Determinants of Coal Minerals Marketing in Tanzania:
The Case of the Kiwira-Kabulo Stamico Coal Mine

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Abstract

Coal is non-renewable energy which has several uses including coal for coking, common chemical purposes to produce methanol, pharmaceuticals, gas fire preservatives, heating generation in Industries, Steel industries, and electricity generation. Most countries in the world strive to invest in the development of coal mines in the market to stimulate country development apart from domestic consumption and also facilitate earning of foreign currency in the country. Heavy marketing of coal help countries earns royalties and fees, creating employment and contributions to the national Growth of Product. This study examines the determinant of coal minerals marketing in Tanzania by taking the case study Kiwira-kabulo Coal Mine the way operates and its competitive advantage in coal marketing. The study involves only one main theory competitive advantage guides us to know the determinant factors for coal marketing in Tanzania. The conceptual framework was designed to reflect the formulated specific objectives mentioned in the study. The study used a quantitative cross-section research design whereby 55 respondents were used as a source of data through a simple random sampling method. The study used Statistical Package for Social Science (SPSS) for quantitative analysis. The study greatly utilized (i) descriptive statistics (ii) reliability analysis and (iii) inferential analysis to analyze and examine the key factors affiliated in relation to dependent variables. Inferential analysis of the study published that positive correlation between the price of coal and coal mineral marketing ($r = 0.720$, $p = 0.000$), it's implying that coal price has an impact on the marketing of coal, Transportation system the correlation analysis conducted showed a positive correlation between transportation system and coal market ($r = 0.739$, p-value $= 0.000$), proof that any increase in transportation system such Railway, Road, Ports has an influence on the marketing of coal, Quality of the coal, the study from the field reveal that there is a positive relationship between the quality of the coal and Coal minerals marketing, with $r = 0.757$ and p-value $= 0.000$, proof that the quality of coal has an influence on the marketing of the coal minerals. The corporate should focus on improving the quality of the coal.

Keywords: *Coal; Marketing; Transportation; Price; Quality*

Introduction

The influence of the coal minerals in the national economy is very important, it facilitates the development of the energy sectors, steel & cement industries, chemical manufacturing, and gas fire (Reid, 2018). In America, more than 150,000 employments and $26 billion are generated by coal mining activities according to Government Electrical Regulator (GER, 2019). Coal is taken as an important aspect in generating electricity than other substitute fuels it counted for 40% of the world's electricity (WB, 2022). Coal minerals are the backboard of the economy of many countries in Russia coal contribution counted as 1% of the country's GDP (Korppoo et al., 2021). In South Africa, 80% of the country's electricity is generated from coal (Mondliwa et al., 2021**).**

Also, development of the coal marketing depends on the availability of the transportation system. Availability of the railway network fast-track movement of coal from the production area to the consumption place (Ding et al., 2015). In some situations, a country failed to utilize its natural resource like coal because of the transport system limitation (Koroleva et al., 2021). However, coal marketing is affected by the quality of coal. The quality of coal has been affected once it was stored for a long time after being dug out from the coal mine Koroleva et al., (2021). The railway's transport system is one of the determinants of the quantity of coal to be demanded in the market (Batnasan, 2019).

Furthermore, Fałtyn & Naczyński (2018) reveal that the poor coal market in any country can be determined by the number of industries that combine heat and power plants, the number of coal plants, the number of industries that consumed coal as a source of primary energy. On the other hand demand for coal can be determined by the price of coal and other affiliated factors affecting the price of coal including production cost, transportation system, price of substitute energy, number of power plants and industries buyers Zhu et al., (2022). The market for coal is very commonly affected by the quality of coal and size, so for the firm to sustain in the business must manage coal quality parameters Ash, CV and Sulphur Fuksa (2018).

In the context of this study Tanzania is among the leading countries in East Africa with projected 5 billion tons of Coal reserved (World Coal, 2022). Tanzania coal approximately 1.9 Billion is distributed in Ruvuma, Songea, Lindi, Tanga, Rudewa, Njombe, Mbeya, Songwe, Kiwira, Liganga, Mchuchuma, Mbinga and Rukwa (GST, 2022).

