

LOCALS ' PARTICIPATION IN SWINE FARM POLLUTION MANAGEMENT: A CASE STUDY OF BAN DU SUBDISTRICT ADMINISTRATIVE ORGANIZATION, AT SAMAT DISTRICT, ROI ET PROVINCE

Kritiya Sukperm

Rakray01@hotmail.com

Pimonsak Nilphai

Sujujoko@hotmail.com

Pinbunya Lummana

Pinbunya.1144@gmail.com

Faculty of Law & Politics, Roi Et Rajabhat University, Roi Et , Thailand

Abstract

The researcher study objectives; People's participation process in the management of pollution in swine farm; The advantages and disadvantages of the involvement of citizens in the management of pollution in swine farm, and The offering the participation of citizens in the management of pollution in swine farm to Bandu Subdistrict Administrative Organization At Samat District Roi Et Province.

The study found that the participation of the people are the advantages to manage pollution from pig farms are getting information that the community has prompted complaints from the public, both formal and informal. There are used to control pollution from pig farms are local ordinances in entrepreneurship swine B.E.2557 which announced to public knows the content is effective against swine owners and residents in the area.

Keywords: The participation of citizens, Swine Farm Pollution Management.

1. Introduction

People's participation is an international practice to which civilized countries pay great attention. It is also a key aspect on which the Thai society is focusing to develop complete participatory democracy where good governance exists. For good governance, the government sector provides opportunities for people and stakeholders to share perception and decision. This builds transparency and quality of the government sector's decision, and it brings acceptance from all the stakeholders. Swine farms are one of the needs of local people. In the past, the density of local population was not as high as today, so pollution from swine farms was not considered an effect on local beings. At present, there are more swine farms than in the past. They have negative effects on communities such as odor pollution which results from a vast amount of swine manure. Improper management of swine manure leaves offensive smells. Theses offensive smells come in forms of gases created by chemical reaction between humidity and temperature. Another

pollution is wastewater which comes from farm pigpen cleaning. A proper wastewater treatment system is needed to prevent wastewater from being drained into public and agricultural areas.

The above pollutions reflect the swine farm pollution management which has to receive participation from the local people living in the area under Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province. In this area, there are still internal conflicts between villagers and swine farm entrepreneurs. The conflicts were generated by pollutions from the swine farm located in Moo 10 (a part of a village), Ban Ngo, Ban Du, At Samat District, Roi Et Province. In this case, the villagers of Moo 10, Ban Ngo, required Ban Du Subdistrict Administrative Organization to take both legislative and social measures in the conflict management. Therefore, this present research was done with an interest in studying the villagers' participation in the swine farm pollution management, and advantages and disadvantages of the participation, and also in guidelines for promotion and support of people's participation in swine farm pollution management.

1.1 Purposes of the Research

1. To study the villagers' participation in the swine farm pollution management.
2. To analyze advantages and disadvantages of the participation.
3. To propose guidelines for promotion and support of people's participation in swine farm pollution management.

2. Method

This is a research and development study with a qualitative design. The scope of the research is as follows:

2.1 Scope of study field: the villagers and the authorities with responsibilities for the swine farm pollution management in the area under Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province.

2.2 Scope of content: the people's participation in the swine farm pollution management.

2.3 Scope of population: the key informants selected from purposive sampling based on the authorities with official legal power in and responsibilities for the swine farm pollution management and the villagers directly affected by the swine farm pollution management. An in-depth interview was conducted to 14 key informants as follows:

(1) 4 entrepreneurs whose swine farms were located in the area under the authority of Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province.

(2) 2 local organization officials (an administrator and an public health administration officer).

(3) 4 headmen from the villages where swine farms of 50+ swine were located.

(4) 4 villagers who were directly affected by the swine farm pollution management of Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province.

3. Results

Results from the analysis of the villagers' participation in the swine farm pollution management of Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province.

