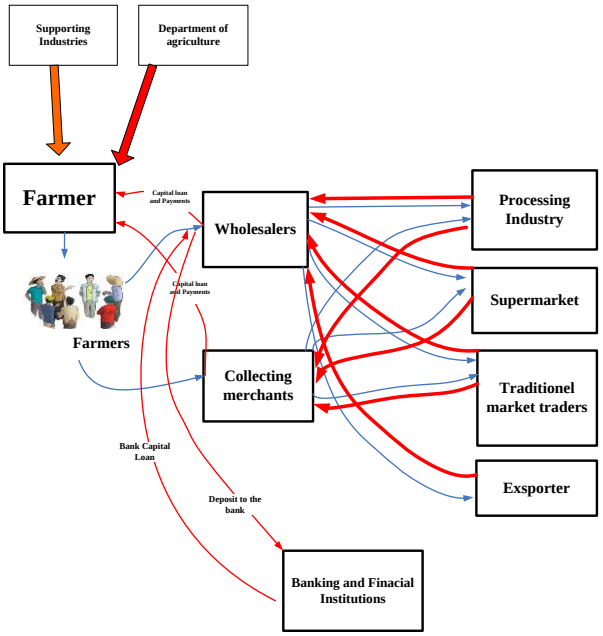
Actual Condition

A complex problem is a hallmark of business activity, including in mango agribusiness supply chain. It occurs due to the interaction of

the various actors in this business from upstream to downstream, as well as the unsustainability of mango production which failed to meet the predicted increase in market demand and cause fluctuating price. To overcome the unsustainability of mango production due to the fact that it is a seasonal crop, off season technology is now widely applied, except for the mango farmers in Majalengka since they have a limitation in human resources and capital. Limited human resources management, implementation of modest technology, and limited capital in mango cultivation cause for modest activities from maintenance to harvesting with low result product quality as well. In addition to small quantity products which have not been able to meet the predicted increase in market demand, the low quality is also a factor of farmers' inability to enter the structured market, that is a definite pattern of purchase market with pricing contracts such as industrial companies, supermarkets, and export. Accordingly, there is no recent partnerships between farmers/farmers' group with industrial companies or structured market which previously established in 2005. PT. Indo Fresh was purchasing mango and provided guidance to mango farmers in maintenance activities in collaboration with the Department of Agriculture, although this cooperation is still limited to the types of *Gedong lipstick mango* [1]. Unfortunately, that cooperation only lasted for a year because the two parties did not meet the commitment of the partnership agreements.

Rich Picture

Rich picture is used to understand the circumstances of the problems from various perspectives, structure, process activities in agribusiness mango cultivation, the relationship, and conflict between the actors involved whereby such abstract things are visualized by means of symbols. Rich picture is the result of supply chain mapping that has been done through external validation of focused group discussion. The rich picture below shows the activities in mango agribusiness.



Notes : → : cash flow
→ : the production's stream

Fig. 2. Rich Picture of Mango Cultivation
Source: Primary data, 2014, Processed

Figure 2 shows that the whole picture of activities in mango cultivation begins with the identification of mango farmers incorporated in a farmer group. Actors involved in the supply chain of mango consists of supporting industry (in this case is an input provider or mango seed supplier), *saprotan* (agricultural inputs) store as agro input sellers which

generally facilitated by traders (big and small ones) or wholesalers who come and actively approach mango farmers to buy their products to the extent of creating dependency in purchasing and selling engagement through finance for mango cultivation, and the involvement of various parties including Department of Agriculture, Department of Trade and Industry, banks and other financial institutions. Usually, mangoes from farmers or farmer groups go directly to traders or wholesalers, and wholesalers would directly deal with buyers such as supermarkets, traditional markets, exporter (about 5%), and to the processing units which still a little in number.

CATWOE Analysis Based on Transformation

Problems existing in the operational of mango agribusiness are studied and analyzed by CATWOE to transform the events by means of dialogue and direct observation in the field, then identified the structures and roles, the relationship between the role of stakeholders, values and also norms [4]. Cultivation of mangoes in the research area showed an unoptimized development which can be seen from the maintenance which is still not in accordance with the Standard Operating Procedure (SOP), for example, pruning the young plants with patterns of 1, 2, and 3, namely one main stem with two buds and each bud consists of three branches. The same thing happens in the harvest and post-harvest activities with an unoptimized application of technology. Based on that, it is necessary to take a model of development in mango agribusiness to maintain its sustainable production. According to CATWOE analysis results, an assessment is formed to produce a formulation in making changes by comparing the model with the actual occurrences in the reality/reality.

