

## Conference Paper

# Animal Welfare Assessment System for Sustainable Cattle Production in Indonesia

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### Abstract

The demand of a sustainable system to evaluate animal welfare in farming practices are now increasing. Indonesia as a developing country still have a problem in maintaining their animal welfare assessment system especially in cattle production. The lack of information and regulation about animal welfare in cattle farming practices affects the deprived animal welfare practices in the field. Poor animal welfare resulting in low efficacy of animal production. The quality of animal products is now judged in relation to the ethics of production including impact on the animal's welfare, direct features, and consequences for consumers. In this paper, we suggest the concept of the animal welfare assessment system for sustainable cattle production in Indonesia which are based on protocols, human resources, and government. These three main elements in the animal welfare assessment system will be integrated to build a sustainable cattle production through better animal welfare practices. Enhanced animal welfare practice in cattle production chain will follow the sustainable production. We expect the implementation of this assessment system will give more value to the Indonesian cattle products in order to compete with international beef and dairy products.

**Keywords:** Animal welfare, Cattle production, Assessment, System, Sustainable

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## 1. Introduction

During recent decades the public concern about animal welfare in livestock products has grown. There is a rising attentiveness on the approach of how the farmer treats his animals [1]. The quality of animal product nowadays is not only determined by the general nature and safety of the final product, but also by the observed welfare status of the animals from which the food is produced. Enlightening the animal's welfare can affects the product value, pathology, and disease resistance. Besides, it also has a direct association on the food quality and safety. Manufacturers, vendors, and other food chain partakers progressively more aware that their customer concerns for a respectable animal welfare which later represent a business chance that might be advantageously integrated in their profitmaking strategies [2].

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Animal welfare is the ability of an animal to cope physiologically, behaviourally, cognitively, and emotionally with its physiochemical and social life environment [3]. Therefore, managing the production system is the main aspect in determining animal welfare. Animal welfare, whether on farm, in transportation, at market or at a place of slaughter, should be considered in terms of Five Freedoms. These five freedoms form a logical and comprehensive framework for analysis of welfare within any system together with the steps and compromises necessary to safeguard and improve welfare within the proper constraints of an effective livestock industry [4].

Five freedom defines ideal states for animal rather than standards for acceptable welfare [4], thus, it needs animal welfare assessment system to assess the welfare practice based on the standards. Animal welfare assessment system may provide three types of information to the farmer depending on the aim of the assessment. The information provided are meant to give a framework, evaluation, and a full certification. A welfare assessment report will provide information for evaluating the current level of animal welfare to the farmer at his/her farm and further support him/her in deciding any necessary management changes. In food production, the farmers will continuously participate in a dialog with consumers and politicians on the animal welfare issues. Welfare assessment reports may have a role to play in this dialog. Welfare assessment reports describe different aspects in relations to animal welfare, which can be useful information also to the public. On the other hand, welfare assessment reports can also be used in communicating the possibilities or problems encountered when changing certain production procedures [5]. Furthermore, the establishment of animal welfare assessment system will not only uplift the farming management, but also gives the added value for the products.

## 2. Animal Welfare in Cattle

Animal welfare is an amendment that provide minimum standards for the maintenance and treatment of animals adjusted for certain provisions. Certain aspects noteworthy in this standard includes housing, handling, sanitation, nutrition, and the need for drinking water, health, and protection from season and extreme temperature [6]. Animal welfare can be defined in several different ways, but there is a growing agreement that whatever the definition, it must be including these three elements: the emotional state of the animal, its biological functioning, and its ability to show normal patterns of behavior [7]. Scientific approach to animal welfare that mostly accepted is the Five Freedoms that established in the Brambell Committee Report [8] and developed by Farm Animal

Welfare Council (FAWC): Freedom (i) from thirst and hunger; (ii) from discomfort; (iii) from pain, injury, and disease; (iv) to express most normal behavior; and (v) from fear and distress [9].

This Five Freedoms combine elements from the three approaches to welfare and be a very useful framework to identify the main welfare problems as well as the starting point to identify the main welfare components [10]. According to del Campo [11], although there are many definitions of animal welfare, it has agreed worldwide that animal welfare encompasses many factors, includes management of inadequate nutrition, animal husbandry which practices painful livestock, and transportation or cutting procedure animals that are not adequate. Animal welfare anxiety in the society appear based on belief that the animals can also feel pain [10].

