MIMBAR, Vol. 32, No. 2nd (December, 2016), pp. 302-310

The Development of Red Chili Agribusiness Cluster with "Soft System Methodology" Approach in Garut

[1] SRI AYU ANDAYANI, [2] LIES SULISTYOWATI, [3] TOMY PERDANA

[1] The faculty of Agriculture, University of Majalengka, JL.K.H Abdul Halim 103 Majalengka
[2,3] The faculty of Agriculture, University of Padjadjaran
email: [1] sri.ayuandayani@yahoo.com, [2] liesindra@yahoo.com, [3] tomyp1973@yahoo.com

Abstract. Red chili is one of the commodities with high price fluctuation and gives influence to inflation. It happens due to the unsustainable supply of red chili from the central production centers to the market. Bank Indonesia (central bank) initiates a cluster system to support price controlling and regional economic growth. In this regard, the study is conducted in Garut regency, which is one of the centers of red chili plantation in West Java and uses as cluster development, and yet there are still many obstacles along the way. This paper has the objective to describe the problem which causes unsustainable production and affects industrial supplies systemically and also to analyze the existing partnerships in order to maintain the continuity of supply as an alternative solution.This study was designed qualitatively with case study method through a system approach namely soft system methodology (SSM). The results shows that the problems in the cluster of red chili are ranging from production planning to the delay of sales payment process which systemically interlinked and the collaboration of executors that have not been optimally implemented. This study offers solution for those problems accordance with change formulation of SSM and industrial emphasis on fairness, transparency and integrated optimization with the principle of production sustainability from all stakeholders through participative collaboration to maintain continuity of production.

Keywords: agribusiness, cluster, sustainability, red chili, soft system methodology

Introduction

Red Chili commodity gained attention for its high price fluctuation which influenced the inflation (Bank Indonesia, 2011). Bank Indonesia (Central Bank), a branch of Bandung, exercised an initiation to develop red chili cluster in West Java to support price-controlling and regional economic growth through improvement of the farmers' performance. Cluster concept constitutes determinant factor, which is collaboration among the involved subjects or executors in agglomerated area by competing and cooperating (Porter, 2000).

Garut Regency is one of the red chili central production in West Java and stipulated as one of West Java's red chili cluster development. The effort to develop red chili cluster in Garut involves many stakeholders apart from Bank Indonesia and LPPM UNPAD, initiated from upstream to down stream sectors. At upstream, there are PT East West Seed, PT Meroke Tetap Jaya, and Syngenta, while at downstream involved PT Heinz ABC as an industrial company for processing raw red chili. At executor level, there is Cagarit cooperative as an institution that protects and facilitates farmers in relation to industry.

The result of the former study stated that collaboration among executors and proponents should support the development of Red Chili cluster in Garut. Unfortunately, the multi stakeholder cooperation which executed since 2011 has not given yet a fair satisfaction to all collaboration executors and indicating obstacles along the way. Even the industrial party elaborated that red chili supply was still far from their expectation due to low production and under the standard

Received: June 2, 2016**, Revision:** November 15, 2016**, Accepted:** December 19, 2016
Print ISSN: 0215-8175; **Online ISSN**: 2303-2499.
Accredited by DIKTI. SK Kemendikbud, No.040/P/2014, valid 18-02-2014 until 18-02-2019

quality products and farmers who violating their contract commitment. It can be said that the production of red chili is unsustainable (Andayani S,A, 2014). Purnaningsih, 2008 stated similar obstacles in cooperating, and One of which is a discrepancy of expected quality product due to highly-standard implementation which failed to be fulfilled by suppliers, and the same thing happened to red chili cluster. Other than that, the needs of productivity enhancement to maintain the continuity of red chili supply should not solely seen from cultivating technic which referred to Standard Operational Procedures (SOP) of red chili cultivating but it needs to pay attention to the existing of human existed resources. Setiawan *et al*, 2012 explained that in order to enhance or improve the productivity, innovations from young businessmen (executor) of agriculture also need to be enhanced. Setiawan (2015) elaborated in his research that the independence of young businessmen of agriculture is quite poor, particularly in aspect of quality and competitiveness He suggested several collaborative strategies, which are:(1) to improve practical skill of young executors to be more adaptive and ready to initiate their agribusiness; (2) to develop innovative and ecological agribusiness, to create alternative market that raises the competitiveness which gives a positive impact to independence of young executors of agribusiness; (3) to create climate and creative environment in rural area that conducive for strengthening process of young executors agribusiness productivity.

