

**SUPPLY CHAIN MANAGEMENT AT CATTLE FEEDLOT COMPANY
PT AGRISATWA JAYA KENCANA BY USING SOFT SYSTEMS
METHODOLOGY**

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Abstract. In recent years, the prices of beef in Indonesia keep rising and never went down to the formerly prices. These situations happen caused by high demand from the society while the domestic cattle supply is insufficient. As the implication, the price of beef in the market is soaring. Many factors that make this situation happens, there are inadequate supply facilities, lack of knowledge about breeding, inadequate breeding technology and also quota import regulation. Quota import regulation is one of government program to realizing Beef Self-Sufficiency Program in 2014 (PSDS/2014). The purpose is to increasing the amount of domestic cattle and reduces the number of cattle import. Methodology that used to do this research is soft systems methodology. Data collection gathered from primary and secondary data. Primary data are taken by interviewing employees, observation and document collection related to PT Agrisatwa Jaya Kencana. Secondary data are gathered from website of ministry of agriculture, ministry of trade, secretariat cabinet of Indonesia, Gabungan Pelaku Usaha Peternakan Sapi Potong Indonesia (GAPUSPINDO), Central Bureau of Statistics (BPS), and databoks. According to analysis that has been done, quota import regulation that implement on 2014 inflict to reduction number of cattle import PT Agrisatwa Jaya Kencana on 2015. It makes the company have to prepare strategies to face this situation. Some of company strategies are by non-activated temporary workers and searching for local cattle to safe the stock. This research offered four desirable and feasible improvements to increase effectiveness of company performance. They are makes warehouse condition check sheet, design Key Performance Indicator, invite cattle feedmill expert, and makes beef quality check sheet.

Keywords: Feedlot company, qualitative research, quota import regulation, and soft systems methodology supply chain management

Introduction

1.1 Background

Cattles are one of prospective business industry in Indonesia. Opportunity for running cattle business in Indonesia is very promising. As the growth population in Indonesia increasing, the standard of living in Indonesia also rising from time to time. It affects Indonesian citizen's knowledge about how important nutritional needs is, especially protein from animal. People's awareness about nutritious foods is one of many factors that make consumption pattern in Indonesia changes.

Egg, chicken, fish, milk, and beef are sources of animal protein that human body needs. The needs of egg, chicken, and fish still can be provide from domestic. However, the needs of milk and beef are still have to import from another countries. According to Agus Warsito; head of Asosiasi Peternak Sapi Perah Indonesia ((APSPI), 2016), the capability to produce fresh milk in Indonesia is only 20% from total amount of national needs. So that 80% of

national needs of milk have to import in the form of powder milk such as skim milk powder and butter milk powder. As well as milk, Indonesia only able to produce 437.300 ton (61%) of beef and still need 141.463 ton (39%) to fulfill national needs by import (GAPUSPINDO, 2017). Both milk and beef are mostly imported from Australia.

Distribution channels of beef in Indonesia consist of traditional markets, supermarkets, meat shops, and HRI (hotel, restaurant, and institutions). Many people buy beef in traditional markets since the price of meats are lower compared to supermarkets. However, the market shares of traditional markets are declining while supermarkets are increasing annually. Cleanliness, qualities, and feeling at ease are some of consumer's consideration to buy beef at supermarkets. Most of the variety meats sold in the supermarkets are imported.

Current years, the price of beef tends to have upward trend. As shown on figure 1 below, the average price of beef in 2012 is only Rp76, 813.39/Kg, and then in 2013 the average price is significantly rising to be Rp90, 411.94/kg. In 2014 the price of beef is Rp99, 346.11/kg and in 2015 is 105,344.60/kg. In 2016, the price of beef is reaching out Rp113, 550.71/kg. The price of beef is always increase and it never went down to the formerly price.

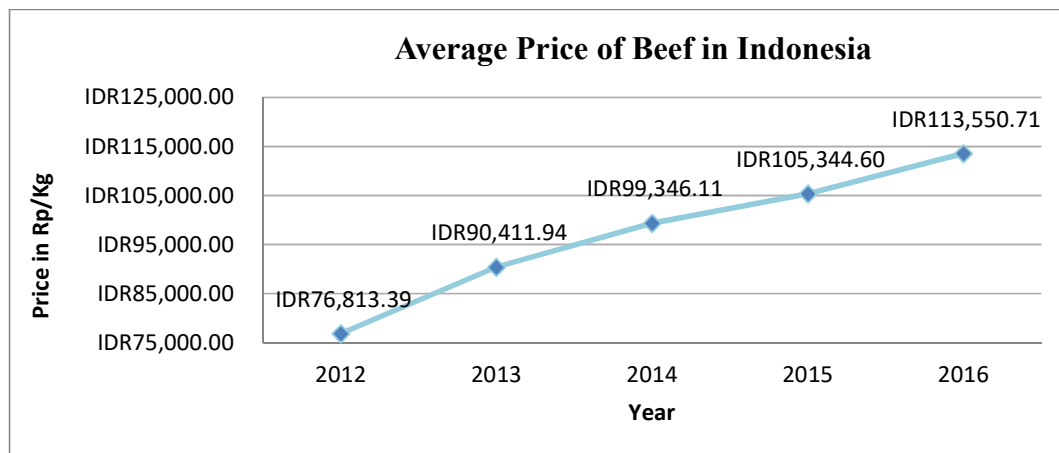


Figure 1.1 Average Price of Beef in Indonesia

According to (Nurhayati, Waryanto, Noviyati, & Widaningsih, 2015), this phenomenon occurs because of high demand of beef from society but shortage on national beef stock, especially on feast day such as Eid Al-fitr. On this condition cattleman cannot handle the unstable price and provide more beef to sell at the markets. Some major factors that caused shortage stock of beef are cattle's breeding requires a lot of time and technology to breeding is still limited in Indonesia.

