IMPLEMENTATION EVALUATION AND FEASIBILITY OF DEVELOPMENT OF NEW ENERGY OF MINI COAL GASIFICATION ON MICRO, SMALL, AND MEDIUM ENTERPRISES

JAM
15, 3
Received, May 2017
Revised, July 2017
Accepted, August 2017

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Abstract: Resource and Development Center for Mineral and Coal Technology conducts research on the development of mini gasifier from laboratory scale to the pilot project. The activity from 2015 such as the Implementation of tree units of Mini Gasifiers, which each had the capacity of 10-15 kg/hour on Tofu Micro, Small, And Medium Enterprises, a capacity of 30 kg/hour on Atsiri Oil and Capacity of 50 kg/hour on Aluminum Smelter. Determination of IE Matrix strategy position was based on total value of IFE, which was given point on the X axis and total value of EFE Matrix on Y axis. The total value of IFE Matrix was 2.581 and EFE Matrix was 2.868. Therefore, user position of Mini Gasifier was placed on V cell, which was protecting and defending. The corresponding strategy to be applied on this cell was market penetration and product development. The identification result from strengths, weakness, opportunities, and the threat of capacity as well as quantity and quality on Micro, Small, And Medium Enterprises on V cell, next would be used to formula alternative strategy by using SWOT matrix. Based on SWOT analysis from some alternative strategies those have been formulated, chosen strategy priority to be applied product capacity using quantity as well as quality on Micro, Small, and Medium Enterprise accordance with production capacity using quantity as well as quality on supporting and implementing protecting and defending strategies. From joint QSP matrix estimation, the result was to implement Mini Gasifier energy technology utilization by adapting marketing demand and era development with the highest power trail among other alternative strategies for 7.2. Based on QSPM with the expertise from Mini Gasifier user, came with two strategies with same value (7.0) became strategy priority was production capacity development strategy with ease to obtain raw material of coal on Micro, Small, And Medium Enterprises and strategy of Mini Gasifier energy technology implementation with adapting market demand and era development. QSPM analysis with expertise from Distributor that produced two strategies with the same value (7.0), which was the strategy of transformation management implementation in facing the dynamic of human resource management quality in the absorbing process of Mini Gasifier technology and utilization strategy of Mini Gasifier energy technology with adapting market demand and era development.

Keywords: Mini Gasifier, Micro, Small, And Medium Enterprises, New Energy Feasibility.

Journal of Applied Management (JAM)
Volume 15 Number 3, September 2017
Indexed in Google Scholar

Correspondention Author: Dasryanto, Ministry of Energy and Resources Minerals
DOI: http://dx.doi.org/10.21776/ub.jam.2017.015.03.08

Coal is an alternative source of energy for fuel in large and small scale industries. Coal is a quarry material formed from the rest of the plant. The Research

and Development Center of Minerals and Coal Technology has focused on technological research on coal utilization in the Micro, Small, and Medium Enterprises sectors so that dependence on fossil energy can be reduced. One of the cleanest coal technologies developed is the conversion technology through Micro-scale gasification, Small, And Medium Enterprises. The design of a coal-fired mini gasifier is called GasMin (Sofaeti, 2011). The Research and Development Center of Minerals and Coal Technology undertakes the design of a Micro, Small, And Medium Enterprises of coal gasifier, between 16-18 liters of kerosene per hour or equivalent to 12-40 kg of coal per hour. Small industries want clean, convenient, and economical alternative energy. The design of a coal-fired mini gasifier is called GasMin (Sofaeti, 2013).

GasMin coal is a reactor with Micro, Small, And Medium Enterprises scale that can convert coal into gas fuel through gasification process with limited air react and water vapor. Coal gasification technology or biomass is widely known in the industry, especially large industries. In Micro, Small, And Medium Enterprises that move on a domestic product is still not known to the public. Problems arising from the technology gasification type of coal up draft is often slagging. Slagging is melting of ash caused by high combustion temperatures and hardened, which may interfere with the gasification process. Through GasMin innovation slagging problems can be solved by producing clean and efficient fuel gas. This innovation is not only in gasification process but also in gas combustion technology through burner innovation which is adjusted to gas fuel characteristic, ie gas fuel plus liquid fuel (Sofaeti, 2013). The use of fuel through the gasification process is more efficient, not much heat is wasted compared to burning using solid fuels such as wood, biomass, and stone or coal briquettes. The advantage of using coal gasifiers is the affordable energy cost.

