



UDC 332

COMMUNITY'S PERCEPTION TO THE EXISTENCE OF PIGS' FARM IN LANGKE REMBONG SUB-DISTRICT OF MANGGARAI REGENCY, INDONESIA

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ABSTRACT

A research was conducted in order to determine the community's perception to the pigs' farm existence in Langke Rembong Sub-district, Manggarai Regency, Indonesia. The research method applied was survey. Data were collected in two stages. First, five villages were selected as location samples refers to the high population of the pigs. Second, the criteria of respondents were people who live surround the location of the pigs' farm and direct neighbors of the pig's farmers with a radius of 10 m -15 m. Therefore, the research covered totally 200 respondents. Primary data were obtained by applying observation and directly interview based on prepared questionnaires. The data, then, were analyzed descriptively statistic using *Likert* scale based on rating value of each answer. There were four variables observed, namely smell, waste processing, and social cultural. The result showed that the community's perception on sub variable of smell reached 67.7% which categorized moderately disturbed. In contrast, concerning voice, there was 48.4% of the community's perception was not disturbed by the voice. However, 73.4% of the community's perception was disturbed by the waste processing existence. The sub variable of social cultural showed that 70.6% of the communities perception was agree with the existence of the pig farms.

KEY WORDS

Community's perception, environment, livestock, farming, pigs.

Pigs' farm is a potential farm in Langke Rembong Sub-district, Manggarai Regency, Indonesia. Most of the farm is focused on pigs fattening (Luju, 2023). Actually, the pigs' population in the sub-district was higher than that of the other livestock. It was reported that in 2018, the pig's population reached at 3,411 heads. Then, in 2019 it was reached at 5,103 heads and increased to 5,063 heads in 2020. It means, in period of 2018–2019, the pig's population in the sub-district was increased to 49.6%, although in period of 2019–2020 the pig's population was decline to 0.78% as a cause of *African Swine Fever (ASF)* (BPS Manggarai, 2021).

It was also reported that it was not only a high population of the pigs, but also a high number of pig's slaughtering in Langke Rembong Sub-district. In 2018, there were 11,200 pigs slaughtered and produced 378,000 kg of pork (Laporan Kinerja Dinas Peternakan Manggarai, 2019). Then, in 2019 the slaughtering pigs reached at 12,020 heads and the pork production increased to 405,675 kg. It means, during the period of 2018–2019, the number of pigs' slaughtering in the sub-district increased 7,3% as same as the pork production that increased to 7,3%. A high number of the pigs' population and slaughtering refers to the role of the pigs in social cultural activities of Manggarai's community. The social cultural needs of pigs were as bride's gift, pork for feast menu, and tradition rituals. Besides, a high preference of the community in consuming pork supported the pork's and pigs' demand.

A high demand of pork and pigs has been motivating most of the households in Langke Rembong Sub-district to raise pigs and run the farm as a potential business. The farm was mainly in a small-scale. However, the existence of the pigs' farm in neighborhood causes another problem, such as noise and bad smell. Nelwan, *et al.*, 2021 stated that the problem facing was a negative impact in relation to noise, bad smell or pollution of air, include pollution of water and soil. The other problem faced was social conflict among the community and the pigs' farmers.



The existence of the pigs' farm in neighborhood must be well managed to prevent the negative effect of the pigs to the community health. Suryawan *et al.*, 2014 stated that pig has a high potential as a host of zoonosis disease, for instance infection of *Entamoeba spp.* Actually the *Entamoeba spp.* causes diarrhea in human. Flies surround the pigs' shade can be the host another disease likes swine flu (H₁N₁) (Hetharia and Loppies, 2021). Hadi *et al.*, 2011 mentioned that the low quality of the environment and management surround the pigs' shade support the life of blood suck mosquito which can be the spread of vector namely *Japanese encephalitis*.

Nowadays, complaints have been rising due to the existence of the pigs in the community neighborhood in Langke Rembong Sub-district. The complaints rise since the pigs' farmers have no responsibility in managing the pigs' waste, noise, and pollution of air, water, and soil. Therefore, the impact of the pigs' existence causes various perceptions. An experience of a person in an incident will influence perception of the person to the object of incident either positive or negative perspective.