Based on above -noted significances, the government of Tanzania developed several strategies to ensure that the country benefits from its natural resources including its Tanzania Development Vision (2000-2025) where the government emphases the development of infrastructures, promotes investment, accountability, regional trade integration and strengthens mining sectors to contribute country GDP to 10%. But the contribution of the minerals sector to Tanzania's GDP is only 7.9% (NBS, 2022).

Other initiatives made by the government, to promote coal production and turnover include the decision to dissolve the Tanzania Mining Audit Agency (TMA) and the establishment of a Mining Commission after the amendment of the mining act 2010 in 2017. The government improved accountability, simplified the issuing of licenses, and increases administration. An intensive promotion strategy is done by firms and the government (Tanzania Mining Commission, 2022).

Despite efforts made by the Government, Tanzania's mining sectors contribute only 7.9% (Bank of Tanzania, 2022) for the year ended 2021/2022 coal turnover and production was 956,688.08 tons (Tanzania Minister of Minerals, 2022). The country experiences the problem of the poor market of its coal in the global market perhaps its demand and price rapidly increased. However, literature reviews such as Afanasieva et al., (2018), Susanto & Admi (2021), Koroleva et al. (2021), and Fałtyn & Naczyński (2018) have been conducted in relation to the determinants of coal mineral marketing not in

touch conducted to assess determinant of coal minerals marketing in Tanzania. This study examined in-depth the determinants of coal mineral marketing in Tanzania with reference to Kiwira-Kabulo Stamico Coal mine.

Research Problem

The government of Tanzania has been developed several art of the state strategies to ensure that the country benefits from its natural resources by Tanzania Development Vision (2000-2025) where the government emphases the development of infrastructures, promotes investment, accountability, regional trade integration and strengthens . Target mining sectors to contribute country GDP to 10%. Unfortunate despite the art of the state strategies contribution of the minerals sector to Tanzania's GDP is only 7.9% (NBS, 2022) for the year ended 2021/2022 coal turnover and production was only 956,688.08 tons (Tanzania Minister of Minerals, 2022). This is clear indication despite the effort but the country failed to utilize coal world market counted 8 billion tons per year International Energy Agency (IEA, 2022) compared to availability of 5 billion tons of coal reserve (WC,2020). By expressing this fact failed to utilize coal resources can be affiliated by transport (railway) system limitation (Koroleva et al., 2021). By public determinant of coal marketing help firm to improve coal quality. Market of coal mostly influenced by the coal quality and size (Fuksa, 2018) the same as price of coal. Zhu et al., (2022), there are positive relationship between the price of coal power plant and the marketing of the coal.

Objectives of the Study

Based on previous background. To examine the determinants of coal mineral marketing in Tanzania with reference to Kiwira-Kabulo Stamico Coal Mine. Specifically, to examine the relationship between coal price and coal marketing in Tanzania, to assess the correlation between transportation systems and to analyze the influence of coal quality on coal marketing in Tanzania with reference to Kiwira-Kabulo Stamico Coal Mine.

Literature Review

Theoretical Review

This theory was developed by Michael Porter in 1985. The Competitive advantage theory proposed that any government and firm to be competitive in the market should improve the quality of its natural resources, infrastructures system such as transportation system and offer a price of the product best than its competitors unlike the current situation in the country we have coal resource but facing poor transportation system, quality and non-competitive price in the market (Išoraitė, 2018). The same as the study by Ly (2021) highlight that for the country to be competitive should facilitate the production of high-quality goods to be sold at a higher price in the market. It is based on the argument that a country should use its natural resources to produce goods which are cheaper in cost than competitors and export in the market. This approach emphasizes that the state should improve infrastructures, management and technology to earn a competitive advantage in International Trade regardless of external and internal changes in the business environment.

In addition to that Afanasieva et al. (2018) study found that for the country to have a competitive advantage in both the domestic market and foreign markets should improve production, marketing strategy, technology and sales efficiency. This theory highlights for a firm to have a competitive advantage in both domestic and regional markets must manage both the firm internal environmental and external environment effectively and efficiently however theory observed the importance of the

stakeholders in the business. Internal and external Environmental include the quality of the coal, the price of the coal and the transportation system.

