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The impact of coal mining on community health disorders around PT. Pacific Coal Mining

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ABSTRACT

Coal is a sedimentary rock whose main ingredient consists of carbon resulting from the formation of plant remains that have experienced heat and geological pressure for millions of years. Coal mining activities cause air pollution and are a negative externality that has an impact on health problems in the community. This research was conducted at PT. Pacific Coal Mining uses a qualitative descriptive method, data collection is carried out by direct observation of the impacts arising from coal mining activities. The results of this research arebased on people's habits in terms of washing, bathing and drinking, the majority use river water. Nutritional adequacy and food adequacy are considered sufficient. Furthermore, regarding the type of disease, the majority of respondents (83.33%) admitted that their family members had suffered from illness. The illnesses suffered include 40.00% upper respiratory tract infections/ARI (flu, coughs and colds), 26.67% suffering from malaria/chilling fever, 3.33% suffering from digestive tract diseases (diarrhea, dysentery and vomiting), and 13.33% suffered from other diseases, such as rheumatism, swollen legs and high blood pressure. As for health services, the health service facilities available at the study object are still very limited.

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INTRODUCTION

Mining is the activity of extracting mineral deposits that obtain economic and valuable value from within the earth's crust. The mining carried out can be of various types depending on the results of the mining, one of which is coal mining (Lutfulloh & Donri, 2021). Coal is a non-renewable natural resource, this means that once the mining material is used up, it will not be able to recover or return to its original state (Syarif, 2020). Coal mining, like mining in general, is a series of activities that include stages of investigation, exploration, feasibility studies, construction, mining, processing and refining, transportation and sales and post-mining (Fitriyani, 2018).

Coal is a sedimentary rock whose main ingredient consists of carbon resulting from the formation of plant remains that do not decay completely and are well preserved in an oxygen-free state (Purnomo *et al*., 2023). According to Rahma (2021), coal is a sedimentary rock whose main ingredient consists of carbon resulting from the formation of plant remains that have experienced heat and geological pressure for millions of years. Before it can be used, coal must first go through the mining, processing and transportation phases so that it can be converted into other energy (Sutedi, 2022; Sitogasa & Rudy, 2023). The materials that make up coal are moisture, volatile matter, ash and fixed carbon (Avicenna et al., 2019).

Coal mining also produces and destroys dust produced in mining techniques collectively referred to as coal mine dust (Wulandari & Susilawati, 2023). In the process of crushing, loading coal, transporting coal, and lifting sprayed concrete, the powder that flies when blasting coal seams is one of the causes of dust. Different coal mines have different geological environments, mining technology, coal quality and coal dust quality (Irfansyah & Susilawati, 2023).

Coal mining not only damages the ecosystem but is also dangerous for human health (Adventia et al., 2023). Coal burning waste is very toxic and endangers public health. Copper, cadmium and arsenic are some of the toxic substances produced from burning waste, each of which can trigger poisoning, kidney failure and cancer. Each chain in the coal utilization cycle contributes to environmental damage and problems caused by this dirty energy in its own way (Albertus & Zalukhu, 2019). Environmental problems caused by mining are closely related to living creatures, especially humans and the environment. Environmental problems are ecological problems (Lisnawati *et al*., 2023). Ecological decarbonization has an impact on changing the landscape, namely reducing soil fertility and threatening biodiversity, reducing water quality, reducing air quality and pollution (Hidayati, 2022).

According to Yusgiantoro (2000) and reinforced by Trianisa*et al*., (2020) coal mining activities cause air pollution and are a negative externality that has an impact on public health problems. Referring to what has been stated by Yusgiantoro, this research was carried out to find out what health problems are experienced by people who live around coal mining. Health problems are a very complex problem, which is interconnected with other problems outside of health itself. Likewise, to overcome public health problems, we must not only look at it from the perspective of our own health but also from all aspects that have an influence on that health (Putri *et al*., 2019).

Good health cannot possibly exist in society if the environment in which the society lives is unhealthy or polluted (Sabubu, 2020). Any activities or activities carried out, including coal mining activities, will have an impact on the environment and public health. This is shown by the results of previous research conducted by Juniah *et al*., (2013) regarding the impact of coal mining on the health of communities around coal mining. According to Juniah, there is a close connection between coal mining activities, the environment and public health. However, people never realize this, and the meaning of health or a healthy life and a healthy environment, and tend to only become aware and aware after the person experiences an illness or health problem. Especially if the disease or health problem has been experienced for a long time. From the explanation above, researchers are interested in seeing the impact of coal mining activities on the health of the community around PT. Pacific Coal Mining. It is hoped that the research that will be carried out can become a source of reading for future researchers and for the community it is hoped that it can become a reference so that people living in mining areas can understand the impacts of mining so that they become aware of the importance of health.

