Policy of Halal Broilers Product Using Approach of System Dynamics

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Abstract: The halal certification system becomes a necessity that is expected to protect consumers from health, nutrition, safety and halal aspects. The problem of this research is not the maximum of educational actions yet in slaughtering House (RPA). In this study used simulation analysis of System Ddynamicss. The results showed that the needs of Broilers in Makassar City about 45,000 heads per day, while Halal slaughter man (Juleha) ranged 60 people who are supplied from about 20 RPA. So only about 9,000 per day (20%) that can be produced from halal slaughter man. Broiler products that circulate in Makassar for 36,000 heads per day (80%) comes from the slaughter who has not guaranteed halal. Conclusions that growth of broilers consumption potentially continues to increase is supported by the availability of halal broilers. RPA sertified tends to increase significantly, which will strengthen consumer awareness of halal broiler products, also have implications on awareness of RPA Owner. Government can determine the right form of policy by making RPA mapping and create a monitoring system for potential management of halal which will produce quality and quantity of chicken carcass is the main consideration for the producers, the handling of livestock before, during and after cutting plays a major role in the supply of carcass and meat of ASUH (safe, healthy, whole, halal).

Keywords: Policy, halal broilers product and System Dynamics

1.   Introduction

The issue of Halal MUI certification has credibility and trust that has been widely accepted and recognized in the Muslim community and business world both in Indonesia and globally, recognized and used as a reference by agencies of halal certification around the world .(Nusran, 2013).

Broilers products have become a product consumed by many people. The low level of halal assurance for Broilers products, causing the quality of Broilers is to be low. Starting from a system of slaughter that are not in accordance with Islamic Shari'a, after handling slaughter, cases of mix meat, or the distribution of broiler products is dead yesterday (carrion of chicken)will be a long list of the need for chicken products is studied.The importance of this research is the need for clear information from the government and also from the producers of halal broiler products is so feasible for the consumption. Also factor how to slaughter, because it will determine the quality and halalness of broiler products slaughtering. Besides, this research will get mapping from the slaughter centers and certification of the slaughterers, so that the community will feel the peace in consuming broiler slaughtering products

The slaughtering House system should have a written procedure to ensure a certified halal broiler products. This system should be proven that broiler products are produced from halal chickens, slaughter with appropriate halal methods at slaughtering facilities in accordance with halal requirements

2.   Methodology

In this research used a number of methods of in-depth interviews and data collection in the process of chicken products. Respondent data relating to Halal Certification System such as Number of broiler products of Halal Certified, demand of broiler products, mapping of centers of slaughtering House, educational system and certification of slaughterers

Research methodology as framework and main reference for research can run systematically, according to purpose and time of research. There are a number of stages in the method that will be executed in this research i.e 1). Stages of literature study, 2). Interaction model design among variables, 3). Field study and data retrieval, 4). Data Validation, 5). Design of causal loop diagram, 6). Design of simulation model, 7). Model verification and validation, 8). Running simulation and interpretation of the existing, 9). Application of scenarios, and 10). Conclusions and recommendations.

3.   Results

From survey data conducted in a number of RPA, it was found that only about 20 RPA have Halal certificate from LPPOM MUI. Other RPA are illegal. To handle the needs of broiler products in Makassar required halal slaughter man who already has a certificate as a slaughter

Data from year 2015-2017, only about 20 RPA. halal slaughter man who has been in training by LPPOM MUI about 60 people. Ability of Juleha to slaugter around 150 chickens per day, while the chicken requirement in Makassar is 45,000 chickens per day. It seem that only about 9,000 heads per day. It is still very far from expectations, it takes halal slaughter man about 240 people