This theory corresponds to the current study as it stipulates the essence of the availability of Mining technology, transportation system, Coal power plant, Price, production cost, market strategy, and sales efficiency to support a firm. From that point of view, it can be said that this theory corresponds to research objectives, which determine the extent to which price, transport and quality of coal management affect Tanzania's coal marketing.

Empirical Review

Significant research was taken in the field of coal marketing, while most of them isolated from depth dealing with the determinant of coal marketing in Tanzania. The finding of the previous study revealed that the price of coal, the Transport system and the quality of coal have a great influence on the marketing of coal.

Under the price of coal; the study by Fuksa (2018) found that there is a great relationship between the price of coal in the mine and market condition, once the selling price declines demand for coal also shoots up. However, the study exposes the consequence of high mining costs in the selling price and the decline of coal consumption in the market. The study observed that for the company to be competitive in the market must set the price below the competitors' selling price. Zhang et al., (2020) study observed that the price of coal can be affected by the price of substitute energy and the number of coal power energy in the market. Moreover, the researcher published that coal prices can be controlled by managing effectively and efficiently the stock of coal, the supply of coal, transportation techniques, trade of coal and demand for coal. Also, the study reveals that in mining sectors coal consumption influences the price of coal. The same study conducted by Zhu et al (2022) in China analyzing the factors that affect the price of thermal coal observed that the price of coal is directly affected in the market by the price of substitute energy and power plant demand.

Additionally, the influence of the transportation system. Infrastructure systems are very important in supporting the distribution of coal from mining production to consumption. According to a study conducted in India by Kamboj & Tongia (2018), coal is regularly transported by using railways because of is cheapest, easy for bulk cargo and more effective for long distances. On the other side, the study conducted by Houser et al., (2017) published that the USA failed to export more coal to the world market because most of the coal mines were found far away from the port. For the country to export more coal in the global market depend on the accessibility of the coal mine by the railway line Houser et al., (2017). In America, the transportation cost of coal from coal mining and processing plant to consumers are more expensive (EIA, 2022). This is supported by the study conducted in Russia by Koroleva (2021), in an Investigation of the trend of the coal industry disclosed that, despite the steady demand in the worldwide coal market, the growth rate of coal exports is decelerating down. The main object is the limitation of the transport and logistics set-up for the coal haulage. The demand and supply of coal in the market are affected by the capacity of the transportation systems involved to carry cargo from the coal mine to consumers as a result most countries failed to utilize their coal reserve in the market because of the limitation of the transportation system Zhang et al, (2022)

Finally, the Influence of Coal Quality, according to Pulungan & Arbianto (2020), the quality of coal has been considered to be a determinant of the coal trade. And the coal producers should consider the common parameters which are Ash content, Moisture content, Calorific Value, Volatile Matter, and Sulphur. The study published that the quality of the coal must be managed through regular checking, exploration and selective mining method. On top of that, the market for coal is mostly influenced by coal quality and size (Fuksa, 2018). Similarly, the study carried out in Austria by Cunningham et al., (2019)

titled The Changing Global Market Australia highlights that the quality of coal is a determinant of the coal demand in the market. In view of the country's sustainability in the future coal demand in the market depends on the improvement of the coal quality through blending Baskoro et al., (2022).

Accordingly, most researchers' reports did not link completely determinants of coal minerals marketing in Tanzania and could not fit enough on the factors that influence coal marketing in Kiwira – Kabulo. Moreover, the studies did not ritically show which kind of information systems are crucial and potential to be adopted by the corporation. On the other hand, the studies focused on Asia, America and Europe never taking the consideration of Tanzania where there heavy reserve of coal. Nevertheless, their studies focused on the assessed the problems and development trends of coal transportation infrastructure likes Afanasieva et al., (2018), Susanto & Admi (2021), Koroleva et al. (2021), Fałtyn & Naczyński (2018) have been conducted in relation to the determinants of coal mineral marketing in other countries, not Tanzania. However, no study examined in-depth the determinants of coal mineral marketing in Tanzania with reference to Kiwira-Kabulo Stamico Coal mine this is the reason the researcher decided to carry out this study.