## 2.1. Animal welfare in farm and transportation

A bad cattle handling practice is the main problem of animal welfare [12]. Cattle in the extensive farming may face variety threats to their wellbeing. It is mainly related to the stress that causes the nutrients and drinking water supplies, parasitic diseases, extreme weather, lameness, predator, the degree of care and supervision of people, and such procedures on castration and dehorning in the intensive production system [11, 13]. The extensively handling system of the livestock may influence them to express their normal behavior in long time, such as before and after the time they were transferred. It happens because the livestock is having a limited move, so they only have a limited amount of grazing [14].

Plenty of evidence shows that transport can be adverse consequences on the welfare of cattle as it relates to the distance traveled and other factors such as lack of feed and water, thermal stress, and physical exhaustion [15]. There are many welfare issues that occur on the farm or during transport that can be easily monitored at the slaughter plant [12]. Table 1 shows welfare and loss issues that can be monitored at slaughterhouse.

## 2.2. Animal welfare in the slaughterhouse

Application of animal welfare in the slaughterhouse is the top priority to prevent the cruel treatment of farm animals or pain and the suffering of farm animals [12]. Logistic chain in slaughterhouses include the activities of loading cattle on the farm, transport from the farm to the slaughterhouse, animal drop from the vehicles in slaughterhouses, and slaughtering itself [16]. Condition before the transports, waiting time in transit, distance

TABLE 1: Welfare and loss issues occurred on the farm and during transport that can be monitored at slaughter house [12].

Measurement in all species	Specific measurements of each species	
	Dairy cows	Beef cattle
Body condition	Swollen hocks and knees	Liver abscesses in grain fed cattle
Lameness	Udder condition	Ocular neoplasia (cancer eye)
Cleanliness of hide or feathers	Cow not dried off before shipping	Pneumonia
Injuries	Coat condition- no bald spot	Coat condition- no bald spot
Bruises	Docked tails	Sore footed on all four limbs from high dose of beta agonist
Dead %		
Heat stress (panting)		
Non-ambulatory animals %		
External parasites		
Overloaded trucks		
Measures of handling		

traveled, environmental conditions, and transit cage at the slaughterhouse is a logistic component that allow the emergence of a negative effect on the level of stress [17]. Meanwhile in Europe, the establishment of Welfare Quality® protocol has developed the welfare criteria and measures to assess beef cattle at the slaughter house (Table 2).

TABLE 2: Criteria and measurement of Beef Cattle Slaughterhouse based on Welfare Quality® protocols by Velarde and Dalmau [10].

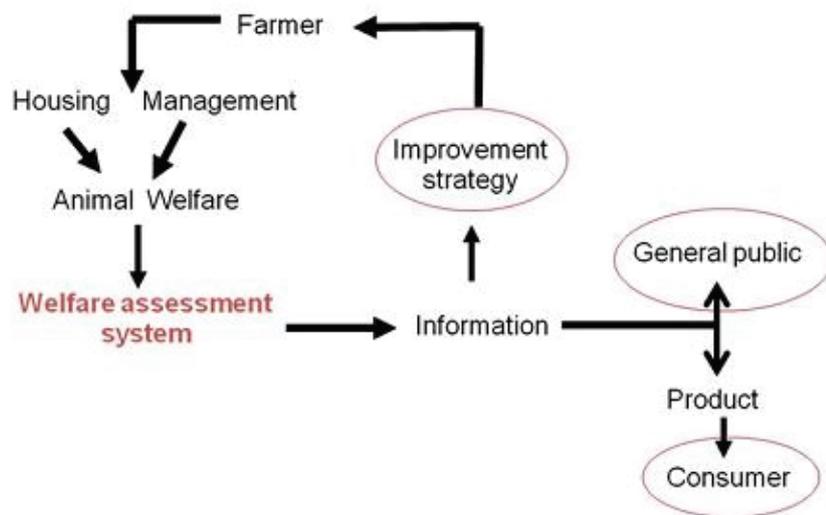
	Welfare criteria	Measures
Good feeding	Absence of prolonged hunger	Food supply
	Absence of prolonged thirst	Water supply
Good housing	Comfort around resting	Flooring, bedding
	Thermal comfort	-
Good health	Ease of movement	Slipping, falling, freezing, trying to turn, turning around, moving backwards
	Absence of injury	Lameness, bruises
	Absence of disease	-
Appropriate behavior	Absence of pain induced by management procedures	Stunning effectiveness
	Expression of social behavior	-
	Expression of the behavior	-
	Good human-animal relationship	Vocalization, coercion
	Positive emotional state	Struggling, kicking, jumping in stun box, freezing, trying to turn, moving backwards