Partnership in red chili cluster in Garut is still in progress since a partnership should be grounded on the goodwill and good performance among partners. Unsatisfaction for the process and result felt by one or more partners indicated a failure in their cooperation (Boddy et al, 2000). Research by Nurhayati and Perdana T (2013) elaborated that collaboration on red chil in Garut has not well-executed yet and it can be seen through its indicators, which are collaboration on shared information dimension, synchronized-decision and incentives harmony which none of them has been achieved. Through the drama theory and combining primary mindset of its members, the solution is shared by implementing cropping pattern, farming fund, and giving a sanction to farmers-partner. Simatupang *et al*, 2005 explained that collaboration system should give notice to the executans to share information, to cooperate in the decision-making process and finally to reach a harmonic relation within the collaboration. Those are the things that have not imposed yet in red chili cluster.

Research conducted by Wijaya *et al*, 2013 Highlighted the red chili after-harvests aspect. In order to anticipate the declining of treatment performance of the chili after- harvest, he suggested a quality plan by determining the time to harvest, providing appropriate tools constituted of protector/ shield, packaging, transportation, and storage. The condition of red chili cluster in Garut suffered many impediments in treating the product after harvest.

Based on the phenomenon and impediments encountered by farmers of red chili cluster which caused unsustainable production, an interesting question for the research has emerged, that is what kind of partnership collaboration would support sustainable production and develop red chili cluster in order to improve farmers' revenue or yields? According to the explanation above, the formulation of this problem research can be stated as follow: (1) To define problems which caused the unsustainability of red chili production that influences the supply for industry and also to overview the linkage of those problems systemically; (2) To determine the right shape of partnership as a solution to maintain the continuity of the supply.

This research aims are to (1) describe problems which caused the unsustainability of red chili production that influences the supply for the industry in a systemic way; (2) analyze existing-partnership to maintain the continuity of the supply as an alternative solution.

This research emphasizes on partnership collaboration in developing red chili cluster with system thinking through *soft system methodology* approachment.

Soft System Methodology

This research has been designed qualitatively with the method of case study devised to describe problems by digging the cause of unsustainable production and offering an alternative solution for the problems. The system of thinking has been used to analyze partnership in developing red chili cluster with *soft system methodology* (SSM) approach.

> SSM studied and determined problems and conceptual method within as proponent in understanding the problems to generate an agreement, real action, and perception (Pidd, 2004).

SSM approach is an intellectual tool used to design and implementa transformation in social issue of the real world to make something better using various way needed. Transformation suggested by SSM can be a strategic issue or operational level in social problems (Rodriguez et al, 2009).

There are seven phases in SSM approach which served as illustrations of the recurrent process. The phases are:(1) to study unstructured problems (*Rich Picture*); (2) to express problem situation (cultural analysis); (3) to state problem definition related to problem situation CATWOE);(4) to build conceptual model (*Human Activity System*); (5) to compare conceptual model with problem situation; (6) to determine an appropriate and desirable transformation; (7) to conduct the act of improvement over the problems (Checkland and Scholes, 1990 in Alamsyah, 2011) Detail on phases can be seen in picture 1.

