

THE IMPACT OF PIG FARMING ON ENVIRONMENTAL CONDITIONS IN TEGAL SARI MANDALA II VILLAGE, MEDAN DENAI DISTRICT, MEDAN CITY

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Abstract

Keywords:

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This study aims to determine the impact of the existence of pig farming on environmental conditions in Tegal Sari Mandala II Village, Medan Denai District, Medan City. The research method used is qualitative descriptive with data collection techniques through observation, interviews, and documentation. The results of the study show that the existence of pig farming has a negative impact on the community's environment, especially in the form of unpleasant odors, noise from livestock voices, and pollution of livestock waste. This impact is most felt by people who live close to the location of the farm. In addition to negative impacts, pig farming also provides economic benefits for farmers and has the potential to use waste as organic fertilizer and biogas. However, the suboptimal waste management causes the community to still feel disturbed by the existence of the farm. Therefore, better waste management and government supervision are needed so that negative impacts on the environment can be minimized.

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INTRODUCTION

The livestock sector is one of the strategic subsectors in agricultural development in Indonesia because it plays a role in providing animal protein, increasing community income, and absorbing labor. The geographical condition of Indonesia, which has a large land area with a tropical climate, supports the development of various types of livestock businesses, including pig farming. In North Sumatra Province, livestock is one of the sectors that continues to develop. Based on data from the Central Statistics Agency of North Sumatra Province, the pig population has increased from 211,400 head in 2022 to 277, 210 head in 2024. This increase shows that pigs still have an important role as one of the livestock commodities in North Sumatra Province.

Pig farming is one of the livestock businesses that has a fairly high economic value, especially in areas that socially and culturally do not have a ban on pork



consumption. In addition to having relatively fast growth, pigs are also able to produce meat in large quantities so that it becomes one of the sources of meeting the community's food needs. However, pig farming activities also have the potential to have an impact on the environment if waste management is not carried out optimally. Waste in the form of feces, urine, feed residues, cage washing water, and gas emissions from the decomposition of organic matter can cause air and environmental pollution, especially if the location of the farm is in a residential area.

Environmental problems due to pig farming are generally in the form of bad odors, noise from livestock sounds, and pollution from livestock waste. These conditions can reduce the quality of the environment and the comfort of the people living around the farm location. The closer the distance between the settlement and the location of the farm, the greater the potential for the community to feel the impact. Low livestock waste management causes these environmental impacts to still be often encountered, especially in urban areas that have high population density.

The city of Medan is one of the regions that has stipulated the Regulation of the Mayor of Medan Number 26 of 2013 concerning the Prohibition of Four-legged Animal Husbandry in urban areas. However, in Tegal Sari Mandala II Village, Medan Denai District, there are still pig farming activities located in the middle of residential areas. The existence of these farms has the potential to have various impacts on environmental conditions, especially in the form of unpleasant odors, noise from livestock voices, and livestock waste that can disturb the comfort of the surrounding community. These conditions show that there is a gap between the applicable provisions and the conditions that occur in the field.

A number of previous studies have shown that the existence of pig farms in residential areas generally causes negative perceptions from the public because of the odor, waste, and noise produced. However, research on the impact of pig farming on environmental conditions in Tegal Sari Mandala II Village, Medan Denai District, Medan City has not been widely carried out. Therefore, this study is important to provide an overview of the impact of the existence of pig farming on environmental conditions reviewed from the aspects of smell, sound, and waste, as well as to review the enforcement of Medan Mayor Regulation Number 26 of 2013 concerning the Prohibition of Four-legged Animal Farming at the research site. The results of the research are expected to be a reference for local governments, communities, and related parties in efforts to manage the environment and organize livestock activities in urban areas.

LITERATURE REVIEW

The environment is a spatial unit that includes all biotic and abiotic elements that interact with each other in supporting human life and other living things. According to Law Number 32 of 2009 concerning Environmental Protection and Management, the environment includes all objects, powers, circumstances, and living things, including humans and their behaviors that affect the survival and welfare of the community. The environment has an important role in maintaining the balance of the ecosystem so that every human activity that has the potential to cause pollution must be managed properly so as not to damage the quality of the environment.

One of the human activities that is closely related to the environment is livestock activities. Livestock farming is a business for the maintenance and breeding of livestock to obtain economic benefits, such as the provision of food, industrial raw materials, and

a source of community income. In practice, livestock activities not only generate economic benefits, but can also have an impact on the environment if not managed properly. Livestock waste in the form of feces, urine, feed residues, and cage washing water can be a source of environmental pollution, especially air and water pollution.

Pig farming is a type of livestock business that is quite developed in several regions of Indonesia, including North Sumatra. Pig farming has high economic value because it grows rapidly, has a high reproduction rate, and is capable of producing large quantities of meat. In addition, pigs can also use agricultural waste as a source of feed so that maintenance costs are relatively more efficient than some other types of livestock. However, behind these economic benefits, pig farming is also known as a type of livestock business that has the potential to cause environmental disturbances if its waste management is not done properly.