3.1. The Slaughter Process Flow

RPA must ensure the halal critical point of halal in the process of slaughtering chicken for the purpose of ensuring halal, quality control and assurance traceability. Flow from the process of slaughtering chicken there are 2 at the time of slaughter and at the time of blood out of the chicken. that all stages of the slaughter process have fulfilled Halal and are under the control of halal providers. If found is non-compliant slaughter, halal providers must separate as non halal products. Similarly, in terms of feed, it must ensure that the feed given to halal poultry meets requirements in accordance with the laws and regulations. Chickens that are allowed to be slaughtered are chicken fed with halal. Table 1 shows the monthly consumption with an average of 1,342,742 heads or 44,758 heads per day or about 45,000 heads per day
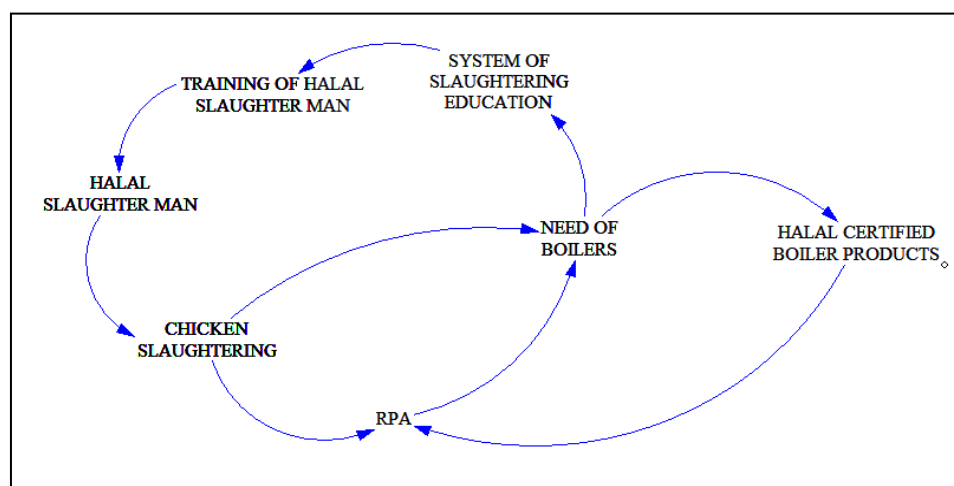
Table 1. Broilers Comsumption Year 2016

MONTH	CHICKEN QUANTITY (heads)
January	1.156.000
February	1.150.000
March	1.005.200
April	1.167.000
Mey	1.167.000
June	1.347.000
July	1.867.500
August	1.345.650
September	1.634.270
October	1.243.500
November	1.405.340
December	1.560.450
Total	16.112.910

Sources: Makassar City in Number (2017)

From a number of markets in Makassar, showed an increasing need for chicken pieces. Similarly, the price is directly proportional to those needs. The price increase reaches 40 percent. The price of chicken with weigh 1.8 kg is Rp 45,000, meanwhile for a chicken pieces with a weight of 2.4 kg is Rp 60,000. Alfian (2017) said that Demand can increase up to 150 percent, even can be sold up to 500 more in a day

One of the elements that determine the halalness of the slaughter is the slaughtering Knife in accordance with the provisions of sharia ie the material does not contain elements of nails, teeth and bones, very sharp means able to slaughter easily and simultaneously all channels are mandatory without excessive power, the resulting incision becomes so smooth that not too hurt the animal and does not induce blood clotting factor, size: long enough to ensure that all elements must cut perfectly, the shape of the knife edge curved outward to avoid repetitive incision when the reciprocal motion of the blade is done, and forbidden to sharpen the knife near the animal. Data processing with Approach of System Dynamics, starting with creating a variable that is connected to a number of other interconnected variables like the following figure

Fig. 1. Diagram of variable in RPA System
(source: Result of Research, Kemenristek dikti,2017)

4. Discussion

Nusran (2017) states that slaughter is a critical point that determines the halalness status of the meat. The method of slaughter in the field is very far from the treatment of halal and *ihsan*. There is a chicken that is slaugter, doing while smoking. There are also chickens that have not died, directly inserted into hot water for the process of removal of feathers. So the dead chickens not because slaughtered as the initial cause, but died because of hot water. This all affects the quality of the meat. According to Nusran (2017) in Supratikno (2017) that the physiological status of animals is very influential on the quality of meat produced. Handling that is not welfare at the time before and during the process of slaughter will cause stress and activate the sympathetic system. At the time of blood stress will be more flowing to the brain and skeletal muscles and sympathetic system will work to positioned   bleeding blood. If the animal in this condition is slaughtered then the death process becomes old, the animal thrashed so that the meat becomes bruised and blood is left in the meat.