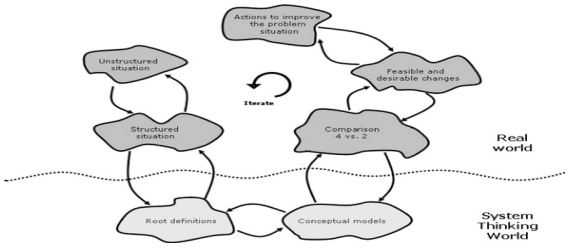

Figure 1. SSM Phases
Source: Checkland& Scholes (1990)

Agribusiness Cluster of Red Chili

Red chili is a potentially-cultivated commodity since it can be cultivated throughout the year at any seasons. The demand for red chili is increasing each day paralleled to the growing of population (Bank Indonesia, 2013). Nevertheless, red chili considered as a commodity with high price fluctuation as a result of its unsustainable production and it influences the level of inflation. Anwarudin *et al*, 2015 explained in his research that the strategy to attenuate the fluctuation price of red chili, among others, are to expand the cultivating area and produce more of red chili in the rainy season, to manage to cultivate area and production of red chili in the dry season, to stabilize the price and develop reliable and sustainable institutional partnership.

The realization of red chili cultivating area in Garut Regency, West Java, has reached 4.046 ha and spread at 15 sub-districts in 2008. In the following year, Garut Regency became the largest red chili producer in West Java with production amount of 76.800 ton or shared 37% of total red chili production in West Java. However, there were the declining numbers of the production in 2010 due to various indications of risk occurrence.

In 2011, BI (Bank Indonesia) initiated to develop the cluster program and supported by related parties, such as LPPM UNPAD, Gapoktan (Alliance of farmers group), Dinas Pertanian (Agricultural Department), companies providing input and Red Chili Agribusiness Associaton in Indonesia. The cluster is a geographical concentration which connected multiple business holders, suppliers, services business, supporting industry and institutions related to certain aspects to compete with and cooperate (Porter, 2000).

The cluster that has been implemented in some of the developing countries initiated to centralize micro and middle businesses (UKM) (Roy, 2001). Djamhari (2006), stated that cluster system gives benefit to improve productivity for it has concentrateed resources in one place which can reduce the cost of the transaction. Strategic key in cluster development is a collaborative strategy (Porter, 2000). Simatupang et al, 2002 explained that collaboration in supply chains is an activity to align the process exercised in supply chains in order to create success value for customers and stakeholders rather than a performance of individual activity. The same concept should be implemented in red chili cluster to maintain the business relationship among stakeholders for long-term collaboration.

In Garut, Cagarit Cooperative has been established as an initial step in developing the cluster. Through this cluster, red chili farmers are expected to focus on structured-market which would motivate them to maintain their product supply with a specific quality.

Actual Condition

Complex problems are the characteristic of a business, withs no exception for the supply chain of red chili agribusiness. The complexity occurs from the interaction among multiple executans of red chili agribusiness from upstream to down stream and also from price fluctuation due to unsustainable production which affected the demand of growing market.

The decreased of production also occurs to supply chains of red chili

ISSN 0215-8175 | EISSN 2303-2499

development in Garut Regency. The declining took place in production planning due to wrongly-prediction of cultivating schedule, the lack of management skill of the cooperative to manage saprodi, seed, fertilizer, mulch, and there was also an understaffed problem.

Crop failure occurred as a result of unsupportive weather, HPT and low production of the red chili. Sources at the research location informed that red chili farmers have not received any capital assistances yet, either from bank or industry as their partner. In partnership, farmers are still unable to put their commitment in agreement related to quality or quantity of the product and so does the cooperation which performs under from the appropriate standard. Based on that actual condition, there is situation related which caused unsustainable production on red chili cluster.

Rich Picture

The rich picture is a result of supply chains mapping that has been done and put through external validation by focused group discussion. Rich picture displays a thorough outlook of activities occurred at red chili cluster in Garut comprises executors identification, which are farmers in working-group and accommodated within the cooperative. The cooperative carry out activities for storing promoting, performing as red chili grower for Heinz ABC industry and also undertaking a business unit which provides farming saprodi loan for red chili farmers and involvement of multiple related-executors.