This study was guided by a theory of Competitive Advantage. According to the Competitive Advantage, determinant factors affecting coal minerals marketing include dependent variables and independent variables whereas independent variables are the price of coal, transportation system and quality of coal while the dependent variable is the coal marketing.
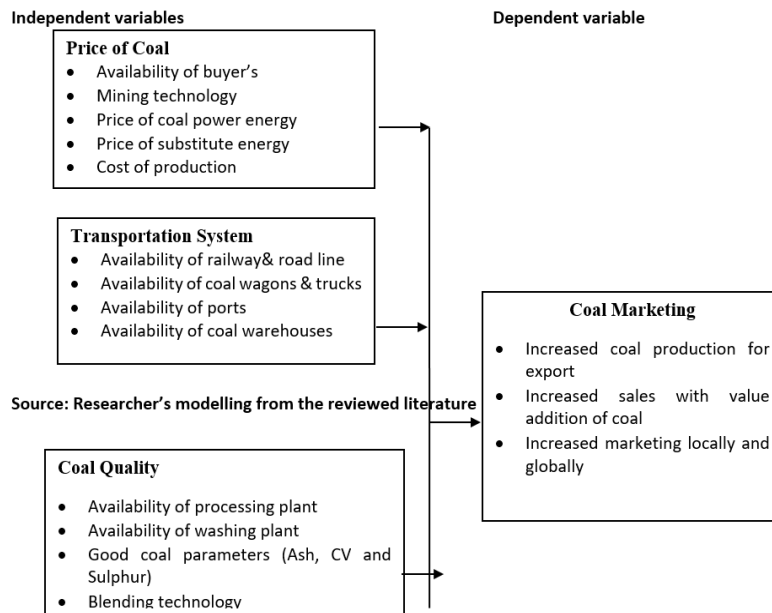

Figure 1.   Conceptual framework
Source: Researcher's modelling from the reviewed literature (2023)

Methodology

The study was carried in Tanzania at the Kiwira coal mine, Chunya district, Mbeya region, especially at the Kabulo pits. This area is dominated by untapped coal reserves accounted more than 400 million Tones (SMC, 2021). A cross-sectional research design was employed in this study. This research design entailed the arrangement of the prevailing data, collection and analysis conditions in a manner oriented to bring relevance to the research objectives (Saunders et al., 2017). The study adopts this design

in a way that will facilitate the depth and easier collection of intensive and crucial information on factors affecting coal marketing in Tanzania in an effective and efficient matter based on resources allocated for supporting this study. This design is appropriate for descriptive purposes and the determination of the relationship between the variables. Moreover, the design used a quantitative approach to collect quantitative data (Hair et al, 2016). The selection of sample size for this study was based on Slovin's formula with a confidence level of 91% and a margin of error of 9% (1-0.09 design), the formula is expressed as here under; $n=N \div (1+Ne^2)$

Where: n= is the number of the sample (required)

N = Total population (100) and

e = Error tolerance (level) or margin of error (0.09)

Using the above formula, the sample size is calculated as indicated below;

$100/ (1+100(0.09)^2) = 100/1.81$

$= 55$

That is to say, the sample size of the study is 55 respondents

Distribution of Sample

Table; 1

Category / Department	Target population	Sample Size	Percent
Coal producers	15	10	18
Buyers	85	45	82
Total	**100**	**55**	**100**

Source; field Data 2023

Moreover, the researchers used a structured questionnaire given to the subject to respondent to in writing (Creswell, 2018). The researcher administered questionnaires to all respondents and through the help of field assistants by visiting the respondents. The use of questionnaires is justified because they are an effective way of collecting information from a large sample in a short span of time and at a reduced cost than other methods (Novita & Husna, 2020).