In the field study in the area of Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province, the researcher collected data by conducting the interview with the local organization administrator and a public health administration officer, the swine farm entrepreneurs, the headmen, and the affected villagers. Also, the researcher observed and did a walkthrough survey together with the headmen in order to gain a basic understanding of the environment of and the solutions to the swine farm pollution management. The findings are presented as follows:

3.1 The villagers' participation in the swine farm pollution management of Ban Du Subdistrict Administrative Organization, At Samat District, Roi Et Province

The interview with the headman of Moo 7, Ban Du Subdistrict, revealed that the villagers were highly interested in participating in public activities, especially local traditional and religious ones. Common public activities of include Songkran Festival, house warming ceremony, New Year's Day, the Buddhist Lent Day, the End of Buddhist Lent Day, and funeral rite. These activities held the villagers' interest as they are common practices in the local community. The activities were organized by the villagers, and sometimes by projects from local government organizations. It was found that the villagers were fully willing to cooperate if the activities were useful and consistent with their ways of life.

It could be concluded that the villagers' actions of participation were categorized into 5 types.

(1) Perception: People's perception was paid attention by the local state organizations in the area of Ban Du Subdistrict Administrative Organization. Perception was created when the villagers were provided with opportunities to take part in the swine farm pollution management in the area. The villagers were allowed to perceive complaints about the pollution made by affected people. There were two channels for making complains; formal and informal. In the formal channel, complaint letters were directly sent to the local organization administrator. In the informal channel, verbal complaints were made to the headmen.

Moo 10, Ban Du Subdistrict, provided opportunities for the villagers to make complaints about the swine farm pollution. At this village, an odor pollution from the swine manure happened in 2007-2013. Also, Ban Du Subdistrict Administrative Organization has a local ordinance of swine farm entrepreneurship. This local ordinance contained rules that swine farm entrepreneurs and local people had to follow. The administrative organization published the local ordinance on its official website. Also, there were authorities that had official legal power in and responsibilities for the swine farm pollution management. Different government organizations cooperated in the pollution management. For example, At Samat District Agricultural Extension Office promoted and provided academic knowledge for the swine farm entrepreneurs through a constant project. They gave a budget

to support the project, and sent public health officers to visit the farms on a regular basis. Other government organizations in cooperation included Roi Et Provincial Agricultural Extension Office, Bank for Agriculture and Agricultural Cooperatives (At Samat Branch), a community hospital, and At Samat District Public Health Office.

(2) Opinions: A mission of Ban Du Subdistrict Administrative Organization was to build a good management system and to allow people to participate in making plans for environmental protection, development, and conservation. The interview with the headman of Moo 10, Ban Du Subdistrict, revealed that in 2013, Moo 10 villagers were affected by the improper pollution management of the swine farms. The management did not follow hygienic and academic practices. The pollution included wastewater and manure odor which brought diseases and insect pests. The Moo 10 villagers took their right to make complaints to their headman. This was an action of participation in the pollution management. To reconcile the complaints, the village committee mitigated the villagers' troublesome by adjusting the pollution management to meet appropriate principles for health and hygiene.

(3) Cooperation: The interview with the Public Health Division officer found that the Public Health Division of Ban Du Subdistrict Administrative Organization had power in and responsibilities for controlling the use of public health and environmental laws. The division's main duties covered development and improvement of public health and environmental laws, control and prevention of communicable and non-communicable diseases, control of offensive or harmful businesses, and control and prevention of nuisance and pollution. The division also published knowledge on health promotion, disease control, environment control, customer protection, and waste management.

(4) Share of benefits: The interview with a Moo 1 villager, Ban Du Subdistrict, revealed that the swine farms in the area benefited from the pollution management and helped develop the villager's livelihood. Both the entrepreneurs and the villagers gained knowledge and search for solutions to the swine farm solutions. They share opinions on needs of and appropriateness for the community. The entrepreneurs and the villagers exchanged social benefits. The entrepreneurs usually promoted and supported social activities. For example, they donated beef to the village for cooking in the traditional and religious activities. They offered credit on beef to the villagers who organized activities. In this special offer, the beef price was lower than other markets. This made it easy for the villagers to raise funds for the activities. In addition, the entrepreneurs gave swine manure for free to the villagers for agricultural purposes. They sold the swine manure only when any villager needed in a vast amount, but with a lower price than other suppliers. This type of share of benefits covered the community and the individual villagers. This swine farm pollution management resulted in self-reliance and economic security. As a consequence, Moo 10 of Ban Du Subdistrict was awarded "Thailand Healthy" Village in 2012.

