

Theological Approach in Building an Eco-Friendly Economic Self-reliance Movement (Study of Biogas Installation in the Quran)

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Abstract

Cleanliness is very important in Islam, both physical, environmental, and mental cleanliness that is visible or invisible. It is also recommended to maintain and keep the surrounding environment from dirt to keep it clean. This study aims to find out how the legal nature of biogas and how to use biogas in an Islamic perspective based on the demands of revelation and sunnah and a comparison of the opinions of the scholars. This research is field research. The data collection method used in this study was the observation, interviews were conducted directly to perpetrators of the installation and the community in Sembersari Village, Gedong Tataan District, Pesawaran Regency. The results showed that the process of converting cow dung into biogas through the installation of a biogas digester, not through combustion or processed with fire so that the gas produced from dung or unclean objects is not considered unclean.

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INTRODUCTION

The livestock sub-sector has a strategic role in the development of the agricultural sector, namely in efforts to strengthen food security to meet the needs of animal protein, empower the community's economy and can spur regional development. (Saputra et al., 2016).

One form of livestock business that has great potential to be developed is beef cattle because it has the advantage of being easier to maintain and also less at risk of disease compared to poultry. Cattle farming does not only produce output in the form of chicks, meat or milk, but can also cause negative externalities from livestock waste generated by livestock activities such as feces, urine, leftover feed, and water from cleaning livestock and cages that cause pollution, among others. : water pollution, air pollution and noise pollution that can interfere with the comfort and health of the community around the farm location (Aziz et al., 2019).

The population of beef cattle in Lampung Province in 2019 was recorded at 850,555 heads which is also the second largest population on Sumatra Island with a 5.02% contribution to the national cattle population which was recorded at 16,930,025 heads (Lampung Provincial Government, 2021). Pesawaran Regency is one of the regencies in Lampung Province which has considerable potential in the development of beef cattle breeding where the cattle population increases every year. In 2016 it reached 16,886, in 2017 it reached 17,250 and in 2018 it reached 19,380.

Until now, cattle business activities in Indonesia are still concerned with livestock productivity and have not considered environmental aspects or the impact of activities on the environment (Sarwanto, 2004 in Perwitasari, et al. 2017). As in Tamansari Village, Gedung Tataan District, which is the same as other villages where the people depend for their livelihood by cultivating plantations planted with rice and having a side business by raising cattle. In the preliminary study, the researchers observed that there are still many farmers who dispose of cow dung by dumping it behind their houses and in ditches near settlements without processing it first. In fact, if processed properly, this cow dung can bring benefits.

For beef cattle that are kept in a cage system, one cow produces manure in the range of 8-10 kg/head/day or 2.6-3.6 tons per year. This value is equivalent to 1.5-2 tons of organic fertilizer (Putri et al., 2019). Waste that is disposed of

carelessly will later become a source of pollutants for groundwater when exposed to rain water, can reduce the quality of the environment and the degree of public health. Communities around the farm will be disturbed, not only from the unpleasant smell but its presence can pollute the environment, disturb the view, can become vectors of disease and take the rights of others.

Islam has a very clear concept of the importance of conservation, saving, and preserving the environment. The Islamic concept of the environment has been partially adopted and has become an ecological principle developed by environmental scientists. However, the very clear concept of Islam has not been implemented in a real and optimal manner. Concepts related to the environment are listed in Surah Ar-Rum verses 41-42: *"It has been seen that corruption on land and in the sea is caused by the deeds of human hands; Allah wants them to feel some of the (results of) their actions, so that they return (to the right path), Say (Muhammad), "Travel on the earth and see how the end of the ancients. Most of them are people who associate (Allah)."*

The content of the verse above is a call from Allah SWT to humans to preserve nature and the environment. The affirmation of Allah SWT that various damages that occur on land and at sea are the result of human actions or actions, therefore humans should stop it and return to the right path, namely by replacing it with good deeds. Allah SWT ordered humans to study the previous peoples (history), the many disasters that befell the previous peoples were caused by not paying attention to Allah's call, even most of them were disbelievers and polytheists.

One of the environmental conservation efforts by utilizing cow dung waste is to process the waste into biogas. Biogas is a flammable gas produced from the fermentation process (decay) of organic materials by anaerobic bacteria (bacteria that live in conditions without oxygen in the air) (Pertiwingrum, 2015). Biogas can provide several advantages, namely reducing the unpleasant odor of livestock manure, preventing the spread of disease, reducing the effect of greenhouse gases, generating heat and electrical mechanical power and providing by-products in the form of solid and liquid fertilizers (Dianawati & Mulijanti, 2015).