Pig farm waste is one of the main problems that people often complain about, especially if the location of the farm is close to residential areas. Livestock waste in the form of feces, urine, feed residues, and cage washing wastewater can produce an unpleasant odor due to the process of decomposition of organic matter by microorganisms. In addition to odors, pig farms can also cause noise disturbances and increase the number of flies around the cage environment. This condition causes community comfort to decrease and has the potential to cause environmental pollution if waste is disposed of without adequate treatment.

According to several previous studies, the existence of pig farms in residential areas often causes negative perceptions from the public. Research by Charliany Hetharia and Yerrynaldo Loppies (2021) shows that people feel disturbed by strong odors, livestock noises, and environmental pollution from pig farming activities. Another study by Asmara, Esti, and Yuliana (2024) also showed that the community around pig farms was disturbed by odors and an increase in the number of flies due to poor waste management. In addition, the research of Rahayu et al. (2024) explains that waste and noise from pig farms cause a decrease in the comfort of the community environment around the farm location.

In the context of urban areas, the existence of pig farms is often considered inappropriate because urban areas are generally dominated by densely populated settlements. Therefore, some local governments have set rules regarding the prohibition of four-legged animal farming in urban areas. The Medan City Government through Medan Mayor Regulation Number 26 of 2013 prohibits the business of four-legged animal farming, including pig farming, in urban areas. The regulation aims to maintain the cleanliness, health, and comfort of the community's environment.

However, pig farming also has a positive impact if the waste can be managed properly. Livestock waste can be used as organic fertilizer or biogas raw materials that can be used as an alternative energy source. The use of this waste not only reduces environmental pollution, but also provides economic added value for farmers. Therefore, good livestock waste management is one of the important factors in reducing the negative impact of livestock on the environment.

Based on various theories and previous research, it can be understood that the existence of pig farming has a close relationship with the environmental conditions of the surrounding community. Livestock activities that are close to residential areas have the potential to cause disturbances in the form of odor, noise, and waste pollution if not supported by a good environmental management system. Therefore, research on the

impact of pig farming on environmental conditions in Tegal Sari Mandala II Village, Medan Denai District, Medan City, Medan City is important to find out how livestock activities affect the comfort and quality of the surrounding community.

RESEARCH METHODS

This study uses a qualitative descriptive method that aims to describe the impact of the existence of pig farming on environmental conditions in Tegal Sari Mandala II Village, Medan Denai District, Medan City. The research was carried out in the area of Jl. Tangguk Bongkar V, VI, VII, and VIII because the area is a location that is directly adjacent to pig farming activities in densely populated residential areas.

The population in this study is the people living around the location of the pig farm as well as the head of the environment in the study area. Sampling was carried out by purposive sampling technique, which is to select informants who are considered to know and feel the impact of the existence of pig farms. The research informants consisted of people living in the zone closest to the farm as well as the head of the local environment.

Data collection techniques are carried out through observation, interviews, and documentation. Observation is carried out by directly observing the environmental conditions around the farm, such as smells, livestock sounds, hygiene conditions, and livestock waste management. Interviews were conducted with the community and environmental heads to obtain information about the impact of the existence of pig farms on the comfort and environmental conditions of the community. Documentation is used to complete research data in the form of photographs, field notes, and other supporting documents.

The data obtained were analyzed using the Miles and Huberman interactive analysis model which included the stages of data collection, data reduction, data presentation, and conclusion drawn. The validity of the data is carried out through the source triangulation technique by comparing the results of observations, interviews, and documentation so that the data obtained is more valid and can be scientifically accounted for.

RESULTS AND DISCUSSION

The results of the study show that the existence of pig farming in Tegal Sari Mandala II Village, Medan Denai District has a significant impact on the environmental conditions of the surrounding community. The impact is mainly related to aspects of smell, sound, and livestock waste that are directly felt by the people living around the location of the cattle shed. Based on the results of field observations and interviews with the community and environmental heads, the most dominant impact felt by the community was the unpleasant odor coming from pig manure. The smell arises from the accumulation of feces, urine, leftover feed, and cage washing water that is not managed optimally. The pungent smell is usually more pronounced in the morning and evening, especially when the weather is hot and when the cleaning process of the cage is carried out. This condition causes people to feel uncomfortable in carrying out daily activities, both in the house and in the environment around where they live.

People who live in the closest radius from the location of the farm, especially in zone I with a distance of 0-50 meters, are the group that feels the most negative impacts from pig farming activities. Most people state that the smell produced from livestock

often interferes with rest time, eating activities, and the comfort of the residential environment. In addition, the community also complained about the appearance of flies in large numbers around the house due to unclean cage conditions and accumulated organic waste. The existence of these flies is considered to interfere with the cleanliness of the environment and raise concerns for public health.

In addition to the unpleasant smell, the existence of pig farms also causes noise disturbances that come from pig farms. Cattle sounds are generally heard at the time of feeding, when cattle are being moved, or when cattle are in certain conditions. The noise is felt by the community to be quite disturbing, especially at night and early in the morning when the environment is calm. Although the impact of sound is not as large as the impact of smell, the community still considers that noise from pigs causes a reduction in the comfort of the residential environment. Based on the results of the interviews, people who live closer to livestock pens tend to feel sound disturbances more often than people who live in more distant zones.