Perception is an evaluation process of a person to a specific object. Sunarto (2003) stated that perception is an activity to observe, to integrate, and to evaluate both physical and social object. Perception depends on physical and social stimulation in an environment that will be processed in form of hope, value, memory attitude, etc. In perception process, an individual or a person is expected to present his / her evaluation or perception that might be positive or negative, as well as happy or unhappy. Based on the previous description, a research was conducted about: "Community's Perception to the Existence of Pig Farms in Langke Rembong Sub-district, Manggarai Regency, Indonesia.

METHODS OF RESEARCH

The research was conducted in Langke Rembong Sub-district, Manggarai Regency, Indonesia. The research was held in six months that covers preparation, data collection, include tabulation and data analysis. The collection data were done during one month from April 2023 to May 2023. Based on characteristic aspects, there are two kinds of data research, namely qualitative and quantitative data. Qualitative data are data in statement or sentences describe and explain indicators of the pigs' farm observed. Then, the quantitative data were data in numbers or statistic that can be measured objectively and rationally and the data can be analyzed. The qualitative data will be transferred into quantitative data by applying measurement of Likert scale based on value rating.

Regarding data source, the research data consist of two kind data namely primary data and secondary data. The primary data were obtained based on result of observation and direct interview. The interview was done to the neighbors or community live close to the pigs' farm. The interview was taken base on prepared questionnaires. Further, the secondary data were the data obtained from any source or did not obtained by the researcher. The secondary data were obtained from relevant literatures, such as data from *Badan Pusat Statistik, Dinas Peternakan*, articles, text books, etc.

Population of the research was all community in Langke Rembong Sub-district, Manggarai Sub-district, Indonesia. Samples were collected in two stages. First, selection of village samples using *purposive sampling* based on criteria that the village samples have the highest population of pig. According to the criteria, there were five sample villages selected from 20 villages in the sub-district. The sample villages were Kelurahan Rowang, Bangka Nekang, Watu, Mbaumuku, and Karot.

Second, selection of respondent using a non-proportionally random sampling method. The respondent's criteria were: 1) members of community live surround the pigs' farm, and 2) location of the respondents' house was 10-15 m of the pigs' farm. Each village represented by 40 respondents. Total number of the respondents was 200 respondents.

Method of the research applied was survey. Methods of collecting data were observation, interview, and documentation. Observation was a technique of collecting data based on the research objects. Then, the interview was a technique of collecting data by directly interviewing the respondents based on prepared questionnaires. The interview



covers the research variables. Moreover, documentation was a technique of searching relevant information published on references such as journal, books, institutions' report, etc. The documentation technique was important to analyze data in depth.

Method of data analysis applied was statistically descriptive. The statistically description based on grouping, simplifying, and showing data using table of distribution frequency and measurement by applying *Likert* scale. Riduwan (2008) mentioned that the *Likert* scale was applied to measure attitude, opinion, and perception of an individual or a group of people deal with an incident or social problem.

The *Likert* scale applied as follow: variables that will be measured were explained in indicators so the variables can be measured. Then, those indicators were used as starting points to arrange instrument items either in form of statement or question. The arrangement of items consist of 12 *favorable questions* stated that the community's perception to the existence of the pigs' farm in Langke Rembong Sub-district, Manggarai Regency, Indonesia. Each answer was related to the form of the statement or attitude support that explained in words as categorized as follow: too disturbed / totally agree (5), disturbed / agree (4), disturbed / relatively agree (3), not disturbed / do not agree (2), and not too disturbed / totally do not agree (1).

Table 1 – Variables and indicators of the research

Variable	Sub Variable	Indicator
Community's Perception	Smell (nose)	Too smell
		The smell does not go away easily
		The smell continues all day
	Voice (ears)	Snoring voice
		Continuous sound
		Too noisy
	Waste management	Stacked in the pool waste
		Not clean enough
		Thrown directly into the sewage / river
	Social cultural	Community's agreement
		Environmental adaptation
		Tradition of raising pigs

The measurement of each research indicator can be described as follows. In order to determine the answer category of each sub-variable, previously must determine values of maximum index, minimum index, interval, and class range. The determination categories were done as follow: maximum value = the highest score x number of sample x number of question = $5 \times 200 \times 3 = 3,000$; minimum value = the lowest score x number of sample x number of question = $1 \times 200 \times 3 = 600$; interval = maximum value–minimum value = $3,000 - 600 = 2,400$; and class range = (maximum value–minimum value) / total score = $(3,000 - 600) / 5 = 480$. Based on those value, it can be done category as follow: too disturbed: 2,520–3,000; disturbed: 2,040–2,519; relatively disturbed: 1,560–2.039; not disturbed: 1,080–1,559; and very undisturbed: 600 –1,079.