Biogas has the potential to be developed because biogas production from cow dung is supported by conducive conditions for cattle development in Indonesia recently, regulations in the energy sector such as increasing electricity rates, increasing prices for LPG, premium, kerosene, diesel oil, diesel oil and fuel oil has

encouraged the development of alternative energy sources that are cheap, sustainable and environmentally friendly as well as the increase in prices and scarcity of inorganic fertilizers in the market due to poor marketing distribution causing farmers to turn to the use of organic fertilizers. (Putri et al., 2019).

For some people, this discovery may be proud and must be developed, however, for others, especially Muslims, it still contains many questions regarding its legal status in Islam. This process is a contemporary issue whose legal provisions can of course be found in classical books. For the time being, perhaps most Muslims in Indonesia, some of whom belong to the Syafi'i school of thought, think that the use of biogas is haram, because it comes from dirt which, according to Syafi'iyah, is classified as *najis*. (Ardiyanto, 2018). For that, this paper examines the legal nature of biogas, how to use biogas from an Islamic perspective and its economic impact on society.

METHODS

This research is a qualitative descriptive study using data collection techniques of observation, interviews and documentation and literature study. The data analysis technique used to analyze the data is a qualitative analysis of the interactive model. The research method in this study uses library and field research, namely research by collecting field information and various literatures such as classics, books, journals, and newspapers which will later be used as analysis and solving problems under study.

Sources of data used in this study consisted of two sources, namely primary data sources taken directly from the actors making the installation and the community in Sumbersari Village, Gedongtaaan District, Pesawaran Regency and secondary data obtained through documentation of photos of the activities of the actors making biogas installations during construction. and photos of where the biogas plant operates. The literature studies used in this research are books, print media, internet which contain elements that can be used in assessing the benefits of making biogas installations in Sumbersari.

RESULTS AND DISCUSSION

Biogas

Biogas is a flammable gas produced from the fermentation process (decay) of organic materials by anaerobic bacteria (bacteria that live in conditions without oxygen in the air). Organic

materials are materials that can be decomposed back into soil, such as garbage and animal waste (cows, goats, pigs and chickens). This fermentation process occurs naturally but requires a relatively long time (Pertiwingrum, 2015). According to the author, biogas is a mixture of feces and urine that produces gases such as methane gas produced from a fermentation process of organic matter by bacteria in a state without oxygen because it is processed in a reactor or that occurs in materials that can decompose naturally. Under anaerobic conditions it can produce gas.

The author relates the existence of biogas installations by utilizing cow dung as many scholars have agreed that the Sharia was revealed to realize the benefit of humans in the life of this world and the hereafter. There is none of its importance to Allah and Allah does not need anything from this world. Thus, relations between communities remain good, with no activities interfering with each other in an activity or workers such as in this case owning livestock and processing them. One resident with another does not feel that their rights have been taken away to continue to enjoy the facilities provided by Allah in this world, including fresh air.

Judging from the *masalahah* based on the level of need, in terms of the use of biogas made from cow dung, it is included in *masalahah al-dharuriyyah* (primary benefit) is something related to basic human needs that are indispensable to make life easier and eliminate difficulties in order maintain the five basic elements of mankind in this world and in the hereafter. If it is not achieved, humans will experience difficulties such as the provisions of *rukhsah* (lightening) in worship.

Islamic Laws View on the Utilization of Cow Manure Biogas

Surah ar-Rum Verse 41:

Damage has been seen on land and in the sea due to the actions of human hands, so that Allah may feel for them some of the (results of) their deeds, so that they will return (to the right path).

Jalalain's interpretation:

[Damage has been seen on the ground] due to the cessation of rain and the depletion of vegetation [and in the sea] meaning in lands where many rivers run dry [due to the actions of human hands] in the form of immoral acts [so that Allah may feel for them] can be read *liyudziqahum* and *linudziiqahum*; if read *linudziiqahum* it means so that we feel for them [part of the consequences of their actions] as punishment [that they may

return] so that they may repent of their sins.

Ibn Kathir Interpretation:

Ibn Abbas, Ikrimah, adh-Dhahhak, as-Suddi and others said: "What is meant by *albarru*" in this verse is a vast expanse of fields. While what is meant by "*albahru*" are cities and villages." And in a narration, Ibn 'Abbas and 'Ikrimah said: "*Albahru* are cities and villages on the coast." Meanwhile another scholar said: "What is meant by "*albarri*" here is the land that we know and "*bahru*" is the sea that we know in the sense of the word." Za'id and Rafi' said: "Dhaharal fasaadu; [Corruption has appeared], namely the cessation of rain on land accompanied by a period of famine and from the sea, that is, that which affects the animals (Narrated by Ibn Abi Hatim).