RESEARCH METHODS

Data collection

Primary data collection includes internal and external data of Micro, Small, And Medium Enterprises conducted with direct field observation technique, through an in-depth interview with internal and external parties Micro, Small, And Medium Enterprises. Data collection was done by interview method, questionnaire, Focus Group Discussion and literature study. Stages of data collection obtained from secondary and primary data from interviews and questionnaires conducted with descriptive analysis to obtain more in-depth information about the object of research (Rangkuti, 2006). The types of data collected are primary and secondary data. Field observation was conducted on 15 speakers in Yogyakarta with purposive sampling technique. Roscoe (1975) and the Slovin method (Sevilla, 2007) have supported the amount, for the number of samples obtained by the following formula:

n = N / (1 + N (e)2)
n = number of samples
N = total population
e = limit of error tolerance

With respondents consisting of 15 speakers consisting of the Government of Yogyakarta Special Region, Beneficiary, Agency for Research and Development of Energy and Mineral Resources, Customer, Distributor 1, Distributor 2, Community of Micro, Small, And Medium Enterprises, Employee 1, Employee 2, Minerals and Coal Technology, Micro, Small, And Medium Enterprises Manufacture of Nakula Sadewa, Micro, Small, And Medium Enterprises Aluminum-Craft, Micro, Small, And Medium Enterprises Craft Smelting Aluminum, and Micro, Small, And Medium Enterprises Essential Oil Distillers.

Data Processing and Analysis

Qualitative analysis is the process of data that has been collected and then described or described as it is. It aims to examine the condition of GasMin's current business activities. Kasmir, J. (2012), said that the prospects for business development can be seen through several aspects. These aspects can not stand alone but are interrelated. This means that if one aspect is not met, it is necessary to make repairs or additional required. The determination of parameters used to measure the feasibility of GasMin usage is explained from various aspects, among others are technical aspects of GasMin gas

product quality, technological aspects of GasMin usage, environmental aspect, the social aspect, long term GasMin utilization aspect, and sustainability aspects of coal availability. To obtain the initial investment data from GasMin Coal, there are several things that require study, namely operational cost, financial feasibility analysis, feasibility analysis using incremental analysis: Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI). Scenario incremental analysis scenario (Hansen, et al., 1998).

IFE and EFE matrices aim to analyze environmental factors, both internal and external. In analyzing the internal factors, it is classified on the strengths and weaknesses of the organization with the IFE matrix. In analyzing the external factors, it classifies the opportunities and threats to the organization used EFE matrix. IFE is used to find out the company's internal factors regarding the strengths and weaknesses that are considered important. EFE to evaluate external organizational factors (David, 2006)

SWOT and QSPM analysis is an analytical tool in determining the strategic formula of business development. Strategic formulas are structured by combining the various indicators contained in strengths, weaknesses, opportunities, and threats. The merging model uses a matrix. The strategy chosen is a strategy that can solve the strategic issues of the company (Rangkuti, 2014).

RESULTS AND DISCUSSION

Incremental Analysis of GasMin Usage

Incremental analysis is a way of making decisions by comparing operational costs or income from one alternative to another. Erawati (2012), explains that generally, an incremental analysis is used as an alternative in decision making in the short term. GasMin products have been tested in three Micro, Small, and Medium Enterprises in Yogyakarta with three of variations capacity, which is 50 kg capacity in Micro, Small, And Medium Enterprises Smelting Aluminum, capacity 30 kg / hour in Micro, Small, And Medium Enterprises distillation essential oil and 10 kg / hour capacity at Micro, Small, And Medium Enterprises tofu producers.

The incremental analysis of GasMin usage is 50 kg/hour

This analysis is done by comparing the two types of fuels currently used in Micro, Small, And Me-

Table 1 The Incremental Analysis of GasMin usage 50 kg/hr

Micro, Small, And Medium Enterprises		Mr. Jito		Mr. Teguh	
		Solar	Coal	Used oil	Coal
Initial Cost (Million Rp)		9,9	86,9	9,9	86,9
Fuel Costs (Million Rp)		232,8	66,2	145,2	178,2
Overhead (Million Rp)		0,6	1,5	1,0	2,37
Labor costs (Million Rp)		39,6	26,4	39,6	26,4
Total Operating Cost (Million Rp)		273,1	94,2	185,8	207,0
Save / Cost Loss (Million Rp)		178,9		(21,1)	
Additional Investment (Million Rp)		76,4		76,9	
Feasibility	NPV (Million Rp)*	416,9		(126,2)	
Analysis	IRR (%)	231,0		-126,0	
	PI (Index)	5,4		-1,6	
	PB (Year)	1,3		-1,2	
Assessment		**Feasible**		**Not Feasible**	

Information: * NPV with a discount rate 12%

dium Enterprises of Smelting Aluminum is for diesel owned by Mr. Upangat Sujito and for used oil of Mr. Teguh. The results of the incremental analysis are presented in Table 1.