### 2.3. Animal welfare assessment system

The evaluation should be done to identify problems and to provide advice to producers on strategies for improving on each criterion [10]. With the welfare assessment system, the actors in the farm, logistics, and supply chain can get an overview of the welfare status of objects on their beef cattle business that require critical attention [10, 18]. In this system, the data can be obtained to assess the criteria of principle animal welfare on logistics and supply chain in Indonesia. Welfare assessment system will provide information to the public, manufacturers, and also consumers about the animal welfare status of the products they use. Information obtained from this evaluation is expected to provide a strategy to improve business performance from farmers, business logistics, to the supply chain system.

Lately, European Union have implemented the series of advices and regulations to improve animal welfare by establishing the common trade rules and a common minimum welfare standard [19]. They also have started the possibility of using a market mechanism to promote the adoption of animal friendly products in animal farming industry. This attempt has started since the indication of assessing animal welfare practice already included in European Strategy on Animal Welfare 2012 to 2015 [20]. The basic protocols that EU use is the Welfare Quality® protocols which aimed to develop a product information coordination that compromises assurances about animal welfare issues and production conditions for allowing buyers and retailers to obtain a standardized animal welfare friendly product. Given strategy can be about facilities and management that support the implementation of animal welfare. Blokhuis [21] has presented the application of protocols of welfare assessment system shown in Fig. 1.

The better implementation of animal welfare assessment system will be resulting a better animal welfare practices in the production process. This will create a more sustainable cattle production as the information provided from this system will give an improvement strategy to the farmer. Improvement strategy will push the farmer to make a betterment in their housing and management to achieve the animal welfare standard. The implementation animal welfare can prevent many unwanted problems such as disease, stress, and injury from improper handling and management of the animal.



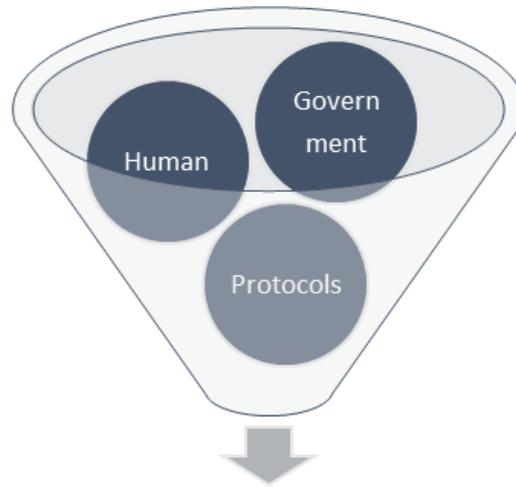
**Figure 1:** Applications of the animal welfare assessment system protocols (based on Blokhuis et al.).

### 3. Implementation of Animal Welfare Assessment System in Indonesia

Implementing a good animal welfare practice means increasing the quality farm animal life and its final products. For example, the outbreaks of animal diseases such as Bovine Spongiform Encephalomyopathy (BSE) or popular as Mad Cow has increased the awareness of European society about the negative side of an intensive and conventional livestock farming. Responding to this concern, the European Commission, together with Food and Agriculture Organization (FAO) of the United Nations and Farm Animal Welfare Committee (FAWC) has suggested the developed policy instrument that will aid in improving animal welfare assurance schemes [22].

A sustainable cattle production in Indonesia may be achieved if there is a better animal quality of life. The three main elements in establishing the animal welfare assessment system is human, government, and protocols. Ingenbleek [22] stated that researchers have already emphasized that it is important for that three elements to setting up of legislation [23], farmer education [24], incentives systems for farmers [25], consumer education [26], and labelling. The construction between these three elements and the approaches shown in Fig. 2.