The first opinion is clearer and becomes the grip of most commentators. The meaning of God's word [corruption has appeared on land and in the sea due to the work of human hands] that is, the lack of plants and fruits is caused by disobedience. Abul 'Aliyah said: "Whoever disobeys Allah on earth, it means that he has done mischief in it. For the goodness of the earth and the heavens is due to obedience." The reason is, if *hudud* is enforced, surely humans and the majority of them will refrain from doing things that are forbidden. And if the sins are abandoned, then it becomes the cause of the achievement of various blessings from the heavens and the earth.

God's Word [That Allah may taste for them some of the [results of] their actions], testing them with a shortage of wealth, lives and fruits as a test from Him and a reward for their behavior. [So that they return]. From various immoral behaviors, as God says: [and We tested them with good and evil so that they would return] (Katsir, 2015).

Quraish Shihab Interpretation:

There have been fires, droughts, damage, commercial losses and drownings caused by the evils and sins of man. Allah wants to punish people in the world with their deeds, so that they repent of their disobedience (Iki, 2017).

Among those who declare the purity of dirt are Imam Maliki, Hanafi and Hanbali. As Yusuf Qaradhawi explained: Indeed, all jurists agree that everything is holy, while things that are impure can be counted in a small number, so anything that is not included in the content is holy. It was explained that the thing was urine and animal waste. Meanwhile, in the view of Imam Syafi'i, urine and excrement are all unclean, whether the animal has eaten its flesh or not (Qaradawi, 2004). Thus, the purity of cow dung will depend on how

one makes his choice to understand the four schools of thought. This also applies to the use of biogas made from cow dung. According to the author, if cow dung is an unclean object, after the process of making biogas through fermentation, the najis will disappear and automatically biogas can be used properly.

From Jabir bin Abdullah that he heard the Messenger of Allah. Said in the year of the conquest of Makkah and he was there. He said: Verily Allah. And His Messenger forbade the sale of liquor, carrion, swine, and statues. Then it was asked: O Messenger of Allah, how do you view the fat from the carcass, which is actually used for painting ships, for tanning skins and people using it as lamp oil. So the Prophet said: it is not forbidden. Then the Messenger of Allah. Said at that time: Allah cursed the Jews, and verily Allah. After they have forbidden the fat, they change it and sell it and eat the price. Based on the hadith he said that all dirt is unclean, including carrion and carrion fat. Regarding the fat of the carcass mentioned in the hadith which is confirmed with dirt which is also an unclean object used as an ingredient to make biogas, which is equally capable of starting a fire. Because at the time of the Prophet Carrion fat is used as lamp oil or kerosene in this day and age.

Biogas is qiyased with carrion fat which was used to light a lamp (*dimar*) at the time of the Prophet. Seeing this, the law of transferring or changing dirt into gas is allowed or not forbidden. Because, it is not the dirt (*nash*) that is judged but the taking of its benefits. It is the same as using cow dung as fertilizer which is beneficial for the growth of plants, it is permissible because even though it is using manure which is an unclean object as a material that is taken advantage of. Regarding the law on gas produced from cow dung, it is the same as the review above that the biogas is not forbidden or not unclean to use because it is not where it comes from that is judged but its use is punished in this case. Smoke or gas originating from an unclean object is still considered unclean if the substance changes through combustion or is caused by fire. However, smoke or gas from an unclean object is not considered unclean if the change in substance is not through combustion or caused by fire.

Research conducted (Juandi et al., 2012) mentions that Ushul Fiqh simply explains that the law is related to actions and the law is not related to objects. However, in relation to purity and impurity, there are two laws that are related at once, namely the law of sacred/unclean against an

object and the law of using or treating the object. In this case there are sacred objects and there are also unclean objects. Acts related to sacred objects are related to two uses, namely using them in prayer and using them outside of prayer.

The biogas decision must consider both halal and tayyib elements. Answering the biogas problem does not only consider the element of halalness, but also the element of goodness. However, the most basic question is whether biogas fulfills the elements of halal and goodness expected in the consumption of a food. It has been mentioned that biogas is a gas mixture of methane (CH₄), gas and other materials obtained from the decomposition of organic material by decomposing bacteria. methanogens in a biodigester. The composition of biogas that can be used as fuel is only methane, while gas and other materials do not function as fuel (Maryani, 2016).

From this explanation, the author argues that the process of converting cow dung into biogas is through the installation of a biogas digester, not through burning or processing with fire. Gas produced from dirt or unclean objects is considered unclean. Because, judging from the process of change that is not through combustion or by using fire, but through the process of decomposition or fermentation with the help of the activity of decomposing bacteria in an airtight container.

The use of biogas from cow dung is a new alternative. The methane gas contained in cow dung is then fermented in an airtight container to produce biogas without a mixture of ingredients that are harmful to human health. Thus, biogas made from cow dung brings benefits not only to livestock owners but also to the surrounding community.