In order to understand all values to measure the community's perception to the existence of the pigs' farm in Langke Rembong Sub-district, classification or grouping was used as follow: maximum value = the highest score x number of sample x number of score = $5 \times 200 \times (3+3+3+3) = 12,000$; minimum value = the lowest score x number of sample x number of question = $1 \times 200 \times (3+3+3+3) = 2,400$; interval = maximum value–minimum value = $12,000 - 2,400 = 9,600$; and class range = (maximum value–minimum value) / total score = $(12,000 - 2,400) / 5 = 1,920$. Based on that value, it can be done categories as follow: too disturbed / totally agree: 10,080–12,000; disturbed / agree: 8,160–10,079; relatively disturbed / relatively agree: 6,240–8,159; not disturbed / not agree: 4,320–6,239; and very undisturbed / totally disagree: 2,400–4,319.

RESULTS AND DISCUSSION

The pigs' farm could not be separated from social and cultural aspects of Manggarai's community. This fact relates to the using of pigs in most of the social cultural activities of the



community. Condition of an area plays an important role in developing the pigs' farm. Sihombing (1997) said that an environment temperature influences pig's performance. The fit temperature for pigs was 20°C–27°C. The lower the temperature of the environment, the higher the amount of feed consumption. Therefore, the higher the feed of energy will be transferred into production of body heat and meat production. In Langke Rembong Sub-district, the average of daily temperature is 20°C–22°C (BPS Kabupaten Manggarai, 2020), so this condition is good to raise pigs.

Commonly, the pigs in Langke Rembong Sub-district raises in small-scale scale or household scale. Each farmer or household raises 2–3 heads of pig. Population of the pigs in the sub-district was 5,103 heads in 2020 (Badan Pusat Statistik Kecamatan Langke Rembong, 2020). It was reported that the population of the pigs in 2020 was 255.15 ± 123.04 heads / village with its coefficient correlation (CV) was 48.22%. This result indicated that 51.78% of the pigs' population / village were on range of 132.10–378.19 heads, while 48.22% of the pigs' population was less than 123.04 heads or higher than that of 378.19 heads.

The pigs' farm in Langke Rembong Sub-district applied semi-intensive system and mainly focused on *fattening* program (Luju, 2023). Feed for the pigs raised were local feed. Most of the feed source was agricultural by-products such as rice-bran, banana stem, taro, cassava, and sweet potato leave. Actually, the research site was a highland area with a high rainfall intensity and humidity as well as it has fertile soil that supports the production of agricultural products as feed sources.

Management of raising the pigs in the research site can be explained based on some aspects. The aspects were raising system, pigs' shed, feed, breed, health care, and marketing. Luju *et al.*, (2023) stated that the raising system of the pigs in Langke Rembong Sub-district consists of two kinds namely traditionally and semi-intensive systems. Characteristics of the traditionally raising system were: 1) the pigs were tethered on backyard or kept in simple and small shed made from bamboo or local woods, 2) the pigs were fed irregularly with low quality and low quantity of feed, 3) the feed source were agricultural by-products and food waste, 4) feed equipment were made of portable manger for pigs' feed, and 5) no health care anymore such as vaccination, vitamins, and medicine. The traditionally system was applied by 82% of the community in Langke Rembong Sub-district.

Further, the semi-intensive raising system characteristics were as follow: 1) the pigs were shed, 2) the shed constructions were semi-permanent and permanent, 3) the pigs were regularly twice a day with proper quality and quantity of feed. Luju *et al.*, (2023) reported that 67% of the pigs' farmers in Manggarai Regency using bamboo and local woods for the pigs' shed, while only 23% using the shed with cement floor and cement wall. Regarding marketing system of the pigs in Langke Rembong Sub-district, two systems were found. First, the pig were sold directly to the middlemen. Second, the pigs were sold to butchers. The butchers will sell pork to the consumer in the market.

There were three kinds of selling pork in Manggarai Regency, namely *julu* or *leis*, *lemba*, and *condo*. Characteristics of *julu* or *leis* were described as follow: 1) *julu* or *leis* was a payment system of pork in credit, 2) the credit will be paid at the next month based on the agreement of the sellers and buyers, 3) pork comprises all part of carcass and edible non-carcass at 1.5 kg / portion / person, 4) both seller and buyer were relatives, and 5) the buyers' name were list before slaughtering the pigs. Then, characteristics of *lémba* was a selling system of pork in cash from door to door. *Lemba* system has not been found in Langke Rembong Sub-district. Further, characteristics of *condo* was described as follow: 1) *condo* was a selling system of pork in cash, 2) *condo* was done by the pork's sellers on the market especially for unsold pork of the day, 3) the pork was sold cheaper than the real price, and 4) the buyers were friends and relatives.