Hence, Import cattle are temporarily solution to fulfill high demand of beef. The country that Indonesia chooses for import the cattle is Australia. The considerations to import from Australia are geographical location, since Australian is the nearest country to Indonesia, and also the cattle are qualified from foot and mouth disease.

In 2014, government of Indonesia issued quota policy for cattle import. The purpose of quota import policy is to encourage local cattle industry, so that local cattle industry can be independent in the future. Nevertheless, self-sufficient cattle program in Indonesia still cannot be implemented well as planned. Various obstacles occur in implementation process. Therefore, this quota import policy impacted to national cattle's price and also cattle feedlot industry, since the national demand for beef cannot be met by local cattle production only.

With this quota import policy, cattle feedlot companies have to prepare strategies to survive. Negotiations between cattle feedlot companies and government have been done several times. However, there is no win-win solution within. Cattle feedlot companies still have to follow government's regulation.

Every cattle feedlot company has their own strategy to survive. One of many ways is through supply chain management. It is one of important component in the company, since related to production activities. Companies in large or small scale try to improve their supply chain management performance and all of components within supply chain process. The purposes of these activities are to improve affectivity, efficiency, and reduce supply chain costs.

1.2 Problem Statement

Due to quota import regulation, it is affected cattle feedlot companies in Indonesia. Company's performance and activities within the company may not work optimally. Systems that have been built within the feedlot company have to adapt into a new regulation. As a result, feedlot companies have to preparing strategies to reduce and/or avoid the impact of this situation.

1.3 Research Objectives

Objectives of this research are to define the main problems and its intervention in cattle business industry through soft systems methodology and find out the impact of quota import regulation to supply chain process of Feedlot Company especially in PT Agrisatwa Jaya Kencana also defining desirable and feasible improvement to reduce the impact.

1.4 Limitations

Limitations for this research are different country may have different conclusions and recommendations according to country's regulation. This research based on current situation and condition in Indonesia. Quota import regulation start to implement in 2014, then the regulation changes into new regulation in September 2016.

2. Theoretical Foundation

Food Security

Over the past decades the concept of "food security" has been evolving and develop. It remains complex and dimensional concept. The definition of food security clearly emerged on the first world food conference, in 1974. The result of world food conference, food security defined as " Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and price" (Jones, 2010) .

According to Renzaho & Mellor (2010), definition of food security is access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum: (1) The ready availability of nutritionally adequate and safe foods, (2) An assured ability to acquire those foods in society acceptable ways. The meaning of second statement is without resorting to emergency food supplies, scavenging, stealing, or other coping strategies.

Based on identification study of BAPPENAS and Direktorat Pangan, food security that stated by Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) is the condition when everyone at anytime physically, economically, and socially has access to adequate food, safe, and nutritious to fulfill consumption needs and according to people food preferences in favor of an active and healthy life. Other definition from Food Law

No.7/1996 stated that the condition of the fulfillment of food needs for the household, which is reflected from availability of adequate food, both from the amount and quality, safe, evenly, and affordably.

Based on definitions above, it can be deduced that food security has five elements that must be met:

1. Oriented to household and individual
2. Availability and accessible in term of time dimension
3. Emphasize on access to household and individual food, both physical, economic, and social
4. Oriented to nutritious fulfillment
5. Intended for an active and healthy life

Food security have three main sub-systems, there are food availability, food access, and food utilization, whereas nutritional status is the outcome of these sub-systems. One these sub-systems is not met, then a country cannot be said to have good food security.

Business actors on cattle industry

According to BAPPENAS and Direktorat Pangan, Indonesia is one of countries that have abundant natural resources. In agricultural context, Indonesia has incredible potential natural resources. However, to fulfill the needs of animal protein from beef, Indonesia still has to import from Australia. Indonesia is not yet self-sufficient in the provision of national beef needs since it is only able to produce 70 percent of the national beef needs, where 30 percent of other needs are fulfill through imports. There are some kinds of cattle import, in the form of fattening cattle for feedlot, frozen meat, and innards dominated by liver and heart frozen. The amount of import is influenced by the increase of prosperity and population growth. The most consumed beef by the Indonesian people is in the form of meatballs that spread from urban to rural area.

Actors of cattle business consist of breeders, belantik, cattle and beef importer, feedlot, cattle collectors, beef collectors and slaughterhouse.

Based on research that do by BAPPENAS and Direktorat Pangan (2014), mostly, breeders in Indonesia are breeders on household scale. Raising livestock is only become complementary job. The farmers raising livestock that integrated with crops that organized traditionally and be sold if the farmers need money. The cattle will be sold at anytime if the farmer needs money in urgent situation.

Belantik is cattle realtor that generally located in rural areas where mediator between farmer-breeder and cattle trader. If there is profit opportunity from cattle that will be sold by the farmers, cattle belantik will call the cattle traders who have cash to buy the cattle.