A manure from livestock may be used on the condition that its benefits are taken. In other words, the law of using dirt is permissible (permissible). In this case, it is not the dirt (*nash*) that is punished, but the taking of its benefits that is punished. Therefore, using animal manure to make biogas so that it is useful is legally permissible or permissible. Moreover, its form has changed from dirt to biogas, from smelly dirt to biogas that no longer smells, and from something useless to useful for humans. As for the changes in Islamic law, it is seen from the *al-ahwal* (condition) perspective because cow dung can have a bad impact on the physical, biological, and social environment if left alone.

Islamic law is basically to realize the benefit of

humans, namely attracting benefits, in this study is to benefit from the use of cow dung which is used as biogas, rejecting harm and eliminating difficulties in this case is the difficulty of finding firewood or LPG gas when LPG gas is difficult to obtain. As explained in the Fiqh rules regarding *masalah mursalah* "rejecting damage takes precedence over attracting benefit." Instead of letting waste go to waste and pollute the environment, it is better to use it as biogas to save on the cost of buying gas "achieving benefits and rejecting harm." Utilizing cow dung into biogas and rejecting air pollution that occurs in the surrounding environment due to the smell of cow dung. "Not to fade and not to be harmed."

Economic Self-reliance

The benefit of biogas energy is to produce methane gas as a substitute for fuel, especially kerosene which can be used for cooking and on a large scale, biogas can be used as a generator of electrical energy. In addition, from the biogas production process, residual livestock manure will be produced which can be directly used as organic fertilizer for crops or agricultural cultivation. The more important benefit of biogas energy is that it reduces dependence on the use of non-renewable petroleum fuels (Anindita et al., 2020).

Energy from 1 m³ of biogas when converted is equivalent to a 60-100 Watt lamp for 6 hours, can cook 3 types of food for 5-6 people, equivalent to 0.7 kg of gasoline, equivalent to energy for 1 HP motor for 2 hours and equivalent to 1.25 KWH of electricity (Ministry of Agriculture, 2021). This substitution of kerosene and firewood, besides being able to reduce the burden of household spending, will also indirectly reduce the burden of pollution and environmental damage (Fatati et al., 2015).

According to the researchers, the installation of cow dung biogas in the village of Taman Sari, Gedong Tataan District is very helpful for the community. Most of the cattle breeders in Taman Sari Village have more than three cows with almost all of them owned by their own ownership status and most of them are reared on their own land. The population of cows which reaches 1,206 heads and the average dung production of 15 kg/head can produce around 18,090 kg/day of manure, if all this cow dung is used as biogas, it will save fuel costs of Rp. 1,260,000.00 per day or Rp.37,800,000.00 per month. This is a big potential in the utilization of cow dung into biogas as alternative energy and increasing economic independence and community welfare in Taman Sari Village.

From the results of the interview, it was concluded that the residents felt many benefits after the biogas installation was carried out, such as saving on expenses for buying LPG gas which had been used as household needs as well as raw material in the chips business. Previously, residents used four LPG gas cylinders weighing 3 kg and now only use one LPG gas as long as our biogas supply runs out. Respondents said that food cooked using biogas from fermented cow dung is not much different from using firewood. Regarding the taste, it clearly has a difference as it feels when using firewood using a stove. When using firewood for cooking,

No less important is the installation of Biogas can save household expenses so that it can cover other needs, the dregs produced from the processing of cow dung are used as organic fertilizer and can also be traded to replace urea fertilizer which has been experiencing price increases and in terms of health, the surrounding community is no longer feel how strong the smell of cow dung and no more cow dung scattered on the streets.

Judging from the *masalah* based on the level of need, in terms of the use of biogas made from cow dung, it is included in *masalah al-dharuriyyah* (primary benefit) is something that is related to basic human needs. Where it is very necessary to make it easier to live life and eliminate difficulties in order to maintain the five basic elements of mankind in this world and in the hereafter. If it is not achieved, humans will experience difficulties such as the provisions of *rukhsah* (lightening) in worship. Because, biogas is something that has the same function as LPG. If at any time LPG gas is expensive or is in short supply, the alternative way is to utilize the available natural resources, one of which is cow dung which is processed into biogas.

CONCLUSION

From the explanation above, it can be concluded that firstly what is meant by biogas is a mixture of feces and urine that produces gases such as methane gas produced from a fermentation process of organic matter by bacteria in a state without oxygen because it is processed in the reactor or what occurs in the material. Materials that can decompose naturally under anaerobic conditions can produce gas. Second, the process of converting cow dung into biogas through the installation of a biogas digester, not through burning or processing with fire. Gas produced from dirt or unclean objects is considered unclean.

Because, judging from the process of change that is not through combustion or by using fire, but through the process of decomposition or fermentation with the help of the activity of decomposing bacteria in an airtight container.

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