(5) Assessment: The interview with the swine farm entrepreneur at Moo 11, Ban Du Subdistrict, unveiled that there was promotion of people's participation in the assessment of the swine farm pollution management. The promotion of people's participation followed the 2014 Local Ordinance of Swine Farm Entrepreneurship, item 17 which gives a right to

the villagers to freely express acceptance or unacceptance of swine farm establishment in their areas. The aim of this item was to prevent possible effects on the environment. The assessment and analysis of the swine farm pollution management was to study strong points, weak points, and guidelines for further effective performances. This assessment was conducted by Ban Du Subdistrict Administrative Organization. In the assessment, multi-assemblies had to be held for public hearings. However, it was difficult for the administrative organization to organize public hearings as the supportive budget was limited. Moreover, the number of public health administration officers was too small, compared to their extended tasks. It was, as a result, difficult to promote people's participation in the assessment of the swine farm pollution management.

3.2 Analysis of advantages and disadvantages of the people's participation in the swine farm pollution management.

The interview was conducted to 4 groups of informants; the local organization administrator and the officer with official legal power in and responsibilities for the swine farm pollution management, the headmen, the entrepreneurs, and the villagers who were directly affected by the swine farm pollution management. The results of the analysis of advantages and disadvantages of the people's participation in the swine farm pollution management are presented as follows:

It could be concluded that the villagers' actions of participation were categorized into 5 types.

3.2.1 The advantages of the people's participation in the swine farm pollution management were categorized into 5 types based on concepts of participation in swine farm pollution management.

(1) Perception: It was discovered that the villagers were highly interested in participating in public activities, especially common local traditional and religious ones. These activities held the villagers' interest as they are common practices in the local community. The activities were organized by the villagers, and sometimes by projects from local government organizations. The villagers were fully willing to cooperate if the activities were useful and consistent with their ways of life. It was apparent that the people's participation enabled them to learn from one another. They showed an exchange of experiences and viewpoints among one another. This led to acceptance of knowledge, habits, and values, which were important foundations for living together. To achieve objectives of local public activities, cooperation from all sectors was needed. This urged the people in the community to willingly take part in the local activities. This finding accorded with the previous research of Pichet Sonchareonzup (2001) who studied people's attitude towards environmental problems from pig farms at Pasak Subdistrict, Muang Lamphun District, Lamphun Province. He found that solving the environmental problems caused by the polluted or harmful business required active collaboration from all the stakeholders namely the farm owners, the affected people, and the authorities. However, in this present research, Ban Du Subdistrict Administrative Organization has a local ordinance of swine farm entrepreneurship. This local ordinance contained rules that swine farm entrepreneurs and local people had to follow.

(2) Opinions: A mission of Ban Du Subdistrict Administrative Organization was to build a good management system and to allow people to participate in making plans for environmental protection, development, and conservation. The management did not follow hygienic and academic practices. The pollution included wastewater and manure odor which brought diseases and insect pests. The affected villagers took their right to make complaints to their headman.

(3) Cooperation: It was found that the villagers expressed opinions in the public hearing on the draft of Ban Du Subdistrict Administrative Organization's 2014 Local Ordinance of Swine Farm Entrepreneurship. The main objective of the draft was to maintain the environment of swine farms to suit the local livelihood and to prevent harms and diseases from swine farms. This participation in the public hearing finally led to the legislation of the 2014 Local Ordinance of Swine Farm Entrepreneurship. This showed that the participation built a sense of both ownership of neighborhood and willing cooperation.

(4) Share of benefits: It was found in the social benefits that the entrepreneurs usually promoted and supported social activities. For example, they donated beef to the village for cooking in the traditional and religious activities. In addition, the entrepreneurs gave swine manure for free to the villagers for agricultural purposes. They sold the swine manure only when any villager needed in a vast amount, but with a lower price than other suppliers. This type of share of benefits covered the community and the individual villagers. This swine farm pollution management resulted in self-reliance and economic security.

(5) Assessment: Ban Du Subdistrict Administrative Organization's 2014 Local Ordinance of Swine Farm Entrepreneurship, item 17 gives a right to the villagers to freely express acceptance or unacceptance of swine farm establishment in their areas. The aim of this item was to prevent possible effects on the environment. The assessment and analysis of the swine farm pollution management was to study strong points, weak points, and guidelines for further effective performances.