The main purpose of cattle import was to support and met the supply number due to high demand of cattle. In other words, it used as stabilize to prevent degradation of domestic's resource. Activities of cattle and beef importer are import cattle and beef, fattening process, slaughtering, packaging, labeling (brand), and distributed to the market.

Feedlot or fattening cattle business is identified as cattle breeding business that has purpose to produce beef through increasing weight gain of cattle. It can be reached by giving the cattle high quality feed with time constraint at least three or four months.

Unprofessional business conditions that have been done by cattle farmers become weakness in terms of negotiation in cattle market. This situation often used by cattle

traders, cattle collectors, or broker to dominant the market. So, the cattle farmers often rely on cattle collectors to sell their cattle.

Beef collectors are doing cattle trading from cattle, beef, to the final form of cattle such as leather, carcass, and pieces of beef. Slaughterhouse is a building or complex building with specific requirement that be used as livestock slaughter. Slaughterhouse is one of public service unit in terms of providing health, safe, intact, and halal meat (BAPPENAS, Direktorat Pangan, 2014).

Government Regulation

Government regulation used as requirements for import activities, below is the government regulation related to quota import:

1. Legislation of agriculture minister (PERMENTAN) number (19/permentan/OT.140/2/2010)
2. Legislation of trade minister (PERMENDAG) number 24/M-DAG/PER9/2011 and PERMENTAN number 50/permentan/OT.140/9/2011
3. PERMENTAN number 87 /permentan/PD. 410/9/2013
4. Trade ministerial decree number 699/M-DAG/KEP/7/2013

Supply Chain Management

According Kungwalsong (2013), supply chain management is a set of approach that efficiently integrate suppliers, manufactures, warehouse, and stores, so the product is produced and distributed well; at the right quantities, to the right locations, and at the right time. The aim of this approach is to minimize system-wide costs, maximizing value that deliver to satisfying customers. From definition above, Kungwalsong conclude that modeling supply chains problems need to consider following challenges:

- An integration of all business entities that have an impact on supply chain performance (e.g. suppliers, manufacturers, distributors, third-party logistics providers, and retailers).
- The complicity of multiple business functions and decisions regarding to strategic, tactical, and operational levels.
- Requirements of satisfying customers and system-wide profitability.
- The uncertainty and risk in every supply chain.

The scope of supply chain management refers to a wide range of functional areas. Activities that related to supply chain are inbound and outbound transportation, warehousing and inventory control, sourcing, procurement, and supply management. As for forecasting, production planning and scheduling, order processing, and customer service are including into supply chain management activities. Besides all of activities above, it is important to create information systems to monitor all of these activities (Zigiaris, 2000).

3. Methodology

3.1 Problem Identification

The first step to do this research is to defining the problem identification and to determine research objectives. The author does the research based on the current situation of cattle industry in Indonesia and one of cattle feedlot company, PT Agrisatwa Jaya Kencana, as the object of this research.

3.2 Theoretical Foundation

In this research, the author took literature review as references and theoretical foundation from several sources; those are paper, report, articles, online resources, and journal in order to guide the author in doing this research. Some of resources will be written below:

- Kungwalsong, K. (2013, august). Managing disruption risks in global supply chains. *Proquest*, 217.
- Checkland, P. (2000). Soft Systems Methodology : A Thirty Year Retrospective a. *Systems Research and Behavioral Science*, 58(17), 11–58.
[https://doi.org/10.1002/1099-1743\(200011\)17:1+<::AID-SRES374>3.0.CO;2-O](https://doi.org/10.1002/1099-1743(200011)17:1+<::AID-SRES374>3.0.CO;2-O)
- Webb, P., Coates, J., Frongillo, E. a, Rogers, B. L., Swindale, A., & Bilinsky, P. (2006). Measuring household food insecurity: why it's so important and yet so difficult to do. *The Journal of Nutrition*, 136(5), 1404S–1408S.
<https://doi.org/10.1093/ajph/100/5/1404S> [pii]

3.3 Data Collection

Data collection to do this research is approached by gathering information. Data collection gathered from primary and secondary data. Primary data are taken by interviewing employees, observation and document collection related to PT Agrisatwa Jaya Kencana. The core data that used in this research study are useful to define the problem and knowing the real situation in the field. Secondary data are gathered from website of ministry of agriculture, ministry of trade, secretariat cabinet of Indonesia, Gabungan Pelaku Usaha Peternakan Sapi Potong Indonesia (GAPUSPINDO), Central Bureau of Statistics (BPS), and databoks.

3.4 Data Analysis

To complete this research, the author will analysis the data that has been collected. Based on Soft Systems Methodology, there are seven steps to complete this research. Peter Checkland and his colleagues at Lancaster University were developing Soft Systems Methodology (SSM) over 30-year period. It has been world widely adept to tackling complete problems, both in public and privet sectors. SSM is a development tools to analyzing and designing systems that involve purposeful human activity. Moreover, SSM emphasize that problem and their definitions, and it should be constructed and tackled in an iterative manner. Soft systems methodology often used in consulting practice, leading to major business and economy impacts (Checkland, 2000).

SSM definition that stated on Burge (2015) paper, SSM takes unstructured situation of the real world caused by people that having different perspective creates defendable and rational models for comparison with situation in the real world. The purpose is to made judgments or recommendations as the response to the issue or problem. Conceptual models are the basic to use defendable logic. The conceptual models are not the real world situation that observer already experienced it, but the models what it could be like. In analyzing the real world SSM used to find root causes of the issues. SSM identify the problem through structures that occur on the issue or problem. Through SSM the researcher able to know which problems are potential become a big problem in the future and solve the potential problem that have correlated to one another.