4.1. Mapping of Chicken Slaughtering centers

The mapping of chicken slaughter areas has not been well organized. Chicken Slaughtering House located in densely populated areas such as Bara-baraya and Antang in Makassar city. Then the area of the farm, where the chicken is farmed, a distance away from the slaughter area, even most from outside the region such as from Maros and Gowa regency, resulting in the number of chickens that died on the way before getting to the slaughterhouse.

The quantity and quality of chicken carcass is the main consideration for the producers, the handling of livestock before, during and after cutting plays a major role in the supply of carcass and meat of ASUH (safe, healthy, whole, halal).

The development of poultry consumption today is very encouraging where more than half (56%) of the meat requirement of the community is fulfilled by poultry meat compared to that derived from cattle by 23%. (Abustam, 2009 in Rohani, 2010).

According to the study of Rohani, et al (2010) that the development of broiler farming business in South Sulawesi, especially in the city of Makassar has increased from year to year as table below.

Table 2 Population Of Broiler Chicken In Makassar City

Year	Population (head)	consumption (Kg)	Increasing (%) Population	Consumption
2002	249,786	1,463,637	-7.64	101.14
2003	230,693	2,942,909	7.99	4.26
2004	249,130	3,069,258	-98.36	6.11
2005	9,056	3,256,867	4,632,21	21.12
2006	428,549	3,568,980	46.64	53
2007	628,438	3,936,120		

Source : Statistics of Animal Husbandry of South Sulawesi (2008) in Rohani et al (2010)

The population of broiler farms in Makassar City tends to increase, although in 2005 decreased drastically by 9,056 heads from 249,130 heads in 2004, because of bird flu issue causing many poultry that died but in year 2006 is a significant increase to 428,549 heads. Year 2007 increased to 628,438 heads, due to increased community needs for chicken products. This phenomenon shows the market potential of broiler is high. The consumption of broiler in Makassar increased 4.26 - 100.14% per year. The condition is due to factors such as an increase in incomes of Makassar city population, increasing population, chicken appetite and increased public awareness of nutritious food.

To see the products of chicken that are circulated and traded in the community is in accordance with Shari'a instructions in the process of slaughter. Also, questions about halal knowledge to see if respondents have enough information related to halal chicken products. In addition, the question is also about the Halal chicken slaughterhouse arround in the city of Makassar are legal and have permission to slaughter and halal certificate and who do not have permission at all.

Table 3. Poultry Withholding Data (For Chicken Pieces)

YEAR	TOTAL CHICKEN (heads)	INFORMATION
2012	1,138,720	
2013	1,172,882	
2014	10,996,260	There was a spike in chicken consumption
2015	13,075,771	
2016	16,112,910	

Source: Makassar Livestock and Fishery Service Office (2017)

From the growth chart analysis of Broilers Product Consumption, it is seen that the trend is increasing from year to year, it shows that, consumer's passion for chicken products is still quite significant, of course along with the increasing number of population from year to year. This indicates that, if the chicken products have halal branding, then of course will show more significance higher than the growth of consumption of halal chicken products for the future

Table 4. Chicken Population Data In Makassar City

DISTRICTS	TOTAL CHICKEN (heads)
TAMALATE	109.881
MANGGALA	110.842
BIRINGKANAYA	109.637
TAMALANREA	70.825
TOTAL KOTA MAKASSAR	401.185

Source: Makassar City In Figures (2017)

From the table above, there are only 4 sub-districts of 15 districts in Makassar City which has potential population of chicken products.