The result of incremental replacement analysis of GasMin capacity of 50 kg/hr in Table 1 has shown that from the burning furnace replacement side, an incremental initial cost for GasMin with 50 kg/hr capacity of 76.4 million occurred. This is due to the estimated cost of existing fuel stoves both diesel and used oil is only 9.9 million while GasMin capacity of 50 kg/hr is 86.9 million.

The incremental analysis of GasMin usage is 30 kg/hour

The replacement of biomass-based fuels can be seen in Table 2 below.

Table 2 The incremental analysis of GasMin usage is 30 kg/hour

Micro, Small, And Medium Enterprises		Mr. Bambang	
		Biomass	**Coal**
Initial Cost (Million Rp)		1,1	75,7
Fuel Costs (Million Rp)		100,9	368,1
Overhead (Million Rp)		1,5	2,3
Labor costs (Million Rp)		29,7	19,8
Total Operating Cost (Million Rp)		132,3	390,3
Save / Cost Loss (Million Rp)		(258,1)	
Additional Investment (Million Rp)		74,6	
Feasibility Analysis	NPV (Million Rp)*	(766,5)	
	IRR (%)	-126,0	
	PI (Index)	-10,3	
	PB (Year)	-4,5	
Assessment		**Not Feasible**	

Information: * NPV with a discount rate 12%

The incremental result of GasMin usage of 30 kg/hr capacity on the replacement of biomass fuel showed that from the side of the burning furnace replacement, an additional cost of 74.6 million was obtained from the difference between the initial cost estimate of the existing 1.1 million heated furnaces to GasMin with a capacity of 30 kg/initial cost of 75.7 million.

The incremental analysis of GasMin usage is 10 kg/hour

Incremental analysis on replacement of wood powder with GasMin with a capacity of 10 kg/hr Presented in Table 3 below.

The incremental result of using GasMin with a capacity of 10 kg/hour on the replacement of the sawdust fuels shows that from the addition of the burning furnace, there is an additional investment cost of 73.8 million obtained from the initial cost of the existing burning furnace of 0.5 million rupiahs and for GasMin capacity 10 kg/hour reached 74.4 million rupiah.

Financial Feasibility Analysis

Financing analysis is performed on a variation of the three GasMin capacities by calculating the cost components that directly affect the production process. For capital expenditure component include

Table 3 The incremental analysis of GasMin usage is 10 kg/hr

Micro, Small, And Medium Enterprises		Mr. Aji	
		Wood Powder	Coal
Initial Cost (Million Rp)		0,5	74,4
Fuel Costs (Million Rp)		158,4	573,0
Overhead (Million Rp)		0,6	1,5
Labor costs (Million Rp)		39,6	26,4
Total Operating Cost (Million Rp)		198,6	601,0
Save / Cost Loss (Million Rp)		(402,3)	
Additional Investment (Million Rp)		73,8	
Feasibility Analysis	NPV (Million Rp)*	(1.1)	
	IRR (%)	-100,0	
	PI (Index)	-15,6	
	PB (Year)	-6,4	
Assessment		**Not Feasible**	

Information: * NPV with a discount rate 12%

the cost of purchasing one unit of gasifier and installation cost 5%. Installation costs are the costs incurred when the installation process of equipment at the site. The components of operating expenditure include the cost of raw materials (Aluminum smelting using mixed aluminum ingots and blinds, essential oil distillation using clove leaves, and making tofu using soybean), labor costs (direct labor costs from existing conditions and the addition of two GasMin operators) the cost of maintenance (assuming 15% capital expenditure), equipment depreciation cost (carbon steel estimated lifetime 3 years, 30% capital expenditure) and transportation costs (assuming 1% income / sales).