Cyclic process is the core of SSM that often represent as seven steps. Participant's actors able to negotiate acceptable problem definitions that enables them to agree on appropriate action. These seven steps of SSM starting with finding out problem situation considered problematic. Implementation of quota import regulation and its impact is a problem situation in this case. The second step is expressing the problematic situation by using rich pictures. Rich pictures are formulated after conducting observation, interview to

stakeholders, and document collection. The next step is deriving root definitions of relevant systems by CATWOE framework and making conceptual model. This CATWOE framework consist of customer, actors, transformation, weltanshauung (world-view), owner, environmental. After that comparing the model with "real world". Analyzing feasible and desirable changes approached by ease benefit matrix and the last is take action to implementing propose recommendations.

4. Results and Discussion

4.1. Defining situation considered problem

From problem and data information that gathered above, the problem for cattle Feedlot Company is quota import regulation that issued by government of Indonesia. It becomes a threat from external of the company and also it impacted to company's performance. The company got the pressure from government to do not keep the cattle stocks in the cages; on the other hand the government limited the number of import cattle. Since the time period of quota import regulation still not be discovered at that time. To preserve the existence, the company has to make strategies to reduce and/or avoid the impact of quota import regulation. This can be done by doing improvement within the company through process in supply chain management.

According to data from interview with management and staff of PT Agrisatwa Jaya Kencana, the company has perceived impact of quota import regulation in terms of profitability, resources, and also strategic planning. Based on figure 4.1 Below. In 2012, the number of cattle imported by PT Agrisatwa Jaya Kencana was 19,722 cattle head; it covered 4% of national beef needs. In 2013, the company import 20,595 cattle head and it also covered 4% of national beef needs. In 2014, PT Agrisatwa Jaya Kencana covered 7% of national beef needs with import 50,852 cattle head. Then, in 2015 and 2016 the company only covered 3% and 4% from national beef needs with 35,939 and 51,011 cattle head.

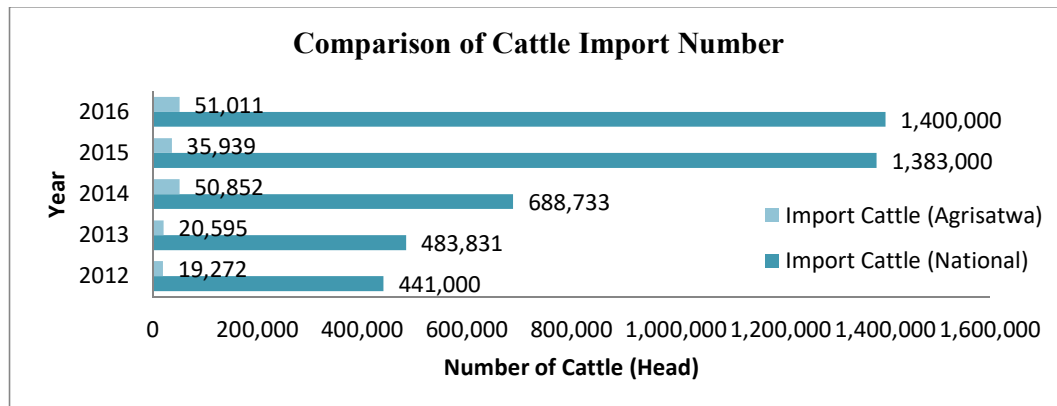


Figure 4.1 - Comparison of Cattle Import Number

In terms of profitability, decreasing on number import cattle must be decreasing profit of the company. From resources allocation, one of field operation staff said " *we are forced to non-activated temporary workers due to quota import regulation, since the number of cattle is not equally as the workers.* "

From strategic planning, through interview with some staffs of PT Agrisatwa Jaya Kencana, they said, " *we limiting the number of cattle sold to the cattle collectors, it is preventive efforts or strategic planning for the company to avoid the bankruptcy. Besides, we have to find local cattle to safe our stock in the cage.* "

As this research using soft systems methodology, it able to recognize the unstructured information, since cattle industry in Indonesia still on dynamic condition, and capture it in rich picture. Rich picture able to capture various information and perception from actors in cattle industry, whether from internal or external of the cattle feedlot company. Moreover, it allows differences from each point-of-view to be identified.

4.2. Expressing the problem

This step is approached by rich picture. Rich Picture has a purpose to capture researcher's idea about the problem. This information related to the situation allowed seeing the various perceptions from each actor.. It is the same as flow of product however there are perceptions and thoughts of each actor related to their business in cattle industry. Also, it provided social system analysis that focusing on roles, norms and values and political system analysis that answering questions related to power distribution in the problem situation. In the cloud symbols, there are thoughts of actor according to their business and arrows that connected each actor are related to their activity on doing the business.