Table 1. Actual Condition in Mango Agribusiness Cultivation

Process of Activities in Mango Agribusiness Cultivation	**Actual Condition in Mango Agribusiness Cultivation**
Maintenance	It is still modest and not in accordance with SOP.
Harvest and post-harvest	It is still modest with confinement system of *Ijon* and *Tebasan*.
Sorting	It is done by traders (big and small) or wholesalers.
Capital	There is no adequate capital assistance and still rely on the loan from collectors, traders or wholesalers. There is also barely interaction between farmers and banks or other financial institutions. `
Partnership	There is no reconnection/re-collaboration with industrial companies or export.
Farmer groups	It has not taken a role as a medium of information and communication, media coaching, consulting and marketing.
Pricing	There is no involvement of mango farmers as producers of mango.
Payments from traders/*Bandar*/ Wholesalers	There is a payment delay.
Continuity of production	Uncertainty of production sustainability

Source: Primary data, 2014, Processed

Based on Table 1, the actual conditions associated with the results of studies in the field, the un-optimized of mango cultivation can be seen in the research area resulted in many things that should be managed properly. Modest maintenance is still applied without complying to mango cultivation SOP with harvest and post-harvest confinement system of *Ijon* and *Tebasan*. Mango farmers in Indramayu sell their products using *Tebasan* system with a price of around 73.3% lower than the actual price and sell the remaining of their own harvest to the collector. Factors affecting farmers to choose to harvest with Tebasan system is the need for fast cash and avoiding labour expenses and the high cost of harvesting [9]. It is in contrast to the study, which explained that farmers will obtain higher mango prices and market certainty if they sell their mangoes to AFMM (Association of Farmers and Mango Merchants), but overviewing from the field, there are only a few farmers join this institution. Partnerships that ever existed in 2005 has not yet been re-established in present time and makes mango market limited to traders or wholesalers only [8]. Viewing from the needs, interests, and benefits, this partnership is very important and

should be established in the business world. The partnership has great benefits which are improving access to capital and production factors, increasing market access, implementing the recommended technology, and managing risk better. In agribusiness system, the partnership is crucial since it can unite the farmers from various sub-systems of production and other sub-systems with the hope of improving the efficiency, productivity, and income of farmers.

The implementation of off season technology to maintain continuity of supply can not be done in the research area. It can be applied since February to June each year, so that the mango production is sustainable. Currently, this technology still relies on nature compared to users in Cirebon (another district in West Java) who has already implemented the technology for quite some time. The off season technology emphasizes more to stimulating flowers as well as plant growth regulator, balanced fertilizer, and pruning. However, the farmers still take into account the costs they incurred to the risk of failure and the skill they have [8].

Cultural Analysis

Cultural analysis viewed intervention as a problem and identification as follows: structure and roles intervention, relationship seen from that values, norms, and roles [4].

Table 2. Aspects Related and Description, Condition and Drivers in The Development of Mango Agribusiness

No.	Aspects Related to the Development of Mango Agribusiness	Description, Condition and Drivers in The Development of Mango Agribusiness
1	Client	Mango farmers, farmers' groups, traders, wholesalers, Department of Agriculture, user/consumer, business processing
2	Aspiration clients	To produce sustainable mango production optimally with good quality
3	Troubleshooting	To optimally manage mango cultivation through guidance to the farmers to implement the technology complying to SOP and enhances participatory collaboration among *stakeholders* in an effort to re-establish partnerships with industry, and also increasing market access and maintaining the continuity of mango supply through *off season* technology application
4	Resources Availability	The increasing trend of market demand both local and export, mango farmers and farmer groups
5	Constraint	Un-optimized management, less market access, partnerships which have not yet been established with market access, including the processing industry
6	The cause of Constraints	Lack of collaboration and coordination among actors which formed un-optimized management of mango agribusiness and there is no strong institutions to bridge the interests of farmers
7	Implications of selected issues	If collaboration among parties involved in mango agribusiness can be improved with optimal management and better technology implementation, it will create production sustainability with better quality
8	Reasons determine the problems	There is no partnership established yet which makes farmers have less market access. Unsustainable production and the absence of mango processing management resulted in un-optimized income for farmers
9	A positive value of the problem	Ensuring the continuity of mango production with better quality and more secure market access through partnerships to set stable prices, and also the formation of farmer institutions in bridging the farmer's interests in hopes for mango farmers' welfare guaranteed

Source: Primary data, 2014, Processed.