The perception of community on the existence of the pigs' farm in Langke Rembong Sub-district, Manggarai Regency can be described based on its sub variables such as smell, voice, waste management, include social and cultural.

Table 2 shown that the sub variable smell of the pigs' farm has total score value of 2,032. This value was categorized as relatively disturbed. It means that 67.7% of the



community's perception was relatively disturbed to the smell of the pigs' farm. The smell source was the pigs' waste such as feces, urine, and feed. Difference of perception on the smell because of the house distance from the pigs' farm. The average of the distance was less than 10 m, therefore the smell was directly effects the community. The pigs' waste has not been well managed, so when it is sunny the smell will strong scent along the day. The smell was very disturbed during windy. Location of the pigs' farm in the neighborhood with lots of buildings causes the smell was trapped in those buildings.

Table 2 – Perception of respondents for sub variable of the pigs' farm smell

Indicators	Total score	Category of answer
Very strong smell	650	Relatively disturbed
The smell does not go away easily	700	
The smell exist all day	682	
Total	2.032	

Source: Primary data analysis, 2023.

Dario *et al.*, (2022) stated that air pollution caused by smell is a problem faced in settlement nearby industries and animal farms. The smell can rise complaints even community's conflict, and it influences the people comfort to work, eat, and sleep. In addition, the problem of bad smell in the pigs' farm can be overcome by arrange ventilation and shed's temperature to decrease emission of *ammonia* (NH₃), keep clean the shed sanitation, plant with border's plants such as bush and shrubs. These solutions are urgent because the smell problem or the air pollution will affect the community's health and uncomfortable the community's activities.

Yan *et al.* (2016) mentioned that the using of LiP (Lignin peroxydase) with different electron acceptor can decline the smell emission of pigs' waste a40–60%. Effect of the LiP as bad smell avoider can last in three days, therefore it will easy to process the waste before taking it out. Lignin peroxydase is easy to produce through biological fermentation and safe for the environment.

Based on Table 3 on sub variable of voice, it can be known that the perception of community categorized as not disturbed with total score of 1,452. Indicator of kator noisy continuously reached at 36.5% at category answer as relatively disturbed. This condition occurred due to the settlement was located nearby the pigs' farm.

Table 3 – Perception of respondents sub variable of the pigs' voice

Indicator	Total score	Category of answer
Snoring	468	Not disturbed
Noisy continuously	513	
Noisy	471	
Total	1,452	

Source: Primary data analysis, 2023.

Hetharia and Loppies (2021) as same as Sara *et al.*, (2022) stated that the pigs' voice very clearly to be heard because the settlement is located next to the pigs' farm. In addition, the loud voice will be heard in the morning and during the day at fed time. However, on indicator of loud voice and snoring reached 37% on category answer not disturbed. This fact was significant relation to the community's tradition in using speaker to enjoy music loudly. Therefore, the loud voice and snoring from the pigs' farm were not disturbed them.

Table 4 showed that the community's perception to the variable of processing the pigs' waste was disturbed with the total score reached at 2,203. It means, 73.4% of the community's perception was disturbed with the way of processing the pigs' waste. Indicator of thrown directly the waste to the sewage / river reached the highest category of answer as too disturbed. It means the pigs' waste that thrown directly to the sewage / river was very disturbed or harmful to the community. This case rose because the pigs' farm was established nearby the river and the land of the pigs' shed was narrowed, therefore the



waste was flowed directly to the sewage / river. This activities causes the water pollution. Then, sometimes, the sewage was broken so the waste was flooded and created bad smell. This condition was risky because it can spread any pigs' disease.

Table 4 – Perception of respondents on sub variable of processing the pigs' waste

Indicator	Total score	Category of answer
Stacked in the pool waste	674	Disturbed
Unclean	715	
Thrown directly to the sewage / river	814	
Total	2,203	

Source: Primary data analysis, 2023.

The condition of the pigs' farm in Langke Rembong Sub-district was as same as the research result conducted by Angi *et al.*, (2014) which found that 25% of the pigs' farmers flowed the pigs' waste to the sewage or drainage. Additionally, this activity makes the pigs' easier to be suffered from disease and the environment was not hygienic.