The results of the study also show that the management of livestock waste at the research site has not been carried out optimally. Livestock waste in the form of feces, urine, feed residues, and cage washing water is still disposed of simply without an adequate treatment process. In some parts around the farm location, puddles of wastewater were found that caused an unpleasant smell and caused the environment to look dirty. This condition shows that the livestock waste management system still does not meet good environmental management standards. If this condition continues in the long term, it has the potential to cause environmental pollution and reduce the health quality of the surrounding community.

Based on the results of observations, the location of pig farms in the middle of densely populated residential areas is one of the main factors that cause environmental impacts to be felt directly by the community. Tegal Sari Mandala II Village is an urban area with land use dominated by residential areas. Therefore, the existence of pig farms in the area is considered less suitable for urban environmental conditions because livestock activities produce waste, odors, and sounds that affect the comfort of the surrounding community. This condition is strengthened by the opinion of the community which states that pig farms should be located far from residential areas so as not to cause environmental disturbances.

The results of interviews with the head of the neighborhood also show that the existence of pig farms in the area has been going on for quite some time. However, until now there is still no maximum handling related to waste management and control of livestock locations. The community considers that the supervision from the local government over livestock activities is still not optimal so that the farm continues to operate even though it is located in densely populated residential areas. In addition, the community also considers that the existence of pig farming in Tegal Sari Mandala II Village is contrary to the Regulation of the Mayor of Medan Number 26 of 2013 concerning the Prohibition of Four-legged Animal Farming in urban areas. Based on the regulation, four-legged animal farming businesses are not allowed to be in urban areas because they have the potential to cause disturbances to the cleanliness, health, and comfort of the community's environment.

Although the existence of pig farms has more negative impacts on the environment, this study also found that there is a positive impact from the economic aspect. The pig farming business is one of the sources of income for livestock owners and

helps meet the economic needs of the family. In addition, pig farming also provides business opportunities for certain communities, especially in feed sales, livestock transportation, and livestock trade. However, these economic benefits have not been able to reduce public complaints related to the environmental impact caused by livestock activities.

In this study, it was also found that livestock waste actually has the potential to be used as organic fertilizer or biogas if managed properly. However, at the research site, the use of waste is still not carried out optimally so that waste is more of a source of environmental pollution than a source of economic benefits. Therefore, it is necessary to apply better waste treatment technology so that livestock waste can be used optimally while reducing the impact of environmental pollution.

Overall, the results of the study show that the existence of pig farming in Tegal Sari Mandala II Village, Medan Denai District has a considerable influence on the environmental conditions of the surrounding community. The main impacts felt by the community include unpleasant odors, noise from livestock voices, environmental pollution due to waste, and decreased environmental comfort in settlements. This impact is felt more by the people who live closest to the location of the farm. In addition, weak supervision and waste management cause environmental problems to continue. Therefore, more serious attention is needed from local governments, farmers, and the community in supervising, managing waste, and arranging livestock locations so that negative impacts on the environment can be minimized and the quality of the community settlement environment is maintained.

CONCLUSION

Based on the results of research on the impact of pig farming on environmental conditions in Tegal Sari Mandala II Village, Medan Denai District, Medan City, it can be concluded that the existence of pig farming has a significant impact on the environment of the surrounding community, especially in terms of smell, sound, and livestock waste. The most dominant impact felt by the community is the unpleasant odor coming from livestock manure, urine, feed residues, and cage washing water. The smell causes discomfort for the community, especially for residents who live closest to the location of the farm.

In addition to smell, the existence of pig farms also causes noise disturbances from the sound of livestock which is quite disturbing to the comfort of the surrounding community. Livestock waste management that is not optimal causes the environment around the cage to look less clean and has the potential to cause environmental pollution. Livestock waste that is not properly treated also causes the appearance of flies and reduces the quality of the community settlement environment.

The results of the study showed that people who were in the zone closest to livestock felt a greater impact than people who lived in more distant zones. This shows that the distance between the settlement and the location of the farm greatly affects the level of environmental disturbance felt by the community. In addition, the existence of pig farms in densely populated residential areas is considered not in accordance with the conditions of urban areas and is contrary to the Regulation of the Mayor of Medan Number 26 of 2013 concerning the Prohibition of Four-legged Animal Farming in urban areas.

However, pig farming also has a positive impact from an economic aspect because

it is a source of livelihood for livestock owners and has the potential to use waste as organic fertilizer and biogas. However, these benefits have not been able to reduce the negative impact felt by the community due to less than optimal waste management.

Overall, this study shows that the existence of pig farms in Tegal Sari Mandala II Village has more negative impacts on the environmental conditions of the community. Therefore, better waste management, stricter government supervision, and the arrangement of livestock locations are needed so that negative impacts on the environment and community comfort can be minimized.

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