Structure and Role Intervention

Relationship Between Roles, Values, and Norms

Mango is a potential commodity to be developed as it is predicted to have an increase in market demand. It is also one of the superior commodities that will be developed nationally. Nevertheless, the predicted increase in market demand has not been used well by mango farmers. Cultivation of mangoes are still facing many problems: management that has not been optimally

developed, low quality product with uncertainty in the continuity of production, farming implementation that has not been complied with standardized operational procedures, institutional support for farmers which have not yet formed an optimal way, the partnership that has not been reestablished, farmers' lack of skill in applying technology for maintenance and mango production, harvesting and post-harvesting. Collaboration and coordination among actors have not been going well. Based on those issues, it is obvious that the sustainability of production has not been running well and farmers still do not have a proper bargaining position. There is no harmonization of the roles of actors involved in the mango agribusiness according to values and norms that may have previously been in agreement among actors towards advanced mango agribusiness and production continuity to increase farmers' welfare.

Root Definition

Mango agribusiness cultivation should continue to be developed to ensure the sustainability of the mango production in an effort to meet the demand of both domestic and international markets which predicted to rise by establishing a good and fair partnership entanglement. The attitudes of the actors involved, the skills and culture, especially of mango farmers and stakeholders are considered to be a trigger in production discontinuity which should be controlled by a variety of activities in mango cultivation.

Relevant Modelling System

Formulation of Efficacy, Efficiency, Effectiveness, Ethicality, Elegance (5E)

Formulation of 5E is an activity of evaluation by planning agribusiness activities in the attainment of mango cultivation in accordance with the desired transformation.

Human Activity System (HAS)

In Human Activity System, there is an involvement of activities among the actors of mango agribusiness which is needed to reach transformation process, namely to increase production sustainability through proper and fair partnership (Fig.3.).

Table 3. Formulation of Efficacy, Efficiency, Effectiveness, Ethicality, Elegance (5E)

No	Aspect of	Formulation
1	*Efficacy*	Coordination and transparency of all actors involved in mango agribusiness
2	*Efficiency*	Mango cultivation activities are in accordance with standard operating procedures (SOP) of the proper mango cultivation
3	*Effectiveness*	Mango cultivation is optimally planned to ensure the implementation of a complete mango agribusiness system
4	*Ethicality*	Mango agribusiness management through farmer groups does not reduce the rights of farmers to determine their mango cultivation
5	*Elegance*	Activities in mango cultivation optimally carried out with consideration of the principle of production sustainability to achieve the desire transformation