The perception of community on indicator of unclean reached at 39% with category answer was relatively disturbed. The limitation of the farmers' knowledge in raising pigs' management particularly the shed's sanitation was a problem faced that the farmers did not aware with the pigs' shed sanitation. This case occurred since after feeding the pigs the farmers went home without cleaning the shed.

Actually, the pigs' waste contains a high number of bacteria called *Eschericia coli* that causes pollution to the environment especially water and soil. Then, the waste accumulation effects the pollution of air and water. Further, flies from the waste were risky in spreading disease to the humans.

Table 5 showed that the community's perception on variable of social cultural was agree with total score value reached at 2,118. It means that 70.6% of the community's perception was agree to the social cultural variable. The indicator of culture to raise the pigs traditionally gained agree perception that reached at 61%. It means that the community live surround the pigs' farm location were happy with the tradition of raising the pigs. Moreover, the community also agree to the existence of the pigs' farm in Langke Rembong Sub-district. The result of this research was in line with the result research conducted by Wulandari *et al.* (2018). Wulandari *et al.* (2018) stated that the existence of the pigs' farm has a positive impact to the community live surround the pigs' farm, such as to provide job and to increase the community's income.

The culture of raising pigs has a significant relation to the community's tradition such as always prepare pork for meal in wedding ceremonies, ritual namely *penti*, and *pesta sekolah*. *Penti* is a ritual to thanksgiving and gratitude to God and the ancestors for the harvest as well as a medium of reconciliation or peace between villagers, while *pesta sekolah* is a feast held by inviting friends and relatives in a village to contribute money to support a student of a family to study in a university). The community sustains the culture to raise pigs by using local materials such as bamboo and local wood.

Lalus *et al.* (2022) stated that commonly, the existence of the pigs has a close relation to the social cultural aspect and tradition of community in Nusa Tenggara Timur (NTT). The pigs have important role in tradition ceremonies such as wedding and death. For instance, in Timorese (*Atoni Meto* or people of Timor) in Kupang Regency, NTT, pork and beef must be prepared and served as menu for the wedding feast or wedding ceremony.

Table 5 – Perception of community on sub variable of social cultural to the pigs' farm

Indicator	Total score	Category of answer
Community's agreement	754	Agree
Adaptation to the environment	629	
Culture of raising pigs traditionally	735	
Total	2,118	

Source: Primary data analysis, 2023.



In contrast, based on indicator of adaptation to the environment, parts of the community were not agreed while the other parts of the community were agreed. Regarding the community's perception who were not agree based on the reason that the smell and the way of pigs' waste processing cause the community difficult to adapt. However, for the community's perception who was relatively agree with adaptation to the environment because the pigs' farm owners were their relatives. Therefore, they were forced to adapt with the existence of the pigs' farm.

Total value of perceptions was an accumulation of total score gained from those four sub variables, namely total score of sub variable smell, sub variable voice, sub variable waste processing, and sub variable social cultural. Therefore, it was gained the final value of the community's perception on the existence of the pigs' farm in Langke Rembong Sub-district, Manggarai Regency, Indonesia.

Table 6 – All perceptions of community

No.	Sub variable	Total score
1	Smell (nose)	2,032
2	Voice (ears)	1,452
3	Waste processing	2,203
4	Social cultural	2,118
Total		7,805

Source: Primary data analysis, 2023.

Table 6 showed that the total value score of the community's perception to the existence of the pigs' farm in Langke Rembong Sub-district, Manggarai Regency was 7,805. It means that 65% of the community's perception to the existence of the pigs' farm was relatively disturbed.

CONCLUSION

Based on the result and discussion, it can be concluded that the community perception to the existence of the pigs in Langke Rembong Sub-district, Manggarai Regency, Indonesia, was relatively disturbed. The community's perception deal with smell of the pigs' farm reached at 67.7% with the category answer was relatively disturbed and 48.4% of the community was not disturbed by the voice of the pigs. The community's perception to the waste processing reached at 73.4% with the category answer was disturbed. Finally, the sub variable of social cultural reached at 70.6% with the category answer was agree.

Therefore, it was recommended that: 1) the farmers should manage the waste properly to avoid the community's uncomfortable; and 2) government should socialized actively in raising the pigs properly and make a regulation focused on the feasible location of the pig's farms.

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