RESEARCH METHOD

This research was conducted at PT. Pacific Coal Mining, the initial survey was carried out by visiting people's homes in the mining area. Data collection was carried out by direct observation of the impacts arising from coal mining activities. The sample in this study was determined using

purposive sampling (Sultan *et al*., 2021). The method in this research is qualitative descriptive, in this case describing the impact of coal mining activities on the health of communities around coal mining. Analysis of the data obtained will be categorized and arranged in a structured manner. (Afrianti, 2020).

RESULTS AND DISCUSSIONS

Housing and Environment

The majority of residents in Central Kapuas District live on the banks of the Kapuas River or a branch of the Kapuas River, making the level of community dependence on the river still high. The existence of rivers is no longer limited to being used as a place to fish for fishermen but also as a source of water for bathing/washing, a source of drinking water and even a final disposal site for feces for the majority of Kapuas residents. This is used as a variable in assessing public health conditions. Therefore, environmental cleanliness and healthy home facilities must be the concern of every community.

As for the description of housing, the houses of the majority of Kapuas residents are made of wood as the main component. Based on SUSENAS results, most houses in Kapuas have tin roofs, the largest type of walls are wooden, and the largest floor is wooden and almost three-quarters of households in Kapuas already use electricity as a source of lighting. For Barunang Village, Kapuas Tengah District, the number of buildings is 274, houses and family buildings on the riverbank are ± 92 buildings and families that use non-PLN electricity are 180. Meanwhile in Tumbang Diring Village, Pasak Telawang District, the number of buildings is 131, houses and There are ± 62 families on the river banks and 148 families using non-PLN electricity.

The criteria for a healthy house listed in the Residential Environment from WHO (1974) in Chandra 2006 include: 1) It must be able to protect from rain, heat and cold and function as a place to rest. 2) Have places to sleep, cook, shower, wash, toilet and bathroom. 3) Can protect against noise hazards and be free from pollution. 4) Free from dangerous building materials. 5) Made from sturdy building materials and can protect occupants from earthquakes, collapses and infectious diseases. 6) Provide a sense of security and a harmonious neighborhood environment.

Environment sanitation

Environmental sanitation can be seen from people's habits of washing, bathing, defecating, drinking and throwing away rubbish. Based on survey results and observations in the field, it is known that the majority of households (86.67%) bathe and wash with river water and 13.33% with drilled well/pump water. Then, most people (86.67%) defecate in the river, 10.00% in the toilet inside the house and 3.33% in the toilet outside the house. Meanwhile, most of the water for cooking and drinking (86.67%) comes from river water and 13.33% from drilled well/pump water. Next regarding rubbish disposal, namely the majority of people (45.45%) make rubbish pits, 40.91% collect it in plastic, and 13.64 throw it into rubbish bins/bins. Then most of the waste (65.38%) was burned, 26.92 was thrown into the river, 3.85 was thrown around the house. Another thing that is still found is the habit of people throwing sewage water in the yard or under the kitchen so that it can create a habitat for disease vectors.

Based on the percentage of people's habits in terms of washing, bathing and drinking, the majority use river water. Therefore, related parties must pay attention to efforts to improve health, so that they can provide socialization that it is better to use well water, especially drilled wells for bathing, washing and as a source of drinking water, because river water, especially the Mamput River and the Kuatan River, is better. is a place where various types of waste are collected that are not managed by most people.

Nutritional Status and Food Adequacy

The study of nutritional status and food adequacy is closely related to food patterns with food sources that contain nutritional value. Requirements for nutritious food content include that it

must contain carbohydrates, protein, minerals, vitamins, fats and other compounds that are proportional to the body's nutritional needs. Therefore, people's nutritional status is very dependent on the family's diet. People's diet can be assessed from the nutritional value of basic food ingredients, cooking methods and the amount and frequency of eating. The nutritional value of food ingredients that are commonly found in the people of the study area tends to be the same as other rural areas in Central Kalimantan. Apart from rice as the staple food, every meal is always accompanied by a menu of vegetables and side dishes. Rice (rice), side dishes (fish) and vegetables are 3 (three) basic food ingredients that cannot be left behind by people to meet their nutritional needs. However, sometimes the side dishes are replaced with meat (chicken, beef and/or wild game). People's cooking methods and eating frequency are considered to be relatively good, but sometimes they do not pay enough attention to their hygienic value, so they are considered to still need attention to improve the health quality of the food they eat.