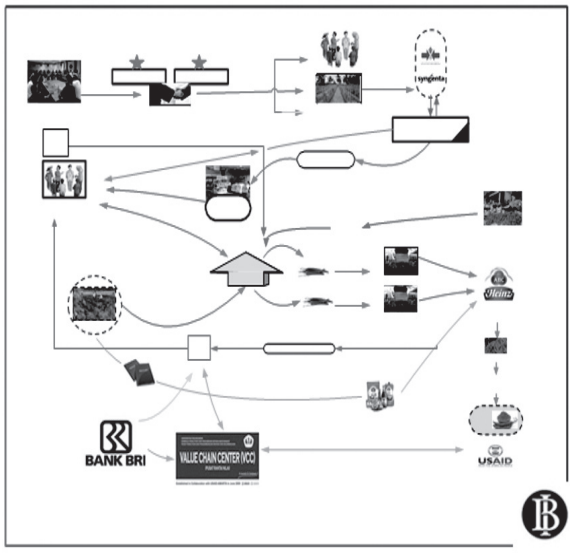

Figure 2.Rich Picture Red Chili Cluster

Cultural Analysis

Ongoing business activity is started from meeting attended by executors/ farmers/ the cooperative and industrial party concerning cultivating schedule, input supply, cultivating activities, harvest, after harvest, sorting and selling selected red chili to traditional market and structured market. Those activities also contain problems in the process which give impact to unsustainable production of red chili.

> Cultural analysis views intervention as a problem and identifies: (a) intervention of structure and role; (b) relation of value, norm, and various roles (Checkland and Scholes, 1990).

Connection Among Role, Value, and Norm

Red Chili commodity gained attention for its high price fluctuation which influenced the inflation. It occurred due to unsustainable red chili supply from central production to the market. To solve the problem, a cluster has been formed to maintain the sustainability of production. Various of activities has also been executed to control the cause of the problem and to support the cluster program implemented by farmers and stakeholders involved.

Nevertheless, development of red chili agribusiness cluster in Garut Regency experienced several problems, which are the absence of farmer and cooperation to fulfill the demand from structured-market, unoptimized partnership institution, the absence of cultivating technology which would resolve HPT and the shrinking of the production after harvest. Those problems resulted in the unsustainable production of red chili supply chains. There are also inharmonious roles among all executors with values and norm prior to the agreement of red chili cluster development program which aimed to maintain the continuity of red chili supply.

CATWOE Based on Transformation

Based on problem root of red chili cluster development, CATWOE analysis has been conducted as follow: *Customer*: C (beneficiaries/benefit receiver): Red chili farmer, *Actors*: A (Those who executes the transformation): Joint farmer groups, red chili farmer as members of the cluster, cooperation, *Transformation*: T (change): to improve farmers revenue by stabilizing red chili supply, *Weltanschauung*: W(meaningful

Table 1
Aspect and Description Intervention of Structure and Role

No	Aspect	Description
1	Client	Red chili farmer in working group, Cagarit cooperative, PT Heinz ABC, Bank Indonesia, Centre for Research and Development, Innovation and Institution of LPPM UNPAD, Agriculture and food plant Department of garut Regency FoodPlantDepartmentofGarutRegency,Customerasauser.
2	Client Aspiration	To produce optimize and sustainable red chili with industrial quality to fulfill structured-market demand.
3	Problem Solving	Arranging efforts to manage cluster development through multistakeholder participation and collaboration to improve sustainable production.
4	Available Resources	The trend of structured-market demand, partners in supply chains, red chili cluster.
5	Obstacles/Problems	An indication of various risks that inhibiting the production.
6	Cause of Problems	The weakness of collaboration, coordinated information, and communication among executans with in the cluster which give impact on the deficiency of red chili business processes.
7	Implication of Chosen Problems	If collaboration and coordination among parties related to red chili cluster have been improved, production sustainability can be maintained.
8	Reasons to Determine Problems	The red chili supply unsustainability failed to fulfill structured-market demand.
9	Positive Value of The Problem	To ensure sustainable production of red chili, enhancing collaboration among stakeholders involved, and controlling the price fluctuation.