Source: Primary data, 2014, Processed

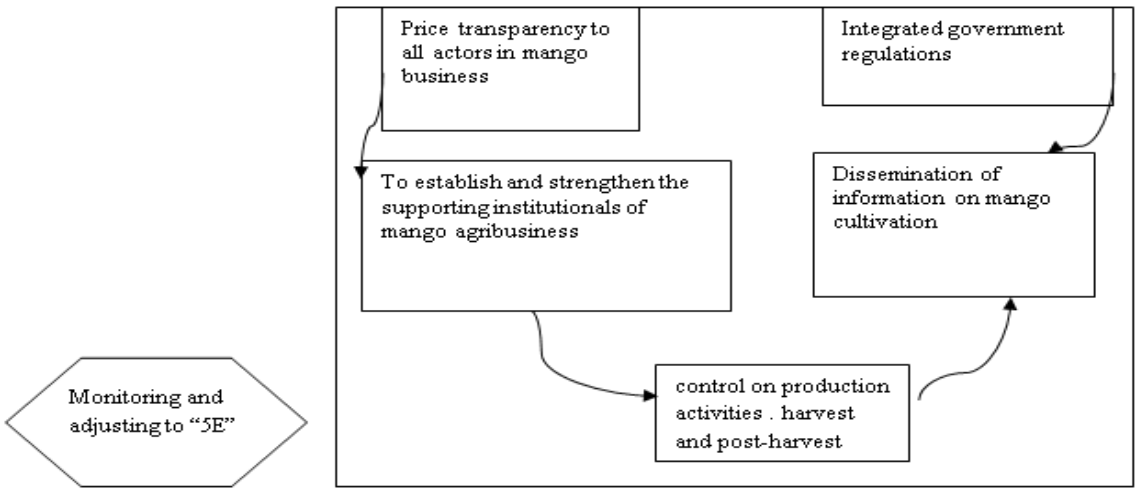


Fig. 3. Human Activity System (HAS) in Mango Agribusiness
Source: Primary data, 2014, Processed.

Table 4. Comparison of Model with the Reality

Activities on the Model	Yes/ No	How	Who?	Good/ Bad?	Alternative
Transparency of prices to all actors of mango business, mainly farmers	No	Farmers through farmer groups involved in determining the price, but at present farmers are never involved in price determination done by traders or wholesalers	Farmer, farmer groups, traders or wholesalers	Good	Involvement of mango farmers in pricing after purchase and sale agreement, especially after farmers were given loan by the wholesalers
To control the maintenance activities, production, harvest, and post-harvest	Not	Farmers through farmer groups have to make sure that production process is done according to the standard operating procedures (SOP)	Farmers, farmer groups, traders (collector), wholesalers	Good	There should be re-establishment of partnerships with industry
To establish and strengthen the supporting institutional in mango agribusiness	Currently no	There is agreement to form a cooperative to support mango business activities	Farmers, farmer groups, local-government	Good	
Integrated government policy to all actors involved in mango agribusiness	No	Government's policies and regulations should support the development of mango agribusiness as a complete system	Farmers, farmer groups, traders, local-government	Good	
Dissemination of information and technology related to mango agribusiness	Yes, it exists	There should be a motivation to hold a meeting between farmers and farmer groups to apply the technology according to SOP	Farmers, farmer groups, the government, (the relevant offices/ agencies)	Good	Guidance for farmers from related agencies to implement the production technology, maintenance, harvesting, and post-harvest

Source: Primary data, 2014, Processed

Table 5. Formulation Changes Process of SSM on Mango Agribusiness Cultivation

Activities	Is it necessary?	Is it can be done?	Possibility of Real Action
Transparency of prices to all actors involved in mango businesses	Yes	It can	Coordination among parties involved should be optimized in maintaining justice/fairness for all
Procurement of agricultural inputs, especially for fertilization and pest control plant diseases managed by farmer groups through cooperation with companies supplying inputs	Yes	It can	To optimize the coordination and collaboration between farmer groups and companies supplying inputs
To establish and strengthen the supporting institutions of mango agribusiness	Yes	It can	Motivated to form a cooperative as bridging facilities of farmers in managing saprotan (agricultural inputs), capital, development, and implementation of technology through the adoption of innovation to improve mango agribusiness better
Control of activities on maintenance, production, harvest, and post-harvest	Yes	It can	Involving farmers, farmer groups, cooperatives (soon to be formed), universities, companies inputs, related agencies which would be more active in their role to perform optimal and intensive coaching and mentoring Through collaboration and coordination among relevant parties which can motivate farmers to implement the technology with proper SOP and apply that technology for sustainability of production
Integrated relevant government policies and regulations in the system of mango agribusiness	Yes	It can	Consultations and hearings of farmers, farmer groups and parties involved in related activities of upstream and downstream of mango businesses, viewed from the needs and policies, and also a proactive of government role to this activity. Coaching and motivating to re-establish a partnership with industrial firms. Policies on financial management through access to capital for mango farmers Policies to access mango market
Dissemination of information and technology related to mango agribusiness	Yes	It can	Optimizing a meeting among the parties through coaching, mentoring, counseling, guidance, seminars on optimizing business management Optimization of the coaching and mentoring in technological innovation according to SOP Guidance and advisory services related to management of the stock in the warehouse to maintain continuity of supply

Source: Primary data, 2014, Processed

Model Comparison with the Reality

Stakeholders or actors involved in mango agribusiness perform a comparison of the conceptual model between human activity system with the reality.