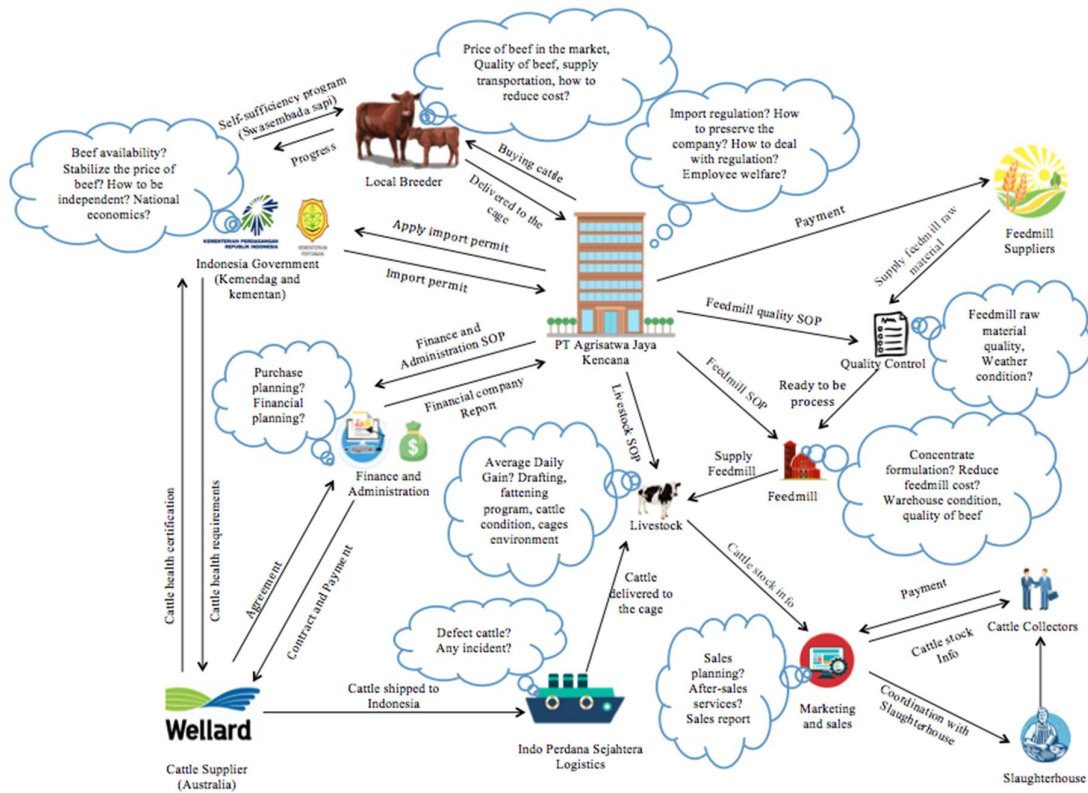


Figure 4.2 - Rich Picture

4.3 Formulating Root definitions of relevant systems of purposeful activities

CATWOE elements are needed to constructed root definition. The purpose is to identify perspectives in analysis systems also connecting relevant activities and perspectives.

According to develop rich picture, CATWOE elements construct root definition and formulated as statement below:

Table 4.1 - CATWOE Root Definition 1

Customers	President director, vice president operation, Finance and administration director
Actors	Feedlot manager, Production manager, livestock divisions, feed mill division, quality control division
Transformation	Improve body condition score, quality of beef, and minimize cost of feedmill by feed knowledge, technology, and management.
Weltanschauung	Gain more profit from improvement of body condition score
Owner	Production manager, VP of operation
Environment	Government regulation, quality, feedmill raw materials cost

Root Definition 1

"A system owned by Production Manager and Vice President of operation, operated by feedlot manager, production manager, livestock divisions, feedmill division and quality control division to improve body condition score, quality of beef, and minimize cost of feedmill by feed knowledge, technology, and management in order to gain more profit from improvement of body condition score"

Table 4.2 - CATWOE Root Definition 2

Customers	Customers (Society)
Actors	Local breeders, Feedlots
Transformation	Increase stock of fresh beef to meet the demand, maintain stability of beef prices in Indonesia
Weltanschauung	Reduce the price of beef by increase supply of in the market
Owner	Government of Indonesia
Environment	Competitive, quality, independent

Root Definition 2

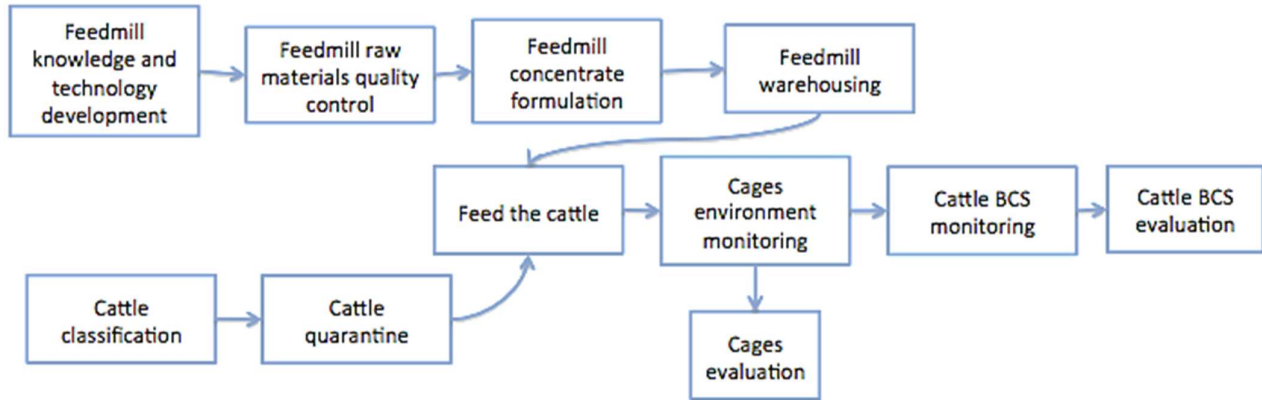
"A system owned by Government of Indonesia, operated by local breeders and feedloters, to increase stock of fresh beef to meet the demand and maintain stability of beef prices in Indonesia in order to reduce the price of beef by increasing supply in the market"

4.4 Build Conceptual Model of Human Activity Systems

Conceptual model of human activity systems described as follows:

The first model drawing of root definition consist of process feedmill knowledge and technology development then feedmill raw materials quality control, the next activity is feedmill concentrate formulation and feedmill warehousing. The next step is feed the cattle. Feedmill division conducts this step.