Table 2
Formulation of 5E

No	Aspects	Formulas
1	Efficacy	Transparency and collaboration from all business executors of red chili cluster
2	Efficiency	Provision of production facilities by cooperative through collaboration with input company
3	Effectiveness	To strengthen cooperation institution
4	Ethicality	Red chili cultivation based on Good Agricultural Practice(GAP)
5	Elegance	Integrated cluster optimization and the use of sustainability principle to achieve continuity of the supply.

perspective): multistakeholder collaboration for supporting the sustainability of red chili supply and resulted in improvement of farmers revenue, *Owners*: O (those who have the ability to cease transformation process/user): Joint farmer groups, red chili farmer as members of the cluster, cooperation, *Environmental :* E (environmental obstacles): skills of red chili farmers, culture, climate anomaly, access to information and technology.

Root Definition

Red chili agribusiness cluster continues to develop in order to maintain the sustainable production to fulfill demand from structured-market. Various attitudes, skill, culture of farmers, and stakeholders which can be a trigger for the occurrence of unsustainable production of red chili controlled by cluster programa ctivities.

Modeling Relevant System "5E" Formulation

"5E" is an evaluation through planning activities to obtain the desirable transformation.

ISSN 0215-8175 | EISSN 2303-2499

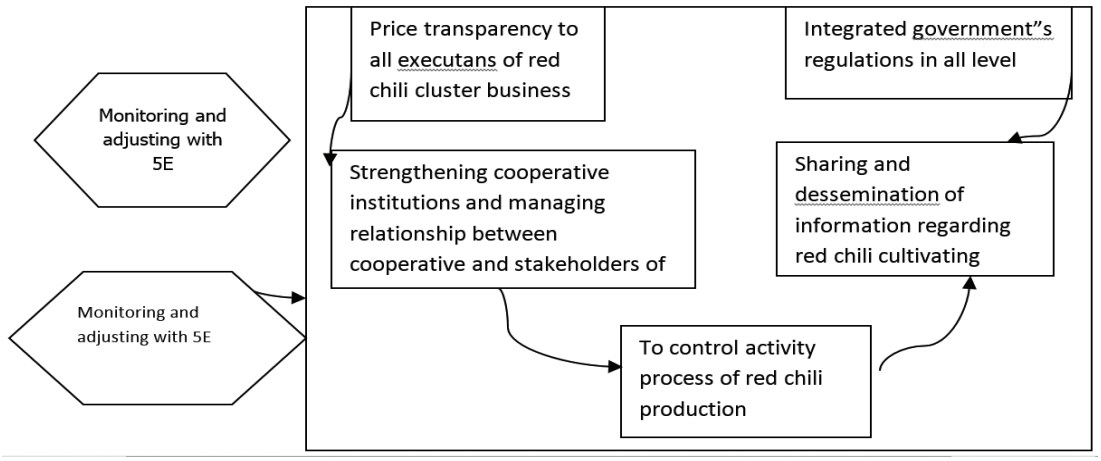

Figure 3. Human Activity System (HAS) of Red Chili Cluster

Table 3
Comparison between Model and Reality (Real World)

Model Activities	Existed/ No Existed?	How?	Who?	Good/ Bad?	Alternative
Price transparency to all executans of red chili cluster business	No Existed	Through cooperative, farmers are involved in pricing, but they never get the same right from company-partner	Company partner, farmers, cooperative, farmer groups	Good	Farmer 's involvement in pricing implemented since there was a deal between company partner and farmers through cooperative
Controlling activity process of red chili production	Existed	Company partner ensured that process of production meets the standard of Good Agriculture Practice	Farmer's groups, cooperative	Good	-
Integrated government's regulations in all level	No existed	Government's regulations should support all level in developing red chili cluster	Farmer groups, cooperative, local government	Good	-
Strengthening cooperative institutions and managing relationship between Cooperative and stakeholders of cluster	No existed	Management training and routine socialization that should continue to do.	Farmer groups, cooperative	Good	-
Sharing and dissemination of information regarding red chili cultivating cluster	Existed	Regular meeting of farmer groups and cooperative	Farmers, farmer groups, cooperative, company partner	Good	-

