

THE MODEL OF COMPETITIVE SLAUGHTERHOUSE MANAGEMENT IN WEST JAVA INDONESIA

Tawaf Rochadi^{1*}, Daud Andre Rivanda¹

¹University Padjadjaran, Indonesia

Abstract

This study aimed to determine the model of slaughterhouse management for better competitiveness in producing hot meat products according to customer demand in respect to animal welfare in West Java. This study was conducted in two phases, the first year study in 2013 was to investigate slaughterhouses under governmental services and the second year study in 2014 was to examine the best slaughterhouses based on the results of research in the first year, to establish competitive slaughterhouse management. A survey method in 13 cities or regencies in West Java was used in the first year while an explorative study in the two selected slaughterhouses was used in the second year. The results showed that (1) most of the slaughterhouses were not and less feasible. This was due to some technical requirements and the procedures that were inconsistent with regulation from the Indonesian Minister of Agriculture and Indonesian national standard. There were only two feasible slaughterhouses with more than 80% scores but still need infrastructure and management improvement to be more competitive. (2) Slaughterhouse competitive management model respects to animal welfare and produces 'hot meat' products which was under the Good Slaughtering Practices by slaughtering cattle with or without stunning procedures.

Key words: Slaughterhouse management, competitive, standardization, and Animal welfare

INTRODUCTION

Slaughterhouse is a substantial part in the beef supply chain management in developing countries. At this time, beef industries in developing countries such as Indonesia, is facing a highly competitive global market, where the post-harvest technology in cattle slaughtering activities for both pre- and post-mortem, is one of the main determinants for the quality of the final products in the beef supply chain. In addition, enhanced global beef supply chain should be based on not only consumer satisfaction but also non-economic attributes such as food safety and security, traceability, animal welfare, and friendly to the environment in the beef production system.

However, the application of non-economic attributes, along with consumer satisfaction to meet the global standard of beef supply chain by beef industries in Indonesia is still poor. Based on data from

the Directorate General of Livestock and Animal Health Services, Indonesian Ministry of Agriculture (2012) as cited in Tawaf(2013b), there were approximately 800 RPH operating in Indonesia but only 25 slaughterhouses had an NKV (Veterinary Control Number). This phenomenon may indicate that the majority of slaughterhouses in Indonesia are in poor conditions and contributing to a weak point in the national beef supply chain to produce competitive beef products in the market. Therefore, since 2012, the Indonesian government has set a target for 150 Slaughterhouses to have an NKV and to meet the international standard. Unfortunately, until now, there are only about 65 slaughterhouses have been audited by the international auditory institutions.

Holistic research on slaughterhouse and beef supply chain in Indonesia is intended to contribute to the efforts to reduce the gap between productivity and competitiveness in beef production. In general, the study was conducted over two years. In the first year, mapping the actual condition of slaughterhouses and beef supply chain in

*Corresponding author:

rochadi_tawaf@unpad.ac.id

The manuscript was received: 21.07.2014

Accepted for publication: 05.09.2014

Indonesia was conducted. The study mainly aimed to examine the dynamics of post-harvest activities in slaughterhouses under governmental services in west Java whereas in the second year (2014), the study was intended to generate recommendations and policy interventions to improve the infrastructure and management of the slaughterhouses, and to apply standard operating procedures in accordance with the principles of animal welfare so that the general quality of end products in the beef supply chain in Indonesia can be greatly improved.

MATERIAL AND METHOD

A survey and assessment from 13 government-owned slaughterhouses in West Java, Indonesia were obtained. The locations were chosen by purposive sampling method, representing the districts/cities with the highest beef consumption in the area of west, central, and east of West Java province. Respondents in this study were the managerial staffs of the slaughterhouses, live cattle suppliers, and retailers of the beef.

In the first year study, there were two main components studied: (a) Physical and infrastructure suitability of the slaughterhouse against all the requirements from SNI 01-6159-1999 (BSN^[1], 1999) and (b) Cattle slaughtering operational procedures based on Minister of Agriculture Regulation^[3] No. 13 / Permentan /OT.140 / 1/2010 on Ruminant Slaughterhouse condition and Meat Handling Unit. The first component was then categorized into 7 variables and 133 sub-variables while the second component consisted of 5 variables and 46 sub-variables. The procedures to assess and score each variable and sub-variable categories can be seen in the Table 1 below.

Based on the value of the category of each sub-variable, the score value was calculated by the following formula (Tawafet all, 2013^b):

$$NV = \sum Nv_i \text{ where } Nv_i = \frac{Sv_i}{\sum v_i} \times BSi$$

where:

NV = Total score for each slaughterhouse

Sv_i = Score for sub-variable i

Σv_i = Sum of score for variable-i

BS_i = Weight for variable-i

The final value for the total score of the physical / infrastructure requirements of the slaughterhouses and slaughtering procedures was the sum of each of the variables:

$$NAs = \sum NVi \text{ and/or } NAp = \sum NVi$$

where:

NA_s = Total score for 'requirements'

NA_p = Total score for 'procedures'

Table 1 The variables in this study (Tawaf^b) et al., 2013)

No	VARIABLE/SUB VARIABLE:	Score (%)
A	requirements slaughterhouse	
1	Location requirements	15.0
2	Facilities requirements	10.0
3	The terms of the building	9.0
4	slaughterhouse complex	8.0
5	infrastructure slaughterhouse	8.0
6	installation of waste management	10.0
7	Main building of slaughterhouse	40.0
	total	100.0
B	Slaughter procedure	
1	Preparation Before slaughter	25.0
2	Implementation Ante Mortem Inspection	12.5
3	Decision of inspection ante mortem	12.5
4	Slaughter process (up to carcasses)	25.0
5	Procedures and how to post mortem inspection	25.0
	total	100.0

The decision on the final value for each slaughterhouse according to the rules of decision-making was presented in the Table 2 below.