Calculation of capital expense and operating expenditure component for GasMin usage of 50 kg/hr at Micro, Small, and Medium Enterprises of Smelting Aluminum, GasMin with 30 kg/hour capacity in Micro, Small, and Medium Enterprises of essential oil distillation and GasMin with 10 kg/hours on Micro, Small, and Medium Enterprises tofu production presented in Table 5 has shown that the largest cost components in Micro, Small, and Medium Enterprises production processes are the cost of purchasing raw materials and the cost of purchasing fuel. The cost of purchasing coal for a capacity of 10 kg/hour is 8 times greater than the purchase of coal for 50 kg/hour capacity. The large heat requirement in the process of making tofu resulted in the amount of coal needed will be bigger, ie ± 1 ton/day at GasMin capacity 10 kg/hour, when compared with capacity 50 kg/hour to meet the heat requirement in Micro, Small, And Medium Enterprises of Aluminum smelter, is only 145.17 kg/day. The difference in the efficiency of each GasMin capacity affects the coal requirements used in each Micro, Small, and Medium Enterprises.

Table 4 Various Gasifier Price Capacity

Gasifier Capacity	Harga *Gasifier* (Rp/Unit)
50 kg/jam	82.783.687,-
30 kg/jam	72.104.439,-
10 kg/jam	70.875.101,-

Source: The results of calculations in the GasMin Industrial Pre-Feasibility Study report in Yogyakarta Special Region

Based on the components of the capital and operating costs, an annual cash flow of GasMin is used for each Micro, Small, and Medium Enterprises. In the incremental analysis, the replacement of biomass and wood powder in GasMin shows an incremental cost, especially in the initial cost of fuel costs for coal purchases. Table 6 is the earnings tax on

Table 5 Capital and Operating Expenditure

Cost component	Micro, Small, And Medium Enterprises of Aluminum Smelting	Micro, Small, And Medium Enterprises of Essential Oil Distillation	Micro, Small, And Medium Enterprises of Tofu Production
	50 kg/hr	30 kg/hr	10 kg/hr
Price of 1 unit gasifier (Rp)	82.783.687	72.104.439	70.875.101
Installation Fee, 5% (Rp)	4.139.184	3.605.222	3.543.755
Total CAPEX	86.922.871	75.709.661	74.418.856
Raw Material Cost (Rp)	719.400.000	495.000.000	270.336.000
Labor Cost (Rp)	250.800.000	49.500.000	105.600.000
Coal (Rp)	66.217.223	368.139.815	573.026.517
Electricity and Water (Rp)	8.168.160	1.235.520	1.647.360
Maintenance Cost (Rp)	13.038.431	11.356.449	11.162.828
Depreciation Fees (Rp)	26.076.861	22.712.898	22.325.657
Transportation Cost (Rp)	12.612.600	10.692.000	11.880.000
Total OPEX	1.096.313.275	958.636.683	1.569.004.879

Source: Processed calculation results and pre-feasibility study report of GasMin Industry in Yogyakarta Special Region

Table 6 Cash Flow Analysis and Financial Feasibility

Component	50 kg/hr	30 kg/hr	10 kg/hr
Production Capacity (Kg / Year)	60.060	7.920	15.840
Product Price (Rp / product)	21.000	135.000	75.000
Sales / Income (Rp / Year)	1.261.260.000	1.069.200.000	1.188.000.000
Total Opex (Rp) *	1.070.236.414	935.923.784	973.652.705
Gross Profit (Rp)	191.023.586	133.276.216	214.347.295
Depreciation (Rp)	26.076.861	22.712.898	22.325.657
EBIT (Rp)	164.946.725	110.563.317	192.021.638
EBT (Rp)	164.946.725	110.563.317	192.021.638
Tax, 15% (Rp)	24.742.009	16.584.498	28.803.246
EAT (Rp)	140.204.716	93.978.820	163.218.392
CIF (Rp)	166.281.578	116.691.718	185.544.049
Feasibility Analysis			
NPV (Rp)	278.979.840	182.646.568	331.452.360
IRR (%)	183	143	243
PB (Year)	1,61	1,24	2,19
Assessment	**Layak**	**Layak**	**Layak**

Source: Calculation result and PreMedia GasMin Industrial Pre-Feasibility Report in DIY
* no depreciation charge
EBIT : Earn Before Interest and Tax
EBT : Earn Before Tax
EAT : Earn After Tax
CIF : Cash Inflow

the third Micro, Small, And Medium Enterprises of GasMin users on average reaching 90-160 million/ year.