4.2. Policy Model
Data processing with Simulation Approach of System Dynamics, can be displayed on a number of data that has been obtained, showing the flow of the diagram of connectedness between variables. By using vensim 2 version Professional obtained diagram with stock flow and can be run as follows
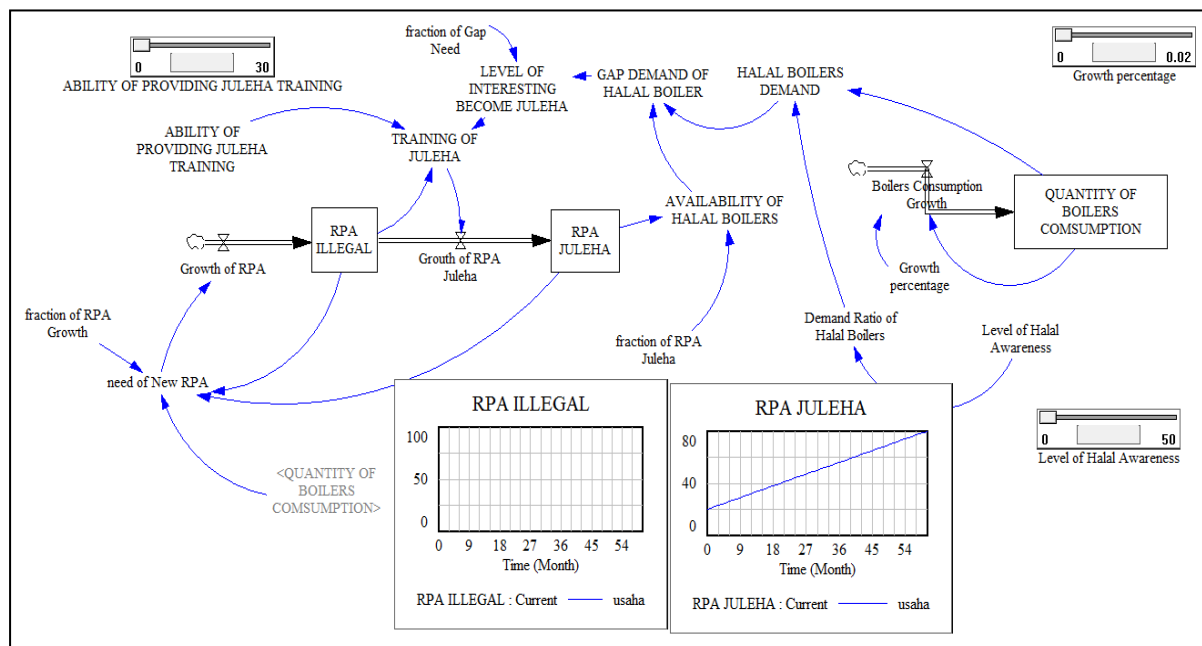
Fig 2 : Policy Model of Broilers Product
(source: Result of Research, Kemenristek dikti,2017)

The consumption of broilers in Makassar per day is around 45,000 heads per day. Only about 20% is produced from halal slaughter man which is about 9,000 heads per day, the remain is about 36,000 or 80%, still slaughtered by slaughter man uncertified whose meaning has not been guaranteed halal .

So the level of public awareness affects the consumption of halal broiler products consumption. So the demand for halal broilers consumption with the availability of halal broiler to be a halal broiler demand gap. This becomes that the basis of the illegal RPA change (without halal slaughter man) to RPA with halal slaughter man.
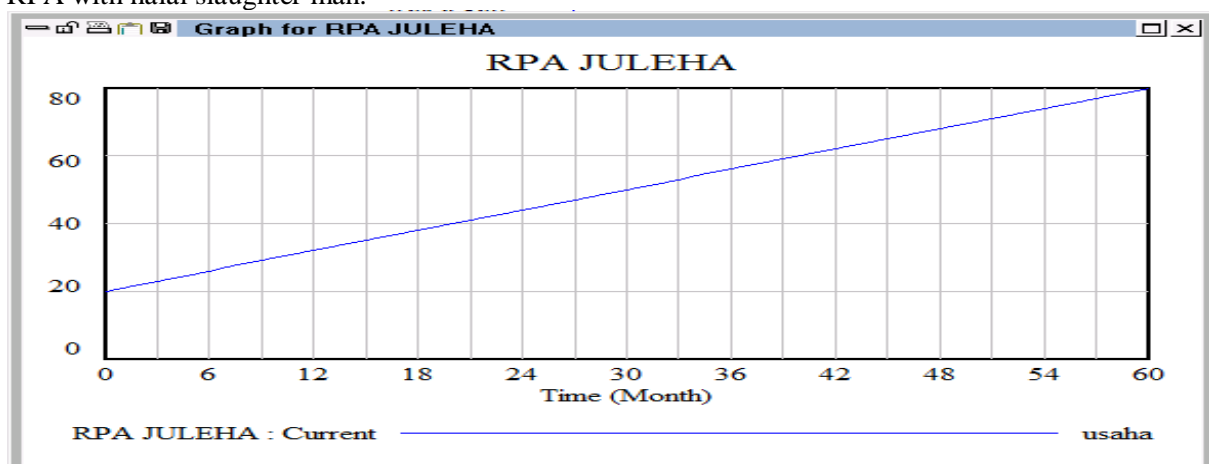