Table 4
Change Formulation of SSM Process

Activity	Are those needed?	Are those can be done?	Possibilities of Real Action
Price transparency to all executors of cluster business	Yes	Can be done	To optimize collaboration among industry, farmers, farmer groups, and cooperation
Controlling activity process of red chili production	Yes	Can be done	To involve farmers, farmer groups, cooperation, industry, universities, input company which demanded to be more active and optimize in their roles through intensive assistance.
Integrated-government regulations at all level	Yes	Can be done	Hearings and consultation from farmers, farmer groups, and cooperative to local government on the matter of development of red chili cluster with the expectation that local government would proactively support them.
Strengthening cooperative-institutions and management of the business relationship between cooperative and stakeholders on red chili cluster.	Yes	Can be done	Collaboration among parties in volved through management training and socialization , particularly for members and undertakers of cooperative and cluster
Sharing and dissemination of information regarding red chili cultivating cluster	Yes	Can be done	To optimize periodical meeting attended by all parties in volved through activities of socialization, counseling, assistance, and seminar

Human Activity System (HAS)

Human Activity System (HAS) is a connective activity red chili cluster executors that needed to implement transformation by improving sustainable production to maintain the continuity of supply in the market.

Comparison between Model and Reality (Real World)

Stakeholders conducted a comparison between the conceptual model (Human Activity System) and reality with questions below:

Formulation of Change/ Transformation

According to Checkland, 1990, the result of HAS showed a comparison to the real world condition, which stakeholders of red chili cluster formulated desirable transformation systematically and culturally appropriate, relevant, meaningful, and fulfill the needs and wishes of stakeholders. Formulation of change (transformation) can be seen in Table 4.

Taking Action

Action is implemented at final stage after analysis has been done properly through phases as follow: (1) Rich Picture, (2) cultural analysis of the decision maker; (3) Relevant System Definition/CATWOE; (4) Relevant of Modelled System with Human Activity System (HAS) concept; (5) Comparison of conceptual model with reality; 6) Improvement formulation. At the final level, activity or action commended to stakeholders of red chili cluster supply chains. Improvement activity or action suggested being implemented in order to maintain continuity of supply in the market.

Taking Action

Action is implemented at final stage after analysis has been done properly through phases as follow: 1) Rich Picture, 2) cultural analysis of the decision maker, 3) Relevant System Definition/CATWOE, 4) Relevant of Modelled System with Human Activity System (HAS) concept, 5) Comparison of conceptual model with reality, 6) Improvement formulation. At the final level, activity or

ISSN 0215-8175 | EISSN 2303-2499

action commended to stakeholders of red chili cluster supply chains. Improvement activity or action suggested being implemented in order to maintain continuity of supply in the market.

Conclusions

Development of red chili agribusiness cluster in Garut Regency has been implemented since 2011 with the involvement of several stakeholders. Cluster development is expected to focus on structured market and stimulates the farmers to maintain continuity of their supply with a specific quality. Nevertheless, it is found that supply chains development of red chili cluster has not been optimized yet. Collaboration among executors of red chili business has also experienced the same way.

According to formulation of change, things that needs to be implemented by red chili cluster comprised collaboration among parties that should be optimized through more active controlled activities, more intensive assistance, sharing and dissemination of information relevant to cluster development by optimizing meetings, assisting, strengthening cooperative institutions, management of business relation with stakeholders and management training.

From those findings, farmers as cluster members are suggested to apply those steps of improvement comply with formulation result of SSM through cooperative. Company partners should also consider the continuity of red chili supply through cluster in Garut by paying more attention to the principle of justice and transparency.

Acknowledgment

This article is part of research entitled "Partnership Model of Red Chili Agribusiness to Manage Risks" The writer would like to thank Directorate General of Higher Education (Dirjen Dikti) who has financed the research. The writer would also like to thank Majalengka University who has given the opportunity to do the research and Agriculture Faculty of Padjadjaran University.