Furthermore, according to Creswell (2018), data analysis is the processing of data to obtain answers to research questions. Therefore, the researcher was editing the completed questionnaires for completeness and consistency. Data clean-up was followed; this process involves editing, coding, and tabulation in order to detect any anomalies in the responses and assign specific numerical values to the responses for further analysis. Data were analyzed quantitatively using descriptive analysis and inferential Analysis resulting in frequencies and percentages with the aid of a statistical package for social sciences software version 20.

The researcher used descriptive analysis to analyse the data from the discovery in such a way that any user could understand the content and meaning of the discovery, making it easier to draw conclusions. The descriptive technique used to analyse the findings in this study included the frequency and percentage of respondents (Anderson *et al.,* 2016). The questionnaire used a Liker scale with the options of strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5).

On top of that, inferential analysis was used this research study to test the relationship between the independent variable and the dependent variable in order to reach a conclusion. Inferential analysis was used by the researcher to test the relationship between the variables (Apuke, 2017). The strength of the relationships between the variables was measured using bivariate correlation, and the nature of the relationship was determined using linear multiple regression (Plonsky & Oswald 2017).

To ensure the validity and reliability of the study, Validity is the degree by which the sample of test items represents the content the test is designed to measure (Bridget & Lewin 2015). To establish the validity of the research instruments the researcher will carry out pre-testing of questionnaires and seek the opinions of experts in the field of study, especially the researcher's supervisors. This will facilitate the necessary revision and modification of the research instruments thereby enhancing validity.

Reliability is the extent to which results of a study are consistent over time and there is an accurate representation of the total population under study (Amin, 2015). To ensure reliability, the research instrument will be enhanced by carrying out a Cronbach Alpha test. The value for Cronbach Alpha that exceeds 0.7 will assure reliability.

Findings and Discussion

Findings showed determinant factors of coal marketing in Tanzania. These factors are affiliated with the price of coal, the transportation system and the quality of coal in the market. This feedback implies that for the corporation and countries to benefit from the marketing of coal need to be aware of that determinants.

(i) The Relationship between the Price of Coal and Coal Marketing in Tanzania

The findings have revealed that there is a high score on the relationship between the cost of production and the marketing of coal   (mean score of 2.85); there is also a high relationship between the availability of mining technology to coal marketing (mean score of 2.67); the relationship of the Closing price that involves pit price, land the transportation cost and shipping cost and coal marketing   (mean score 2.52); the relationship of the price of coal power energy and coal marketing   (mean score 2.60): the relationship between the price of substitute energy and the coal marketing   (mean score 2.47); and; Besides, there was a low score on the extent to which the availability of buyers has a relationship to coal marketing (mean score 1.67).

Table 2. Summary of the Responses on the relationship between the price of Coal and Coal Marketing

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Availability of buyers	55	1.00	5.00	1.6727	1.07246
Availability of mining technology	55	1.00	5.00	2.6727	1.20269
Price of coal power energy	55	1.00	5.00	2.6000	1.31375
Price of substitute energy	55	1.00	5.00	2.4727	1.33131
Cost of production	55	1.00	5.00	2.8545	1.31118
Closing price that involves pit price, land transportation cost and shipping cost	55	1.00	5.00	2.5273	1.35885
Valid N (listwise)	55				

Source: field Data (2023)

(i) The Influence of Transportation System on Coal Marketing

In summary, the second objective intended to examine the influence of the transport system on the coal marketing in Tanzania. The summary of the findings indicate in the influence of the availability of conveyors to reduce emissions and noise (mean score 3.29   , standard deviation = 1.46, minimum = 1 and maximum = 5).

Also in the influence of the availability of coal warehouses (mean score 2.9808, standard deviation = 1.33, minimum = 1 and maximum = 5); the finding indicates that many responded not sure the influence of the availability of the coal warehouse on coal marketing. This means many Mining companies not heavily involved in the building of coal warehouse products direct reach the market from the mining area this is indicated by a mean of 2.98.

Moreover, the influence on the availability of coal wagons and trucks (mean score 2.08, standard deviation = 1.37, minimum = 1 and maximum = 5). The findings imply the mean of 2.08 indicates most respondents agreed that the availability of coal wagons for railways and trucks for road stimulate the marketing of coal in the domestic and abroad marketplace.