The livestock division does cattle classification then cattle quarantine and do cattle feeding in the cage. The next step is monitoring cages environment and being evaluate. The next tasks to do are monitoring Body Condition Score (BCS) and evaluate the results of cattle



BCS.

Figure 4.3- Model Drawing Root Definition 1

The second model drawing of root definition is started from collect local breeder and feedloter data information by government then analyzes the data. After knowing the results, make decision and evaluate decision. The next tasks are construct collaboration program, evaluate the program and develop the program.

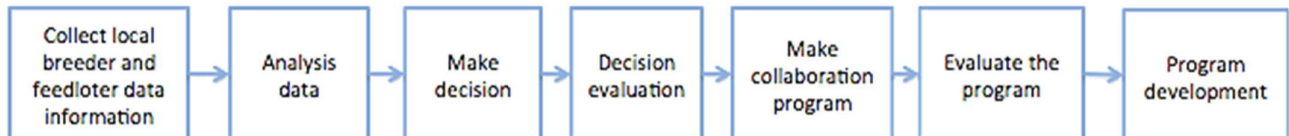


Figure 4.4 - Model Drawing Root definition 2

4.5 Compare models with the real world

This step is approach by construct the table that consist of activities, existence of the activity, how effective the activity to the current situation, measurement criteria of the activity, how the current condition, and ideas for improvement

4.6. Define changes that are both desirable and feasible.

There are ten ideas of improvement for desirable and feasible changes that may implement in cattle feedlot company, there are:

1. Invite cattle feedmill expert to transfer knowledge
Inviting feedmill expert into the company will give positive impact for the employee, especially feedmill. It can be useful get updated knowledge about feedmill.
2. Cages environment check sheet
The purpose of making cages environment check sheet it to pay attention to cattle feed, cattle's drinking water, and also number of accident or rare activity that happen in the cage. These check sheets were made to increasing efficiency and reduce human error and can be a reminder for the workers.
3. Make Key Performance Indicator (KPI) for livestock and feedmill division
Key Performance activities are proposed idea improvement in production activities. The purpose of using KPI is because the company already has Standard Operation procedure (SOP) but did not have stated KPI. The KPI has function as measurement tools for SOP. It can be good idea for improvement since the company did not use KPI.
4. Make a check sheet to trace the quality of beef (measure fat within beef)
Body Condition Score (BCS) and quantity of fat within those cattle can measure quality of beef cattle. BCS cannot be predicted even if the feedmill team feed the cattle more, it has to be done with the right dose. Likewise the fat within beef, it cannot be controlled by human. It depends on cattle's gen, body condition, and behavior. Mostly, the type of cattle which easily to get fatty is heifer. This check sheet can be used as research to know what makes cattle's get more fatty than other cattle. It can trace meat and fat development within the cattle.
5. Install chip to trace the amount of cattle and cattle flow product
Install chip in some part of cattle's body can be a good innovation to solve cattle's problem in Indonesia. It is very useful since government able to track the cattle from upstream to downstream and also check real-time cattle stock. It is better if government publish the data on website as implementation of transparency value. Not only useful for the government, but also the cattle business actors to create competitive and fair business environment. As example, Australia already do this action to trace all cattle that they exported.
6. Do brainstorming and evaluation together
Brainstorming and evaluation of cattle business systems in Indonesia needs to be conducted to be better. It is not only about the systems but also related to politics, point-of-view (opinion), and stability economics within the country. This brainstorming and evaluation may do often in the meeting. Especially when phenomenon of rising price of cattle in Indonesia occurs. According to interview's result with management team of PT Agrisatwa Jaya Kencana, the meeting with government is kind of negotiation action due to government's regulation about cattle import. But, this brainstorming and evaluation by government, local cattle breeder, feedlot, and cattle business actors, which related to supply chain of cattle, have not been done before. It is cooperation efforts to see the reality in the field and see each party point-of-view.
7. Create collaborative and competitive environment
Collaborative and competitive environment in cattle industry are needed to improve cattle industry in Indonesia. Collaborative environment is good to for development cattle industry. Competitive environment can be useful to improve quality of beef and compete with low-cost production to increase profit in perfect market competition. These efforts can be done with trust and each parties commitment.

8. Integrated cattle production

Integrated cattle production or mass production in one area is a big project with huge impact. Integration cattle production can fulfill beef demand in Indonesia so that the country can discontinue import from other country. It can reduce foreign exchange and help to develop economics stability. However, this program is need a long time to achieve the goals.