3.2.2 The disadvantages of the people's participation in the swine farm pollution management were categorized into 5 types based on concepts of participation in swine farm pollution management.

(1) Perception: It was discovered in the area of Ban Du Subdistrict Administrative Organization that the headman tended to ignore and delay verbal complaints about the swine farm pollution. The headmen held the complaints until all the stakeholders were informed. After that, the stakeholders considered and found solutions together. Often, the complaint makers and the swine farm entrepreneurs had contradictory perspectives on the problems. This caused a delay in the complaint management process. Moreover, the stakeholders sometimes believed that the complaints were made in order to defame the opponents. Consequently, the complaints were regarded unreliable, and then the stakeholders gave less participation in the complaint management process. It was essential that the two parties of the complaints have democratic skills in terms of opinion expression and acceptance. Lack of these skills would create conflicts of thoughts. In addition, it was found that the villagers in the area of Ban Du Subdistrict Administrative Organization did

not deeply understand the content and the use of the 2014 Local Ordinance of Swine Farm Entrepreneurship. They only realized the points that were directly related to their livelihood. They were also only warned by the local ordinance that the swine farms must not give harmful effects on the villagers.

(2) Opinions: The informants revealed that multi-assemblies were made to reconcile the complaints and to mitigate the affected villagers' troublesome health and hygiene. The village committees, who were appointed by the villagers, managed the complaint process. The village committees conducted oral discussions between the complaint makers and the swine farm entrepreneurs. They had to manage several reconciliations for a complaint case. This was not good for a long-term participation due to the reason that the two parties would be tired of joining the reconciliation. They would end up with ignorance. The village committee' reconciliation would be completely useless, as a result. Similarly, inviting neutral academic experts to give suggestions was not done as they believed it would demand some large budget to organize reconciliation with experts.

(3) Cooperation: According to Ban Du Subdistrict Administrative Organization's 2014 Local Ordinance of Swine Farm Entrepreneurship, item 17 states that the headman of the village, where an entrepreneur requests to build a swine farm, shall call for a meeting of the villagers to express acceptance or unacceptance of the swine farm. In the meeting, the entrepreneur shall present environmental impact prevention measures to the villagers. Due to the promotion of people's participation in the 2014 Local Ordinance, related government organizations were aware of encouraging villagers and entrepreneurs to participate in people forums to learn possible pollutions from swine farms before accepting or unaccepting swine farms in the area. The problem was that Ban Du Subdistrict Administrative Organization had limited budget to arrange people forums to educate the locals with advantages and disadvantages from swine farms. Construction of swine farms had to be accepted by the majority of the local people. There must not be concealment of facts and decisions concerning swine farms. This was consistent with Public Health Act, B.E. 2535 (1992). In Section 31, "the Minister shall, with advice of the Committee, have powers to promulgate in the Royal Government Gazette prescribing any business being detrimental to health." Section 32 allows the local government to issue provisions rules concerning preventive measures against harm to health. In Sections 33 and 56, any person to operate such a business must have a license from the local official. Section 33 states that non-business operation does not have to receive a license, but has to follow the general conditions prescribed by the local official. Referring to Notification of the Ministry of Public Health 5/2538 (1995) dated 27 June 1995 on businesses detrimental to health, it prescribed that businesses which dealt with raising land animals were detrimental to health. The swine is a land animal. This means that raising swine for a business or a non-business, regardless of the number of swine, is detrimental to health. For this reason, the local official shall inspect the farm building, tools, equipment, hazardous waste management system, and wastewater treatment system. The local official shall not give a license to any swine farm entrepreneur who tends to drain wastewater.