However the findings on the influence of the availability of railway and road lines on the coal marketing (mean score 1.96 standard deviations = 1.33, minimum = 1 and maximum = 5). The findings imply that the majority of the respondents agreed that the availability of railway and road lines has an influence on coal marketing due to the fact that the mean = 1.96. This implies that many governments spend more money to improve roads and railways.

Lastly, there was an average mean score on the availability of ports (mean score of 1.87 standard deviations = 1.13, minimum = 1 and maximum = 5).   (Mean score 1.87). Their responses agreed on the influence of the port on the marketing of Coal. There was an average means score on the influence on the availability of ports =1.87. This finding shows that many buyers use the port to carry coal on reaching the market rather than other means of transportation, especially in the intercontinental coal market.

Table 3.0 Summary on the influence of the transportation system on the coal marketing

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Availability of railway and road lines	55	1.00	5.00	1.9636	1.33283
Availability of coal wagons and trucks	55	1.00	5.00	2.0727	1.34515
Availability of ports	55	1.00	5.00	1.8727	1.13944
Availability of coal warehouses	55	1.00	5.00	2.9455	1.33913
Availability of conveyors to reduce emissions and noise	55	1.00	5.00	3.2909	1.43595

Source: field Data (2023)

(ii) Influence of Coal Quality on Coal Marketing

Another factors assessed by this study are the influences of availability of processing plants, Availability of washing plant, Availability of good coal parameters such as Ash,CV and Sulphur on the coal marketing.

On evaluating the effect of the availability of washing plants on the marketing of coal, the findings show that (mean = 2.60, Standard deviation = 1.35, minimum = 1, maximum = 5). The findings reveal that the majority of the respondents agreed the availability of washing plants has an influence on the marketing of coal, this is indicated by a mean of 2.6

Moreover, on assessing the effect of the availability of blending technology on marketing coal in Tanzania, the following findings were discovered, (mean = 2.21, standard deviation = 1.13, minimum = 1 and maximum = 5). The findings imply the mean of 2.21 indicates most of the respondents agreed that the availability of blending technology has an influence on the marketing of coal which means that many companies use blending technology to increase selling in the marketing of coal.

Furthermore, in evaluating the influence of the availability of processing plants on coal marketing in Tanzania, the following findings were discovered, (mean = 2.13, standard deviation = 1.27, minimum = 1. and maximum = 5). The findings imply that the majority of the respondents agreed that the influence of the availability of processing plants on coal marketing, this is following the fact that the mean = 2.13. The results mean that coal crashed through processing machines has more attraction on the market.

On the other side the influence of the availability of good coal parameters such as ash, CV and Sulphur on coal marketing, the following were discovered, (mean = 1.71, standard deviation = 1.13, minimum = 1 and maximum = 5). The findings imply that numerous of the respondents agreed with the statement that the availability of good coal parameters such as ash, CV and Sulphur has an influence on coal marketing.

Table 3. The Summary of the Responses on the Influence of Coal Quality on Coal Marketing in Tanzania

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Availability of processing plants	55	1.00	5.00	2.1273	1.27736
Availability of washing plants	55	1.00	5.00	2.6364	1.35214
Availability of good coal parameters such as ash, CV and Sulphur	55	1.00	5.00	1.7091	1.13321
Availability of blending technology	55	1.00	5.00	2.2182	1.13351
Valid N (listwise)	55				

Source: field Data (2023)

Correlation Analysis of the Study Variables

The correlation matrix in most cases great developed by the researcher to determine whether there is some sort of an association between the selected variables. The magnitude and direction of the correlation coefficient among the selected variables of the study are shown. The correlation coefficients in our study have ranging from +1 to -1. Taylor (2013) clarified that the closer the correlation coefficient slants one, regardless of its direction, the great existing association, representing a more linear relationship between the two or more variables, however a positive correlation coefficient specifies that an increase in the first variable have relationship to an increase in the second variable, whereas a negative correlation coefficient indicates an opposite relationship in which once one variable increases in other side the second variable decreases. The correlation of the study variables is shown in .