From the results of financial feasibility analysis on the use of GasMin in 3 Micro, Small, And Medium Enterprises in Yogyakarta shows that on the use of GasMin in Micro, Small, And Medium Enterprises of Smelting Aluminum with investment value of Rp 86.9 million for GasMin investment with a capacity of 50 kg/hour, with the coal requirement of 145.17 kg/day at the purchase price of coal Rp 1700/ kg indicates that the investment is feasible, shown from the calculation obtained positive NPV (NPV> 0), the IRR is greater than the discounted rate (IRR > 12%) and the payback period invested less than the economic life of the tool (3 years) is 1.61 years. The use of Gasmin in Micro, Small, And Medium Enterprises Distribution of Essential Oils with an investment value of Rp 75.7 million for GasMin's 30 kg/hour investment, with coal requirement of 1093.70 kg/day at the purchase price of coal Rp 1700 / kg indicates that investment is feasible (NPV> 0), IRR is greater than the discounted rate (IRR> 12%) and the payback period is invested less than the economic life of the tool (3 years) is 1.24 years. The use of GasMin in Micro, Small, and Medium Enterprises of Tofu Production with investment value of Rp 74.4 million for GasMin investment with a capacity of 10 kg / hour, with coal requirement of 1276.80 kg / day at the purchase price of coal Rp 1700 / kg indicates that investment is feasible, from the calculation obtained positive NPV (NPV> 0), IRR greater than the discounted rate (IRR> 12%) and payback period invested less than the economic life of the tool (3 years) is 2.19 years.

Sensitivity Analysis

Sensitivity analysis is needed to find out how sensitive the changes are likely to occur in the financial conditions of Micro, Small, and Medium Enterprises. Sensitivity analysis will be conducted on the use of GasMin in Micro, Small, And Medium Enterprises is by doing some variation of coal purchase price range Rp 900/kg to Rp 2100/kg coal. Significant price differences are influenced by the coal sales system of each distributor. Perform some variations on the tool lifetime to be shown at % depreciation cost of the tool. The tool lifetime variation will be carried out with a variation of % depreciation of the tool, for example: in the above financial analysis, the lifetime of the appliance for 3 years (30%) with the use of carbon steel material. When the material is used better, the tool lifetime becomes 10 years longer or with the depreciation value of the tool by 10%.

IFE Matrix Analysis

Table 7 IFM Matrix of GasMin Users

Internal factors	Weight (a)	Rating (b)	Score (axb)
Strength:			
- Affordable energy costs	0.134	4	0.537
- Increase production capacity both quantity and quality in MSMEs	0.105	4	0.420
- Reduce operational costs	0.090	3	0.270
- Value added	0.105	4	0.418
- Coal producers and exporters	0.097	3	0.292
Weakness:			
- Environmental impacts	0.081	2	0.163
- Acquisition of raw materials and energy	0.100	1	0.100
- Knowledge of gasification technology	0.100	1	0.100
- Operator capability	0.093	1	0.093
- Budget financing to GasMin	0.095	2	0.189
Total	**1.000**		**2.581**

EFE Matrix Analysis

Table 8 The GasMin User EFE Matrix

External factors	Weight (a)	Rating (b)	Score (axb)
Opportunities:			
- Availability of resources	0.130	4	0.519
- Government policy towards MSMEs	0.106	3	0.317
- GasMin Investment	0.103	3	0.309
- Supply of coal	0.099	3	0.297
- Mini gasification price	0.099	3	0.298
- Coal requirements	0.103	3	0.309
Threat:			
- HR and labor training	0.092	2	0.183
- The use of coal raw materials	0.088	2	0.176
- Spare parts supporting equipment	0.082	2	0.165
- Government policies are rapidly changing	0.099	3	0.296
Total	**1.000**		**2.868**