After comparing models with real world, the next step is defining changes that are both desirable and feasible. This step is approached by ease benefit matrix, bellows are table of value and complexity score:

Table 4.3 - Total Value of Recommendation

No.	Improvement	Customer Value			Ave	Strategic Value			Ave	Total Value
		R1	R2	R3		R1	R2	R3		
1	Invite cattle feedmill expert	4.0	3.0	4.0	3.7	4.0	4.0	4.0	4.0	7.7
2	Seminar and sharing session	3.0	2.0	3.0	2.7	3.0	3.0	4.0	3.3	6.0
3	Warehouse condition check sheet	3.0	3.0	2.0	2.7	4.0	3.0	3.0	3.3	6.0
4	Cages environment check sheet	3.0	4.0	3.0	3.3	4.0	3.0	4.0	3.7	7.0
5	Make KPI for livestock and feedmill division	4.0	3.0	3.0	3.3	4.0	4.0	4.0	4.0	7.3
6	Beef quality check sheet	3.0	3.0	3.0	3.0	5.0	4.0	4.0	4.3	7.3
7	Install chip to the cattle	5.0	4.0	5.0	4.7	5.0	4.0	4.0	4.3	9.0
8	Brainstorming and evaluation	3.0	4.0	3.0	3.3	4.0	4.0	3.0	3.7	7.0
9	Create collaborative and competitive environment	5.0	4.0	4.0	4.3	5.0	5.0	4.0	4.7	9.0
10	Integrated cattle production	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	9.0

Table 4.4 - Total Complexity of Recommendation

No.	Improvement	Implementation Effort			Ave	Operational Cost			Ave	Total Complexity
		R1	R2	R3		R1	R2	R3		
1	Invite cattle feedmill expert	1.0	1.0	1.0	1.0	3.0	3.0	3.0	3.0	4.0
2	Seminar and sharing session	3.0	2.0	2.0	2.3	3.0	3.0	4.0	3.3	5.7
3	Warehouse condition check sheet	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
4	Cages environment check sheet	2.0	3.0	3.0	2.7	3.0	3.0	4.0	3.3	6.0

5	Make KPI for livestock and feedmill division	1.0	2.0	2.0	1.7	1.0	1.0	1.0	1.0	2.7
6	Beef quality check sheet	3.0	3.0	3.0	3.0	2.0	1.0	2.0	1.7	4.7
7	Install chip to the cattle	4.0	4.0	5.0	4.3	4.0	5.0	5.0	4.7	9.0
8	Brainstorming and evaluation	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.7	7.7
9	Create collaborative and competitive environment	5.0	5.0	5.0	5.0	3.0	3.0	4.0	3.3	8.3
10	Integrated cattle production	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0

After the total value and total complexity gathered, make scatter diagram of action priority matrix, below is the scatter diagram of action priority matrix.

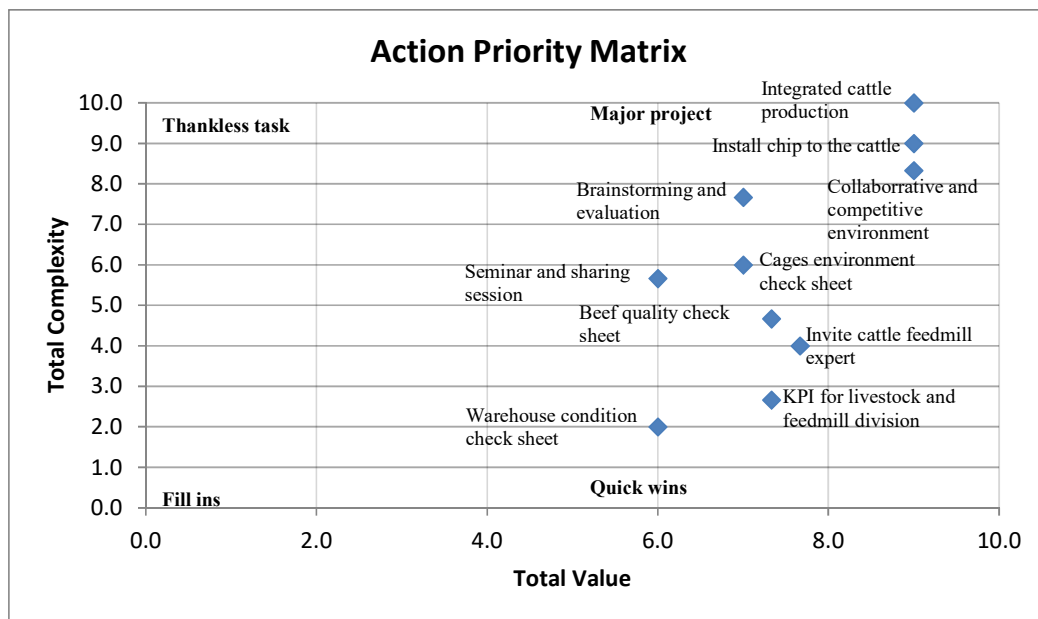


Figure 4.5 - Action Priority Matrix

In Figure 4.5 there are four quadrants that represents the urgency of activities. Action Priority Matrix will be used for determine which activities that should be done earlier since there is time constraint to complete all the provided recommendation. By using this matrix, PT Agrisatwa Jaya Kencana can choose the activities and spend more time on the high-values one.