Table 4

Correlations					
		Coal Price	Transportation	Coal Quality	Coal Mineral
Coal Price	Pearson Correlation	1	.215	.294[*]	.720[**]
	Sig. (2-tailed)		.115	.029	.000
	N	55	55	55	55
Transportation	Pearson Correlation	.215	1	.457[**]	.739[**]
	Sig. (2-tailed)	.115		.000	.000
	N	55	55	55	55
Coal Quality	Pearson Correlation	.294[*]	.457[**]	1	.757[**]
	Sig. (2-tailed)	.029	.000		.000
	N	55	55	55	55
Coal Mineral	Pearson Correlation	.720[**]	.739[**]	.757[**]	1
	Sig. (2-tailed)	.000	.000	.000	
	N	55	55	55	55

*. Correlation is significant at the 0.05 level (2-tailed).

Source: field Data (20230

Also, the findings proofed a positive correlation between the price of coal and coal mineral marketing (r = 0.720, p = 0.000), its implying that coal price has an impact on the marketing of coal.

The correlation analysis conducted shown a positive correlation between transportation system and coal market (r = 0.739, p-value = 0.000), proof that any increase in Transportation system such Railway, Road, Ports has an influence on marketing of coal.

Furthermore, the study from the field reveals that there are a positive relationship between the quality of the coal and Coal minerals marketing, with r = 0.757 and p-value = 0.000, proof that the quality of coal have influence on the marketing of the coal minerals.

The Relationship between Coal Price and Coal Marketing

The correlation analysis revealed a positive correlation between price of Coal and Coal Marketing in Tanzania (r = 0.720, p = 0.000), Means when the price of coal change and the market of coal change in the market. Its implying that changes in the coal price has an impact on the marketing of coal in Tanzania.

From the above analyses the outcomes from the field matched those from the result (Li et al., (2017). They highlights that the influence of substitute coal energy on the coal marketing is too strong. And warning the way natural gas from German and Japan influence the price of coal in Europe .The price of coal in the market affected with the price of natural gas and other substitute energy in the market and reasonable measure should be taken to complete with this situation in the market.

According to Fuksa (2018) the most common cause of the price of coal in the market is the cost of production in the mine. The coal producers should strive to reduce cost of coal production in the market because it's affect price of coal in the market and reduce sales volume in the market. According to Zhu (2022), there are positive relationship between the price of coal power plant and the marketing of the coal. The price of coal in the market depend on the consumption of coal power energy in the market. When the price of coal power plant increased in the market and the price of coal in the market also increased.

The Influence of the Transportation System on Coal Marketing in Tanzania

The correlation analysis conducted published a positive correlation between transportation systems and coal marketing (r = 0.739, p-value = 0.000), proof that any increase in Transportation systems such as Railways, Roads and Ports has an influence on the marketing of coal.

The study's conclusions were dependable with those of other researchers, such as Zhao (2020), who highlight that availability of competitive ports facilitate high workload and satisfaction to both coal buyers and trader hence facilitating coal marketing development. The same Hodgson & Norman (2018) study observed that coal in Australia has a competitive advantage in the market because all coal is transported by the railway line and the road because of good interlinking with ports.

This paper highlights that the Transportation system, in general, is a critical issue in coal marketing because it limits the transportation of coal to reach the market easily and cheapest. In the market, consumers preferred goods at affordable prices for easy distribution and profit generation.

Influence Of Coal Quality On Coal Marketing In Tanzania

Moreover, the study found a positive relationship between the quality of coal and the marketing of coal with r = 0.757 and p-value = 0.000, implying that coal quality has a high influence on the marketing of coal.

The findings were similar to those obtained by Baskoro et al., (2022) study analyses future demand and quality of coal in Indonesia and observed that blending technology is the best way to improve coal quality in the coal mining sector. According to Pulungan & Arbianto (2020), the quality of coal has been considered to be a determinant of the coal trade. In the market, the quality of coal has a strong influence on the forces of demand. The same as Barma (2019), coal cleaning technology has high impact on the improving the quality of coal and facilitating marketing of coal. Most producers should take the quality of the coal as a priority.