IE Matrix Analysis

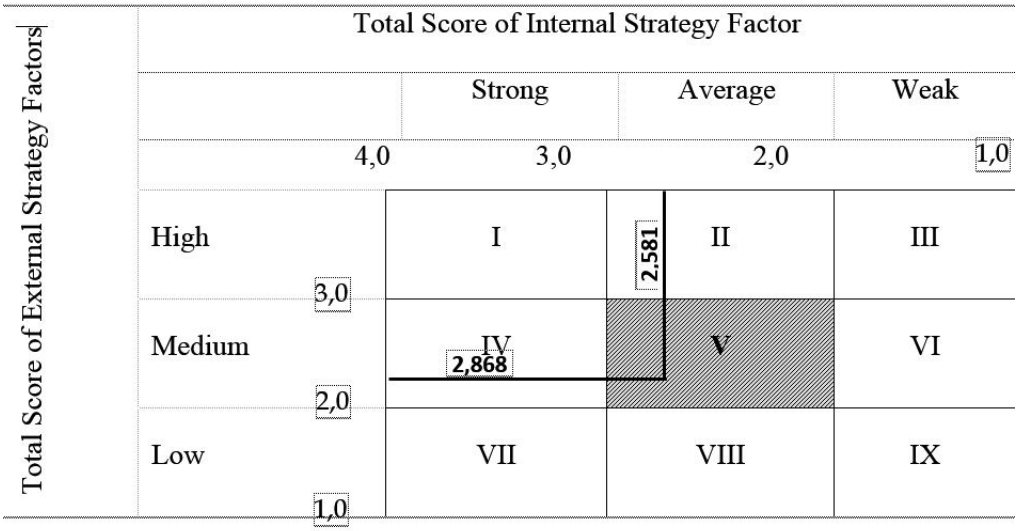

Figure 1 Matriks IE Pengguna GasMin

Information:
Based on the total score, the positioning of the IE Matrix strategy is based on the total IFE Matrix value assigned to the x axis and the total EFE Matrix value on the y-axis. The total value of IFE Matrix 2.581 and EFE Matrix value 2,868. Thus the position of the user of GasMin lies in cell V, ie guard and defend. Appropriate strategies to apply to these cells are market penetration and product development. The identification of strengths, weaknesses, opportunities, and threats of production capacity both quantity and quality in MICRO, SMALL, AND MEDIUM ENTERPRISES residing in next V cell will be used to formulate alternative strategies using SWOT matrix.

Table 9 SWOT Matrix of GasMin User

Internal factors / External Factors	**Strength (S)** 1. Affordable energy costs 2. Increase production capacity both quantity and quality on MICRO, SMALL, AND MEDIUM ENTERPRISES 3. Lower operating costs 4. Value added 5. Coal producers and exporters	**Weakness (W)** 1. Environmental impacts 2. Acquisition of raw materials and energy 3. Knowledge of gasification technology 4. Operator's ability 5. Budget financing to Gasmin
Opportunity (O) 1. Availability of resources 2. Government policy on MICRO, SMALL, AND MEDIUM ENTERPRISES 3. GasMin Investment 4. Supply of coal 5. Mini gasification price 6. Coal requirements	**S-O Strategy** a. Development of production capacity with ease of obtaining raw material of coal at MICRO, SMALL, AND MEDIUM ENTERPRISES (S2, S4: O2, O4, O6) b. Utilization of GasMin energy technology by adjusting market demand and development of era (S1, S2: O2, O4, O5, O6)	**W-O Strategy** a. Initiate the formation of MICRO, SMALL, AND MEDIUM ENTERPRISES on the development of Coal Gasification technology (W1, W3, W4: O3, O5, O6) b. Designing effective marketing activities and GasMin product training to become experts (W1, W3, W4: O1, O3, O4, O6)
Threat (T) 1. HR and labor training 2. The use of coal raw materials 3. Spare parts support equipment 4. Government policy is rapidly changing	**S-T Strategy** a. Encourage and create human resources MICRO, SMALL, AND MEDIUM ENTERPRISES qualified and skilled in the development of GasMin technology (S2: T1, T2, T3) b. Maintaining cooperation with various agencies (government, private, community institutions and foreign parties) on GasMin technology (S1, S2, S5, T1, T2, T3)	**W-T Strategy** a. Implementation of change management in facing the dynamics of human resource quality in gasMin technology absorption process (W1, W4, W5: T1, T2, T4) b. Optimizing the internal cooperation between TekMIRA and working units (Provincial of Industry Trade Cooperative and MICRO, SMALL, AND MEDIUM ENTERPRISES, Entrepreneurship and Commercial Business) at Balitbang KESDM in resource sharing with related working units within KESDM (W3, W4: T1, T4)

Information:

- (Si: Oi) or (Si: Ti) or (Wi: Oi) or Wi: Ti) indicates a combination of the external environment with the internal in generating the choice of strategy
- i = 1, 2, ... n