Below is the assessment of each classified quadrant:

1. Quick Wins
The activities in this quadrant are the most appealing, because they have maximum score in terms of customer and strategic value. It means that they give high return with little effort. Activities that included in these quadrants are warehouse condition check sheet, KPI for livestock and feedmill division, invite cattle feedmill expert, and beef quality check sheet.
2. Major Projects

Activities that included in these quadrants are giving high impact in terms of customers and strategic value. However, prioritizing activities in these quadrants can obstruct many possibilities of doing quick wins. The reason, it needs more efforts to be done than activities in other quadrants. Major projects quadrants activities consist of doing seminar and sharing session, cages environment check sheet, brainstorming and evaluation, create collaborative and competitive environment, install chip to the cattle, and integrated cattle production.

3. Fill ins
Activity that located in this quadrant is activities, which gives less impact with fewer efforts. There is no recommendation activity that categorized in these quadrants.
4. Thankless task
Activity in this quadrant is not suggested to implementing because they give small impact and also quite time-consuming. According to Action Priority Matrix, there is no recommendation activity in this quadrant.

According to assessment of each quadrant, activities that should be prioritizing to be implemented are activities on Quick Wins quadrant. Thus, there should be an if-analysis to analyze the possible outcome of each Quick Wins recommendation. Below is the if-analysis:

1. Warehouse Condition Check Sheet
If warehouse condition check sheet is implemented, it will ease maintenance division for controlling facilities and infrastructure in cage environment of PT Agrisatwa Jaya Kencana. Through this check sheet, it helps to prevent the risk that might accidentally occurs such as leakage, flood, or other unpredictable natural disasters since the level of rainfall nowadays is quiet high and also it can maintain feedmill quality. If the quality of feedmill is good, the cattle will not have problem with their feed. As a result, the good quality of feedmill will have a good impact for ADG of the cattle.
2. Design KPI for livestock and feedmill division
If key performance indicators are implemented, parameter of each job description can be clearly defined and measured. The workers will more aware for what the do. If the workers know the parameter of their job, it may reduce human error on every activity. As a result, it can increase effectiveness and efficiency of the workers.
3. Invite Cattle Feedmill Expert
Inviting cattle feedmill expert will give updated and more knowledge about feed for cattle. If learning from feedmill expert can give knowledge, the efficient proportion of feed; low cost feed with great concentrate, it can be very helpful to reduce the operational cost from the feed. As a result, the company able to get more profit by reducing the feedmill cost.
4. Beef Quality Check Sheet
If the workers do beef quality check sheet, the feedmill division will know the characteristics of the cattle and how to treat different kinds of cattle. Since the quality of beef is unpredictable, it can be a research study on how reduces the fat in cattle. Not only observe the quality from its feedmill, but also from cattle behavior itself. If this findings works, it can be an innovation on cattle industry. If the company knows how to treat the cattle, the amount of fat in the cattle will not as much as usual. As a result, the company will not losing the profit by sell the fatty cattle.

4.7 Implementation Plan

As ideas of improvement conducted, then the implementation plan for the improvement is made bymaking prepaation with implementation plan. Resource allocation to execute recommendation on implementation plan. The resources elements are resouce (people). Money, and machine. Execution of implementation plan started with discussion of changes

systems with the management team and field operation team. After implementing the plan, monitoring the systems and it consist of checklist and questions about the process. The last is evaluate the systems, is it works effectively? Is the execution goes well? If it is work well then just continue the systems. However, if the systems need reconstructed then the process have to start from the first step of soft systems methodology.

Conclusion

Supply chain in cattle business industry actually is not that hard and complicated. The process from upward to the downward is systematically well managed. The suppliers have good credibility in terms of product, management, and professionalism. The process in adding value that is cattle weight gain, still on development but it has less probability of defect. From the market consideration, beef in Indonesia is very demanding. However, an infrastructure and systems of business industry in Indonesia is not structured well yet. There are many factors that affect cattle business industry in Indonesia. It is clearly seems that the main problem is insufficient number of local cattle. It has many reasons why the insufficient number of local cattle can occur.

According to research analysis, the problem can occur because of inaccurate data information and forecasting, whether from Ministry of agriculture, Ministry of trade, or the local breeder itself. This leads to imprecise decision-making. This decision impacted to new situation or problem, in this case is high price of beef in the market. These problems occur due to lack of transparency, coordination and cooperation between parties.

According to the research analysis by using soft systems methodology, major project that have to do to give a big improvement in Indonesia are:

1. Doing seminar and sharing session among cattle business actors
2. Make cages environment check sheet
3. Brainstorming and evaluation through cattle business industry's actors
4. Create collaborative and competitive environment
5. Install chip to the cattle
6. Integrated cattle production.

As one of Feedlot Company in Indonesia, PT Agrisatwa Jaya Kencana also affected to government regulation, which is quota import. It shows on the number of cattle import. The stock of cattle in 2014 was quiet high and then in 2015 the stock was decreasing almost half from the total of previous year.

Based on research analysis, intervention efforts that can be done by PT Agrisatwa Jaya Kencana due to quota import regulation are:

1. Warehouse condition check sheet
2. KPI for livestock and feedmill division
3. Invite cattle feedmill expert
4. Beef quality check sheet.

According to conclusion that has been done above, there are still limitations for this research and need further research to breakdown the systems in-depth. Since this is about commodity and related to food security, if actors related industry able to build new systems that are beneficial for long-term, it will give huge impact to the public, national, and also international. It may leads Indonesia become a cattle exporter in the future. Furthermore, since this research mostly using qualitative approach, future research that examines quantitative data concerning the efficacy, effectiveness, and efficiency of the systems should be distribute.

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