Improving the quality of health will have an impact on the nutrition contained in food. However, it is not only the nutritional value that must be considered, how to manage it, the cleanliness of the food and how the food is served are important parts of food management that must be paid attention to (Muchlis & Kurnaesih, 2021). The food you eat is very likely to be one of the causes of disorders in the body. So it can cause pain. One way to avoid disease and maintain health is to consume food that is safe, healthy and has nutritional value, besides that the food must also be clean (Juhaina, 2020).

Types of Diseases That Are Epidemic

In general, the Central Kalimantan area is one of the endemic areas for malaria. Natural conditions and environmental sanitation conditions are still worrying and the local community's low awareness and knowledge of environmental health are obstacles in eradicating this disease. Apart from the obstacles mentioned above, the lifestyle and habits of local communities can also cause the number of infectious diseases, especially malaria, to remain relatively high. These community habits are reflected in the low quality of the environment or environmental sanitation around housing or settlements. In this case, the interview results show that in the study area in the last six months, the majority of respondents (83.33%) admitted that their family members had suffered from illness. The illnesses suffered include 40.00% upper respiratory tract infections/ARI (flu, coughs and colds), 26.67% suffering from malaria/chilling fever, 3.33% suffering from digestive tract diseases (diarrhea, dysentery and vomiting), and 13.33% suffered from other diseases, such as rheumatism, swollen legs and high blood pressure.

Based on data recording the types of diseases frequently suffered by people in Central Kapuas District, it is known that the disease most commonly suffered is ARI (Upper Respiratory Tract Inspection) with 2,585 cases with the most symptoms being influenza accompanied by cough and fever. Meanwhile, the development of Typhoid and Paratyphoid Fever is in 11th place with 44 cases. Furthermore, dysentery is in 12th place with 14 cases. An explanation of the data above can be seen in table 1.

Table 1. Types of diseases suffered in central kapuas district

No	The type of disease	Number of Cases Per Year
1	ISPA	2,585
2	Gastritis	1,726
3	Hypertension	800
4	Anemia	796
5	Rheumatism	742
6	Diarrhea	426
7	Allergic skin disease	372
8	Asthma	372
9	Dental Disorders	256
10	Clinical Malaria	353
11	With Typhoid and Paratyphoid	44

No	The type of disease	Number of Cases Per Year
12	Dysentery	14

Source: Central kapuas district

Health services

The health service facilities available at the study object are still very limited. The health service facilities in question consist of buildings and complementary facilities, as presented in Table 2.

Table 2. Types of health facilities in the study object

No	Facility Type	Barunang Village	Tumbang Diring Village
1	Pustu	1	-
2	Village Health Post	-	-
3	Integrated Healthcare Center	1	1
4	Paramedic	1	-
5	Midwife	-	-

Source: Survey results

The medical personnel and health facilities available at the study object are inadequate, especially seen from the unavailability of paramedics in Tumbang Diring Village. Even though they are available in Barunang Village, the buildings are not maintained because the medical personnel are not there. Efforts made by the local community for treatment in general (if it has to be handled by a doctor) are referring to the village ofANGKAng or Buhut Jaya and even to Pujon.

One of the health facilities that is often used by the community is the community health center. Puskesmas is a form of health service and facility that is important and affordable for all levels of society. Puskesmas are also used as the spearhead of basic health services for the community, this is because the existence of puskesmas is spread to all regions (Radito, 2014). The function of community health centers in providing health services to the community is faced with several challenges in terms of human resources and health equipment, however the related parties must provide the best facilities for the community (Maruapey, 2022).

CONCLUSION

The results of this research arebased on people's habits in terms of washing, bathing and drinking, the majority use river water. Nutritional adequacy and food adequacy are considered sufficient. Furthermore, regarding the type of disease, the majority of respondents (83.33%) admitted that their family members had suffered from illness. The illnesses suffered include 40.00% upper respiratory tract infections/ARI (flu, coughs and colds), 26.67% suffering from malaria/chilling fever, 3.33% suffering from digestive tract diseases (diarrhea, dysentery and vomiting), and 13.33% suffered from other diseases, such as rheumatism, swollen legs and high blood pressure. As for health services, the health service facilities available at the study object are still very limited.

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