Conclusions and Recommendations

Conclusion

The Relationship between the Price of Coal and Coal Marketing in Tanzania

From this study, it is evident that the majority of the firms accept that the availability of buyers has a relationship with the marketing of coal in Tanzania so is a determinant of the coal marketing in Tanzania. However, it was discovered that the availability of mining technology has an impact on the marketing of coal and proves it determinant of coal marketing in Tanzania, and even the price of coal power energy facilitates coal marketing in Tanzania. The price of coal power energy has a relationship with coal marketing in Tanzania. This reveals that coal power energy is a determinant of coal marketing in Tanzania.

Based on the responded view of the relationship between the closing price that involves pit price, land transportation cost and shipping and coal marketing the study reveals its determinant of coal marketing in Tanzania because there is a great impact on coal marketing in Tanzania for heavy cost discourage buyers and supplying of coal in the market. Unfortunately, the study reveals that the cost of production is not a determinant of coal marketing in Tanzania due to the fact that has a low influence in

coal marketing in Tanzania however many firms in the ground their coal market never be affected by the fluctuation of the cost of production.

Finally, it's clear there is a positive relationship between the price of coal and coal marketing in Tanzania. And the price of coal is the determinant of coal marketing in Tanzania.

The Influence of the Transportation System on Coal Marketing in Tanzania

In assessing the influence of the transportation system on coal marketing in Tanzania respondents reported on several factors availability of railway line and road lines, availability of wagons and trucks, availability of ports availability of coal warehouses and the availability of conveyors. For the coal to reach the market need to be transported by truck, railways, conveyors belt and vessels.

The study has confirmed that the availability of ports and availability of railway land road lines are the determinant of coal marketing in Tanzania because it has a high influence in facilitating the transportation of coal, however, many firms accept the availability of trucks and wagons as a determinant of the coal marketing in Tanzania since it has a high influence in the loading and carrying to coal to reach in the market. Again the study proves the limited influence of the warehouse and conveyors in coal marketing in Tanzania. It is clear there is a positive influence of the Transportation system on coal marketing in Tanzania. And the Transportation System is the determinant of coal marketing in Tanzania.

Influence of Coal Quality on Coal Marketing in Tanzania

Based on the finding there are many factors that influence the quality of coal in Tanzania. In the study on the availability of coal processing plants, the majority responded and confirmed that they help to improve the quality of coal by reducing waste, cleaning and resizing coal hence attracting many consumers in the market which is a determinant of coal marketing in Tanzania. The availability of the washing plant is a determinant of coal marketing in Tanzania due to reason that is reported to have a great influence on the marketing of coal in Tanzania, consumer prefers coal which is free from dust due to the fact that coal has a strong and stable flame. The study on the good parameters such as Ash, CV and Sulphur endorse that have extraordinary determinants of the coal marketing in Tanzania hence influencing the coal marketing, consumers always prefer coal which has those high standard parameters acceptable with recognition board. Finally, the research confirms that the determinant of coal marketing in Tanzania is the availability of blending technology in the mining ground.

Recommendations

Coal minerals accounted as a major source of economic development in the world by facilitating the generation of cheap electricity, employment creation, stimulating steel industrial development, and earning foreign currency through trading. When compared to other countries' coal mine marketing as previously discussed and the essentiality of the great availability of coal reserves in the country, coal mines in Tanzania are affected by the Transportation system's poor interlinking with port, quality of coal and coal pricing issues. Because coal minerals are critical to affiliate economic development in Tanzania. Firstly, the government should prioritise the construction of roads, railway lines and ports by interlinking with the Coal mining areas (Kiwira-Kabulo, Ruvuma, Rudewa) this will help to reduce the cost and waste of time in loading and offloading of coal. Secondly, the government should offer an incentive for coal-quality improvement equipment imported into the countries this will facilitate coal quality improvement and products to compete in the global market. Third, Intensive promotion of Tanzania's coal minerals in the world market through international and regional conferences. Finally, Coal producers should opt to improve the quality of coal through blending, washing and processing technology.

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