Priority of GasMin User QSPM Strategy

Table 10 QSP Matrix Combined Resources

No.	Alternative Strategy	Total value	Priority Order
1.	Utilization of GasMin energy technology by adjusting the market needs and the development of the era	7.2	1
2.	Development of production capacity with ease of obtaining coal raw materials on MSMEs	6.9	2
3.	Encourage and create qualified and skilled MSMEs human resources in the development of GasMin technology	6.8	3
4.	Maintaining cooperation with various agencies (government, private, community institutions and foreign parties) on GasMin technology	6.5	4
5.	Initiate the establishment of MSMEs to develop the technology development of coal gasification	6.4	5
6.	Designing effective marketing activities and GasMin product training to become experts	6.3	6
7.	Implementation of change management in facing the dynamics of human resource quality in gasMin technology absorption process	6.2	7
8.	Optimizing the internal cooperation between TekMIRA with work units (Provincial of Industry trade cooperative and MSMEs, Entrepreneurship and Commercial Business) in Balitbang SDM in resource sharing with related work unit in HR environment	5.9	8

Table 11 QSP matrix source from the GasMin User

No.	Alternative Strategy	Total value	Priority Order
1.	Development of production capacity with ease of obtaining coal raw materials on MSMEs	7.0	1
2.	Utilization of GasMin energy technology by adjusting the market needs and the development of the era	7.0	1
3.	Encourage and create qualified and skilled MSMEs human resources in the development of GasMin technology	6.9	2
4.	Designing effective marketing activities and GasMin product training to become experts	6.3	3
5.	Implementation of change management in facing the dynamics of human resource quality in gasMin technology absorption process	6.3	3
6.	Maintaining cooperation with various agencies (government, private, community institutions and foreign parties) on GasMin technology	6.1	4
7.	Initiate the establishment of MSMEs on the development of Coal Gasification technology	5.9	5
8.	Optimizing the internal cooperation between TekMIRA with work units (Provincial of Industry trade cooperative and MSMEs, Entrepreneurship and Commercial Business) in Balitbang SDM in resource sharing with related work unit in HR environment	5.7	6

Table 12 QSP matrix of sources from Distributors

No.	Alternative Strategy	Total value	Priority Order
1.	Implementation of change management in facing the dynamics of human resource quality in gasMin technology absorption process	7.0	1
2.	Utilization of GasMin energy technology by adjusting the market needs and the development of the era	7.0	1
3.	Initiate the establishment of MSMEs on the development of Coal Gasification technology	6.7	2
4.	Encourage and create qualified and skilled MSMEs human resources in the development of GasMin technology	6.6	3
5.	Maintaining cooperation with various agencies (government, private, community institutions and foreign parties) on GasMin technology	6.6	3
6.	Development of production capacity with ease of obtaining coal raw materials on MSMEs	6.5	4
7.	Designing effective marketing activities and GasMin product training to become experts	6.5	4
8.	Optimizing the internal cooperation between TekMIRA with work units (Provincial of Industry trade cooperative and MSMEs, Entrepreneurship and Commercial Business) in Balitbang SDM in resource sharing with related work unit in HR environment	6.4	5

CONCLUSION

The calculation of internal factors obtained a total score of 2,581, indicating the internal position of the user GasMin strong enough. While the calculation of external strategy factors obtained a total score of 2.851. This value is above the average of 2.50, this means showing GasMin users already have a good strategy, but still need other strategies more effective because there are still external strategic factors that only responded by the average user GasMin.

Based on IFE and EFE matrix analysis results can be compiled SWOT matrix that will produce a strategy. SO Strategy produces a strategy for the development of production capacity with ease of obtaining coal raw materials in MICRO, SMALL, AND MEDIUM ENTERPRISES and utilization of GasMin energy technology. Strategy ST to generate strategies to Encourage and create human resources MICRO, SMALL, AND MEDIUM ENTERPRISES qualified and skilled and maintain the fabric of cooperation with various agencies. The WO strategy generates a strategy to initiate the establishment of MICRO, SMALL, AND MEDIUM ENTERPRISES and design effective marketing and training activities. The WT strategy generates strategies for flexibility that include change and cooperation.

Strategy that must be prioritized to be implemented is strategy of applying change management in Development of production capacity with ease of obtaining raw material of coal at MICRO, SMALL, AND MEDIUM ENTERPRISES and strategy of GasMin energy technology utilization by adjusting market requirement and development of era with equal and highest attraction value between Another alternative strategy is 7.2.

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