It can be seen in a variety of questions in Table 4.

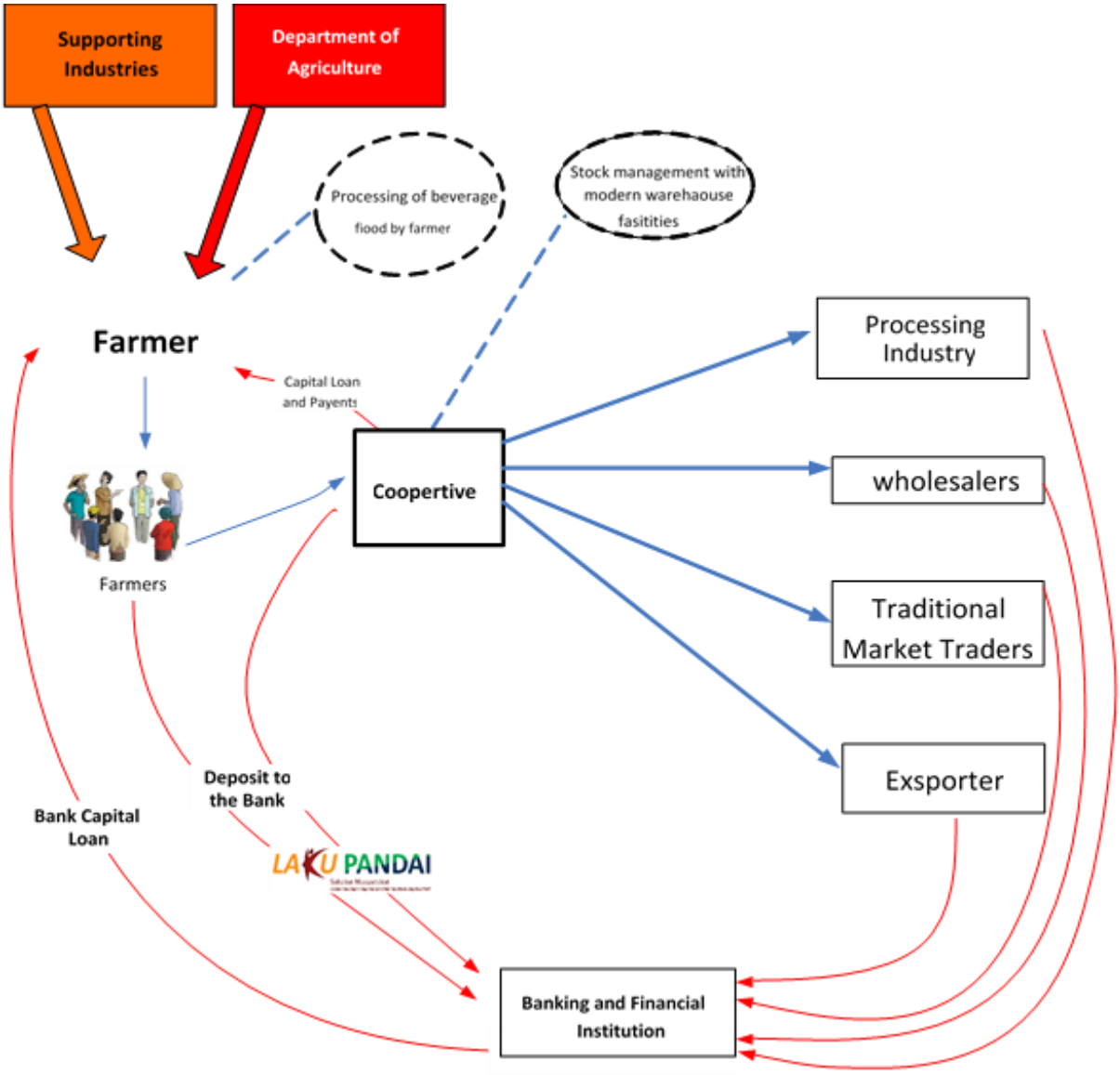
Formulation Changes

By examining the phenomenon in the reality/reality and overviewing rich picture, some formulations of the desired changes which considered culturally relevant and

proper, meaningful and considerably meet the needs of stakeholders were obtained [3]. These changes can be carried out by the stakeholders involved in mango agribusiness. They can be seen in Table 5.