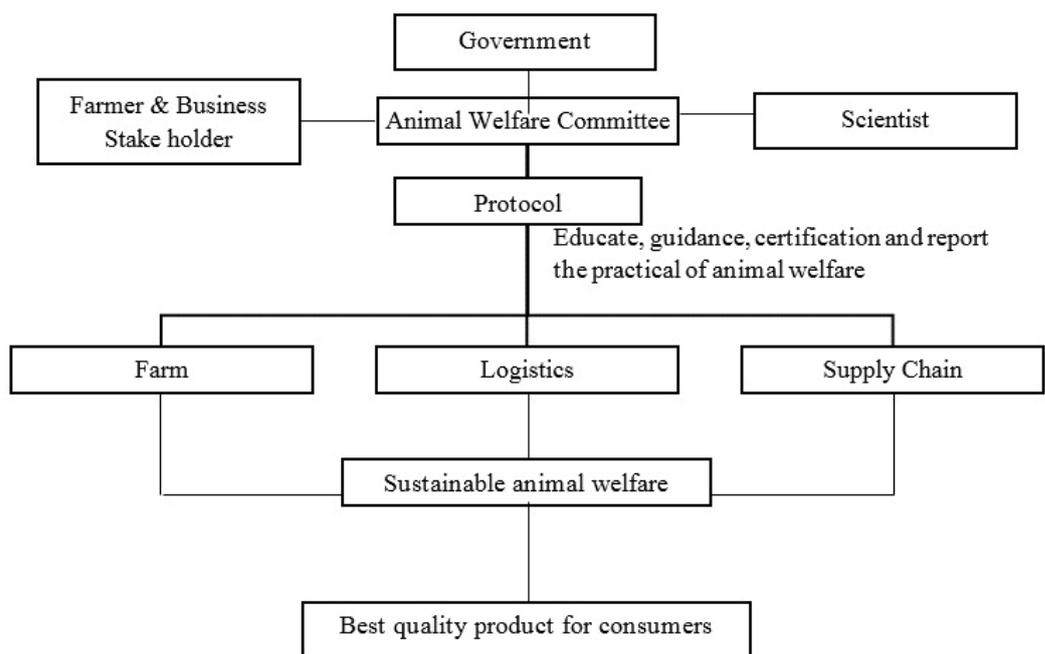
Looking at the condition of Indonesian cattle production, the establishment of Animal Welfare Committee is a sustainable system to implement the animal welfare assessment system. This committee will be working to educate, guide, certify, and give report on the practical of animal welfare in Indonesian cattle production. The committee will provide information to the public, manufacturers, and also consumers about the animal welfare



**Legislation, consumer and farmer education, product labelling**

**Figure 2:** The three important elements in establishing animal welfare in farming system.

status of the products they use. Information obtained from this evaluation is expected to provide a strategy to improve business performance from farmers and business people in logistics and supply chain system. We proposed the system of Animal Welfare Assessment System as presented in Fig. 3.



**Figure 3:** System of animal welfare committee.

Assessment criteria and monitoring protocol is important to be discussed by a hybrid forum consist of government, scientist, farmers, consumers, and other business stake holder. This can be implemented by establishing the legal animal welfare committee to

discuss on what animal welfare is and how it should be measured [27] considering the condition in Indonesia. As adopted from Miele and Lever [19], to introduce the livestock products to the society or consumer which have concern to the livestock welfare, the animal welfare committee can gather to make regulation based on scientific research about the criteria of the livestock products in order to create a general definition of animal welfare.

## 4. Conclusions

Welfare assessment system is expected to create the implementation of a sustainable animal welfare. Guard quality and production of animal products by human treatment in farming, logistics, and supply chain can be provides many advantages such as reducing damage to the carcass. It would be beneficial for producers, retailers, and the food chain participants. Consumers are now starting to care about animal welfare that represent business opportunities that is beneficial to the commercial strategy. Animal welfare is now recognized as the most important attributes of the concept of food quality, therefore, the implementation of animal welfare may lead the sustainable production system.

The implementation of animal welfare strongly needs the cooperation from many elements such as human, government, and protocols. The establishment of legal and recognized animal welfare committee can help the implementation of animal welfare assessment system in Indonesia. We suggest that it is important to bring this issue to the public and furthermore research and discussion to make this idea real and support the sustainable cattle production in Indonesia.

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