(4) Share of benefits: The entrepreneurs gave swine manure for free to the villagers for agricultural purposes. They sold the swine manure only when any villager needed in a

vast amount, but with a lower price than other suppliers. This type of share of benefits covered the community and the individual villagers. This swine farm pollution management resulted in self-reliance and economic security. However, the swine farm entrepreneurs did not install a system to produce biogas from the swine manure for different purposes such as household cooking, lighting, and electrical generation. The farm manure can be utilized to produce energy and fuel. Especially, the farm with more than 500 swine can deodorize the swine manure in a biogas pond. The amount of the biogas in this pond can produce enough electrical supply for the whole farm. It is absolutely useful for farms located in non-electricity areas. Moreover, exceeding solid from the fermented manure can be turned into income and distributed to the local people. According to Department of Agricultural Extension, it is recommended that swine manure should be solved in a biogas pond. There was a project under the cooperation between the Thai-German governments. The German academics suggested the project to build a pond of 50 cubic meters for waste from the pigpen. It was found that the manure which was drained out of the pond became odorless. Due to this positive result, another pond of 30 cubic meters was built. The objective of this later pond was to produce biogas for household cooking and making a disinfection agent. The biogas in the second pond was shared by neighboring households through a pipeline.

This accorded with Suthat Siri (1997: 143-149) who stated that waste from swine farms cause huge pollutions. On the other hand, proper farm management could lessen pollutions and benefit the farm itself. A type of good farm management is biogas production. The biogas ponds vary in size, types, and cost. Biogas ponds have different fermentation quality. Biogas can be used in household cooking, gasoline engines, and electrical generators which effectively supply electricity to household appliances. This immediately lowers the electricity bill by 30-40 %. Furthermore, swine manure can be used as fertilizer, fish food, and animal food.

(5) Assessment: As mentioned above, there was promotion of people's participation in the assessment of the swine farm pollution management. The promotion of people's participation followed Ban Du Subdistrict Administrative Organization's 2014 Local Ordinance of Swine Farm Entrepreneurship. Item 17 of the Local Ordinance gives a right to the villagers to freely express acceptance or unacceptance of swine farm building in their areas. The assessment and analysis of the swine farm pollution management was to study strong points, weak points, and guidelines for further effective performances. This assessment was conducted by Ban Du Subdistrict Administrative Organization. In the assessment, multi-assemblies had to be held for public hearings. However, it was difficult for the administrative organization to organize public hearings as the supportive budget was limited. Moreover, the number of public health administration officers was too small, compared to their extended tasks.

4. Discussion and Conclusion

Guidelines for people's participation in swine farm pollution management.

The presentation of the guidelines are presented as follows:

(1) Perception: People's perception of the swine farm pollution management and complaints of the offensive pollution from the farms is important. The headman should not

ignore verbal complaints and written complaints. Both of the channels should receive equal priority. This ensures people's confidence in the participation. Also, a discussion on solutions to the pollution is needed, A group discussion can help shorten the complaint management process.

(2) Opinions: Ban Du Subdistrict Administrative Organization should set aside a budget to organize meetings to reconcile the complaints and to mitigate the affected villagers' troublesome health and hygiene. The village committees, who were appointed by the villagers, managed the complaint process. The village committees conducted oral discussions between the complaint makers and the swine farm entrepreneurs. In addition, the budget can be used to invite neutral academic experts to give suggestions.

(3) Cooperation: According to Ban Du Subdistrict Administrative Organization's 2014 Local Ordinance of Swine Farm Entrepreneurship, item 17 states that the headman of the village, where an entrepreneur requests to build a swine farm, shall call for a meeting of the villagers to express acceptance or unacceptance of the swine farm. In the meeting, the entrepreneur shall present environmental impact prevention measures to the villagers. Ban Du Subdistrict Administrative Organization should provide budgets to organize meetings, and should raise the villagers' awareness of advantages and disadvantages from swine farms in the future. Also, the administrative organization should provide knowledge and skills in reconciling people and managing complaints to village committees and community committees. This would be effective in the conflict management between the two parties.

(4) Share of benefits: The swine farm entrepreneurs did not install a system to produce biogas from the swine manure for different purposes such as household cooking, lighting, and electrical generation. The farm manure can be utilized to produce energy and fuel. It was suggested that the government sector should promote knowledge in producing biogas from swine manure so that both the villagers and the entrepreneurs can share the benefits. This would also lessen the farm pollution.

(5) Assessment: There should be more public health administration officers at Ban Du Subdistrict Administrative Organization. This position is important to control and deal with the swine fame pollution management in the local area. It also leads the people's participation in the assessment and analysis of the swine farm pollution management.

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