Fig. 3. Slaughtering House with halal slaughter man
(source: Result of Research, Kemenristek dikti,2017)

From simulation of System Dynamics to RPA with halal slaughter man being trained and certified with RPA whose Slaughter has not been certified, Figure 3 shows a very significant difference. That is, the RPA with halal slaughter man shows the trend of rising line graphs very real. This shows a good indication of the future in in fulfilling the needs of halal broilers
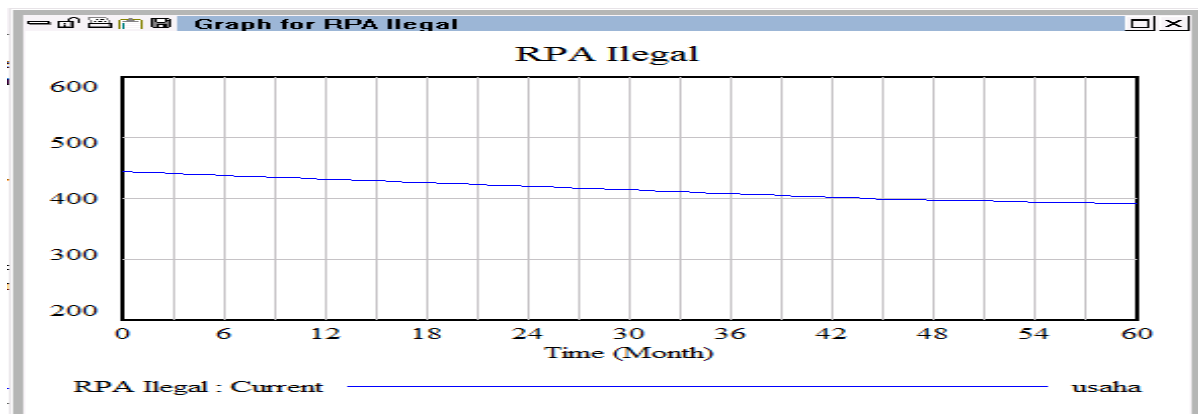
Fig 4. Graph of Slaughtering House without
halal slaughter man
(source: Result of Research, Kemenristek dikti,2017)

RPA without certified slaughter man (RPA Illegal) charts trend to decrease. (Figure 4). They may perceive difficulties with some bureaucracy as well as the cost of becoming halal slaughter man. So in the future need to make educational program so that candidate halal slaughter man can understand well

5.   Conclusions

The policy model obtained based on simulation System Dynamics shows that from the data about 80% of chickens are still slaughtered by uncertified slaughter man whose meaning has not been guaranteed halal from the slaughtering process. The level of consumer awareness affects the consumption of halal broilers consumption.

Demand for halal broilers consumption with the availability of halal chicken to be a halal broilers demand gap. This becomes the basis of the illegal RPA change (without halal slaughter man) to RPA with halal slaughter man. Need a policy scenario in accelerating the increasing quantity of halal broilers product. Training of Halal Slaughter man increased the certainty of halal broilers production, because the need of halal broiler products increasingly show a significant increase

6.   Acknowledgment

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