Table 2 Decision qualification of the Slaughterhouse (Tawaf³⁾, et al., 2013)

	Value range	decision	Description
requirements slaughterhouse	$Y - SD = Z$	not feasible	Slaughterhouse requirement is met more than 0% to Z
	$X - SD = y$	less feasible	Slaughterhouse requirement is met more than X to Y
	$99.00 - SD = X$	feasible	Slaughterhouse requirement is met more than X to 99.00%
	100	perfect	Slaughterhouse requirements are met 100%
Slaughter procedure	$Y - SD = Z$	not feasible	Slaughterhouse requirement is met more than 0% to Z
	$x - SD = y$	less feasible	Slaughterhouse requirement is met more than X to Y
	$99.00 - SD = x$	feasible	Slaughterhouse requirement is met more than X to 99.00%
	100	perfect	Slaughterhouse requirements are met 100%

Note:

- X, Y and Z are the value / total score of each slaughterhouse; 100 is a maximum score;
- SD is standard deviation of scores

RESULTS AND DISCUSSIONS

Table 3 shows combined value score based on physical requirement and slaughtering procedure analyses. It appears that most data shows that the slaughterhouses under this study were not and less feasible due to some technical requirements and slaughtering procedures were not in accordance with the slaughtering regulation and SNI (Indonesia National Standard)^[1]

Furthermore, only two Slaughterhouses had category of feasible, namely Slaughterhouses F and L with combined scores of 83.62 % and 82.34 %, respectively. However, slaughterhouses F and L did not reach a perfect score of 100 % yet so that they still need some improvements especially in categories and sub-categories which were not reaching maximum scores.

In addition, both slaughterhouses had GSP (Good Slaughterhouse Practices) although they have not been fully implemented in particular to standard operating procedure and conduct regarding animal welfare. The slaughterhouses have also been audited by the independent auditing agency under ESCAS (Exporter Supply Chain Assurance System) by applying NLIS (National Livestock Identification System) Australia, because most of slaughtering cattle from the feedlot fattening have been importing from Australia.

Table 3 Combined Value Score (%) from physical and infrastructure Requirements - Slaughtering Procedures in the Slaughterhouses in West Java

No.	Code Slaughterhouse	Score Requirements	Score procedures	Score Combination	Decision
1	A	69.20	60.42	63.93	not feasible
2	B	53.23	73.51	65.40	not feasible
3	C	75.03	78.30	76.99	less feasible
4	D	53.48	63.04	59.21	not feasible
5	E	74.20	44.46	56.36	not feasible
6	F	83.35	83.81	83.62	feasible
7	G	65.01	60.63	62.38	not feasible
8	H	63.36	62.77	63.01	not feasible
9	I	50.66	50.83	50.76	not feasible
10	J	60.23	38.55	47.22	not feasible
11	K	24.69	21.05	22.51	not feasible
12	L	85.17	81.79	82.34	feasible
13	M	46.10	75.65	63.83	not feasible

F slaughterhouse, slaughtered cattle using stunning while L was without stunning. Both slaughtering methods follow the procedures of animal welfare with the help of restraining box mark-1 and mark-4 which is in line with the policy of DAFF Australia (2011). However, both slaughtering methods need standard operating procedures improvement to meet stakeholder expectations.

The two slaughterhouses have also started their work at night from 22:00 pm to 04:30 am in the morning so that the beef products are still categorized as a hot meat. This fresh meat are more preferable by most of West Java consumers than the frozen one. Regarding stunning application before slaughtering the animals, MUI^[4] (Indonesian Ulama Assembly) allows it based on their fatwa No. 12/2009 on Standards Certification Slaughterhouse. However, this is can be done if the stunning does not make the animals died before slaughtering.

CONCLUSIONS

1. Most of slaughterhouses in this study were not and less feasible. This was due to some technical requirements and procedures of slaughtering were inconsistent with the regulation of Ministry of Agriculture and Indonesian national standards. There were only two feasible slaughterhouses with the scores of more than 80% but they still need to be developed by improving infrastructure and management improvement to be more competitive.

2. Slaughterhouse competitive management model respects to animal welfare and produces 'hot meat' products which was under the Good Slaughtering Practices by slaughtering cattle with or without stunning procedures

ACKNOWLEDGEMENTS

Our thanks to the Institute for Research and Community Service, University of Padjadjaran over the financing of the facilities' programs Operational Support State Universities' to this study from the Ministry of Education and Culture of the Republic of Indonesia.

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