References

Alamsyah, Purnama dan Iin Surminah. (2011). *Ilustrasi Penggunaan Soft System Methodology dalam Memahami Kemitraan antara Lembaga Litbang pemerintah dengan Industri.* Warta kebijakan Iptek dan Manajemen Litbang, LIPI, Jakarta

Andayani, S.A, (2014). *Model kemitraan Klaster Agribisnis Cabai Merah Untuk Mengelola Risiko*, Pasca Sarjana Universitas Padjadjaran

Bank Indonesia,(2011). *Pengembangan* Klaster Cabai Merah Garut

Bank Indonesia,(2013). *Pola Pembiayaan* Agribisnis Cabai Merah

Boddy, D., Macbeth, D dan Wagner, B (2000). *Implementing Collaboration between Organization*: *An Empirical Study Of Supply Chain Partnerir/* Jurnal Studi Manajemen, Vol 37. No 7, pp 1003-1017

Checkland, Pand Scholas, J,(1990). *Soft System Methodology in Action*, John Wiley and Sons, Chichester.

Djamhari C, (2006). *Faktor-faktor yang Mempengaruhi Perkembangan Sentra UKM menjadi Klaster Dinamis*. Infokop Nomor 29 TahunXXII.

Anwarudin, M Jawal, AprilL Sayekti, Aditia Marendra K, dan Yusdar Hilman. (2015). *Dinamika Produksi dan Volatilitas Harga Cabai: Antisipasi Strategi dan Kebijakan* Pengembangan. Jurnal Pengembangan Inovasi Pertanian. ISSN1979-5378, 492/ Akred/P2MI-LIPI/08/2012 Vol 8 No. 1(2015).

Nurhayati, Perdana T, (2013). Analisis Kolaborasi Antar Pelaku Dalam Rantai Pasok Pada Klaster Cabai Merah (Capsicum Annum L). Prosiding dalam Penerapan Ilmu Sistem dan Kompleksitas Dalam Pengembangan Agribisnis Nasional.

Porter, ME,(1998). Cluster and The New Economics of Competition, Harvard Business Review

Purnaningsih, Ninuk, (2008). Strategi Kemitraan Agribisnis Berkelanjutan. Jurnal ISSN 1978-4333, Vol 01, No 03

Pidd, Michael.(2004).System Modelling: Theory and Practice. West Sussex: John Wiley & Sons Ltd

Roy,P,(2001). Business Clusters Vital Strategy for Canadian Businessin The Emerging Global Economy. Prepared for The Competitiveness Institute Fourth International Conference on Business Clusters, Chairman Dr. Robert Breault Tucson, Arizona, USA

Rodriguez, Caceres P, (2009). Soft System Dynamic Methodolgy(SSDM) : Combining Soft System Methodology and System Dynamic, IAS Peru.

Setiawan, I. (2012). Agribisnis kreatif: Pilar Wirausaha Masa Depan Menuju Kemakmuran Hijau, Penerbit Penebar Swadaya, Jakarta

Setiawan,I, Sumardjo, SatriaA, TjitropranotoP. (2015). Strategi Pengembangan Kemandirian Pelaku Muda Agribisnis "Brain Gain Actors" di Jawa Barat. Jurnal Sosial dan Pembangunan Mimbar Unisba,ISSN 0215-8175 Volume 31, No.2, (Desember 2015)263-532.

Sukirno,S, (2006). Makro Ekonomi: Teori Pengantar Edisi Ketiga. Jakarta PT Raja Grafindo, Jakarta

Simatupang T,M dan Sridharan, R. (2005). An Integrative Framework For Supply Chain Collaboration: Jurnal Internasional Manajemen Logistik Vol 16, No2.pp257-274.

Wijaya, W Dwi, Sutapa Nyoman,(2013). Upaya Pengurangan Tingkat Kecacatan Cabai pasca Panen Pada Jalur Rantai Pasok. Jurnal Tirta, Vol. 1 No 2 pp 253-255.

ISSN 0215-8175 | EISSN 2303-2499