Taking Actions and Implications Research

Based on the analysis and assessment of the stakeholders either as actors and parties involved in mango agribusiness and have also been through a description of: (i) rich picture, (ii) cultural analysis of stakeholders and decision makers, (iii) the definition system of relevant/CATWOE, (iv) modelling system relevant to the concept of human activity system (HAS), (v) comparison of conceptual model with the reality, (vi) the formulation of improvement. The final stage of activities or business actions submitted to stakeholders of mango agribusiness cultivation.



Note: Laku Pandai**:** Financial Service Authority (FSA) service model (without office).

Fig. 4. Development model of mango agribusiness

Source: Primary data, 2014, Processed

Actions to improve this business activity is proposed as attempts of mango production sustainability to be continuously fulfilled the market demand, which is predicted to increase by serving better quality through the reestablishment of a partnership. Figure 4 shows the optimized development model of mango agribusiness cultivation in an attempt of supply continuity.

There is a good expectation in Figure 4, for optimal development of mango agribusiness cultivation with better management through the establishment of a cooperative. Cooperatives can facilitate mango farmers' need in the procurement of agricultural inputs for his mango farm maintenance activities, including the procurement of capital. Cooperatives can also be expected as a bridge to access the structured market thereby facilitating the re- establishment of a partnership with the industry. The existence of cooperatives and partnership can be functioned as a medium to avoid the delayed payment which often occurs recently. Collaborative strategy is one of the strategies in the development of a business including mango agribusiness. Collaboration will harmonize the supply chain process in creating success value of customer and stakeholders rather than individually conducting business activities [8]. Related parties such as Department of Agriculture, Department of Industry and Trade Services, universities, farmer groups and cooperatives, banks and others should be able to collaborate to achieve more optimal mango agribusiness with their respective roles.

In realizing the continuity of production, mango farmers can apply the *off season* technology with the guidance and assistance of the supporting parties, and should also be accompanied by stock management to balance the product supply in fulfilling market demand. Mango processing should also be further enhanced by mentoring or coaching from related agencies or universities in order to actualize the adding value for mango farmers. Mango sorting post-harvest activities are carried out in the cooperative for sorting *grade* according to the market segment of interest so that the off grade mango can be used for the processing.

To facilitate the financial service activities in the community, the Financial Service Authority (FSA) issued a regulation No.19/POJK.03/2014 e.g. *Laku Pandai*, a financial service without an office in the context of inclusive finance, which provides financial products that reachable, simple, and suit the needs of the community such as deposit cash and cash withdrawal. *Laku Pandai* is FSA program for the provision of banking or other financial services through cooperation with other parties (bank agent) and supported by the use of information technology facilities. The program aims to provide financial products that are simple, easy to understand, and in accordance with the needs of people who have not been able to reach financial services. It is also launched the economic activities to encourage economic growth and equitable development among regions in Indonesia, especially in rural and urban areas. If farmers want to save their money or do the withdrawal for mango cultivation needs, they simply come to *Laku Pandai* agent, someone who is willing to be an agent and comply with the rules of banking agent who appointed him/her, so that it will ease the service of farmers in financial access.

CONCLUSIONS

Farming/cultivation of mango agribusiness in Majalengka is still not optimally managed, whereby the coordination and collaboration among actors of mango businesses have not well performed.

Based on the formula changes that must be implemented in the mango agribusiness cultivation, among which are: the optimization of inter-party coordination and collaboration through active control activities of intensive coaching and mentoring, dissemination of information and technology related to the implementation of technological innovation in supporting the mango supply continuity in the market.

The development model of mango agribusiness should be integratedly performed by various

parties involved and supported by government regulation.

This study allowed to make the following recommendations:

(i)In mango agribusiness cultivation, it is expected to re-establish the partnerships with industry or structured market through the principle of justice so as to motivate the mango farmers to maintain the quality and continuity of mango supply.

(ii)The establishment and strengthening cooperatives as facilities for farmers in realizing agribusiness systems must be done properly and fairly.

(iii)Through institutional cooperatives or farmer groups, mango farmers are advised to apply corrective measures in accordance with the formulation of the SSM process improvement.

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