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# Heavy Equipment Workforce Planning: An Analytic Hierarchy Process Approach for Local Worker Composition Regulation Compliance – A Coal Company Case Study

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**ABSTRACT:** The Newcastle Coal Price surge, currently at $457.80 in September 2022, drives coal companies, like one in East Kutai, to ramp up production by acquiring equipment and operators. However, compliance with Kutai East Region Regulation No 1 of 2022, requiring an 80% local workforce, complicates operator recruitment. This study aids management in selecting operator compositions in line with stakeholder expectations and regulations. Employing Problem Tree Analysis, Value-Focused Thinking, and Stakeholder Analysis, key challenges and alternative strategies were identified. Analyzing five options via the Analytic Hierarchy Process, the optimal choice, 100% skilled non-local operators, conflicts with regulation, necessitating negotiation for a suitable compromise. The fourth option, with adjusted operator compositions over time, emerges as the most viable solution. Implementation planning, utilizing the 5W+1H method, is crucial for addressing stakeholder concerns, ensuring compliance, reducing unemployment, and enhancing welfare. This research offers a framework for fulfilling operator qualifications while meeting stakeholder interests through strategic planning and negotiation.

## 1. INTRODUCTION

According to calculate the ratio of coal reserves to coal production based on the Department of Energy and Natural Resources (Kementrian ESDM) 2022 Performance Report. The Ministry of Energy and Natural Resources can calculate how long Indonesia's coal reserves can be mined each year at different production rates. Proved coal reserves in 2022 will be 34,718 million tons and realized coal production in 2022 will be 687.4 million tons, with a 2022 ratio of 50.51 years, below the target of 56.97 years. However, large production reserves are still in place for over 30 years. Newcastle Coal Prices expect coal prices to continue to rise through 2023. This is based on the all-time high of $457.8 set in September last year. So, one of the mining companies working in East Kutai plans to extend coal generation from 50 million tons in 2022 to 55 million tons in 2023.

Recruitment is an important issue in human resource (HR) management. The aim of recruitment is to find high quality people that are suitable for the company organization. Competitive price momentum triggers the coal company to increase production by adding production equipment and heavy equipment operators to optimize profits from the coal mining business. The addition of production capacity must be followed by the addition of operators through the recruitment of new operators. The company recruits new operators based on 2 classifications: non-skill operators (green operators; GO) and skilled operators. The company needs to immediately get a new operator who is experienced, so he can immediately operate the equipment. But the company also must comply with obligations related to local labor regulations. The article 23 of the East Kutai Regency Regional Ordinance No. 1 of 2022 stating that at least 80% are occupied by local workers. The opening of employment opportunities in the coal company will be an opportunity for the East Kutai Regional Government to reduce the unemployment rate in East Kutai District. Therefore, the government strongly desires to increase the quota of local workers. This research facilitates the resolution of various conflicting interests of stakeholders by suggesting the best alternatives and then negotiating them.

This article is organized into several parts: the first part is the introduction, the second part is the materials, the third part is the methodology, the fourth part is the results and analysis, the last part is the conclusion of research.

## 2. LITERATURE REVIEW

In this study, the author used many publications from reliable sources and related to the research topic, especially publications related to employee recruitment processes, conflicts and multilateral negotiations, and the use of the analytic hierarchy process (AHP). Literature used as reference and learning: Selection criteria of recruitment for information systems employees: Using the analytic hierarchy process (AHP) method (Wei-Hung Hsiao, Tsung-Sheng Chang, Ming-Shang Huang, and Yi-Chia Chen, 2011),

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Decision Making in Recruitment Process with AHP and ANP (Kartik Singh, Rahul Sindhwani, and Punj L Singh, 2015), Decision Making and Evaluation System for Employee Recruitment Using Fuzzy Analytic Hierarchy Process (Ramadan Krebish Ablhamid, Budi Santoso, and M. Aziz Muslim, 2013), Manpower Requirement for Planning (Morris A. Horowitz, Manuel Zymelman, and Irwin L. Herssnstadt, 1966), Conflict Resolution in The Era of Cognitive Multicriteria Decision-Making: an AHP-Retributive Approach (Vargas, L.G., Moreno-Loscertales, C., and Moreno Jimenez, J.M., 2023), A Negotiation Support System for Defining Utility Functions for Multi-Stakeholder Self-Adaptive Systems (Wohlrab, R. and Garlan, D., 2023), and Matchmaking Under Uncertainty: How Hiring Criteria and Requirements in Professional Work are Co-Created (Tholen, G., 2023)

As shown in Table 1, this study is based on the available literature with the aim of achieving the best alternative using a combination of various methods used in various studies on the topics include employee recruitment, stakeholder analysis, and multi-criteria decision making combined with other methods not used in the literature. These methods include Problem Tree Analysis, Value-Focused Thinking (VFT), The Analytic Hierarchy Process (AHP) and Multiparty Negotiations (conflict identification, internal-external analysis, types of negotiations, etc.). As a result, this will therefore influence the strategic decisions made by the organization to determine the best alternative combination of operator types when recruiting operators.

### 2.1. Stakeholder Analysis

The quantitative approach to this analysis starts with distributing questionnaires and working group discussion to each key respondent to assess the level of importance and stakeholder influence using a scoring method with a scale of 1-4. (Fedora dan Hudiyono 2019).

**Table 1. Score rating level of power and level of interest.**

| Score | Level of power | Level of interest |
|---|---|---|
| 1 | Less of power | Less interest |
| 2 | Quite of power | Quite interest |
| 3 | Powerful | Interest |
| 4 | Very powerful | Very interest |

The value of the level of interest and level of power of each stakeholder is added up and then averaged using equation (1) so that the value is obtained $\bar{Y}$ and X on each stakeholder. Equation (1) is used because there is more than one key respondent who assesses the level of interest and level of power. The next step is the calculation result of equation (1) is added and then averaged using equation (2) so that a value is obtained Y and $\bar{\bar{x}}$.

$$\bar{X} = \frac{\sum Xi}{n}; \quad \bar{Y} = \frac{\sum Yi}{n}; \quad \text{.....(1)}$$

$$\bar{\bar{X}} = \frac{\sum \bar{X}i}{k}; \quad \bar{\bar{Y}} = \frac{\sum \bar{Y}i}{k}; \quad \text{.....(2)}$$

Remarks:

$X_i$ = Value of the i-th interest level

$Y_i$ = Value of the i-th power level

$\bar{X}$ = The average value of interest;

$\bar{Y}$ = The average value of power;

$\bar{\bar{X}}$ = The average of the average value of interest;

$\bar{\bar{Y}}$ = The average of the average value of power;

$n$ = Number of key respondents;

$k$ = Number of stakeholders involved.

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After obtaining grades Y and $\bar{\bar{x}}$ as a quadrant boundary in the cartesian diagram, then the power level value (Yi) and interest level value (Xi) of each stakeholder are plotted into the power-interest matrix (see figure 3.5). The power-interest matrix describes the position and role of each stakeholder through quadrant division, where the x-axis represents interest while the y-axis represents power (Mendelow, A. L., 1991). Stakeholders are divided into four groups, namely key players (quadrant I), keep informed (quadrant II), keep satisfied (quadrant III), and minimal effort (quadrant IV). Key players have high interest and power, keep informed have high interest but low power, keep satisfied have low interest but high power, and minimal effort have low interest and power.

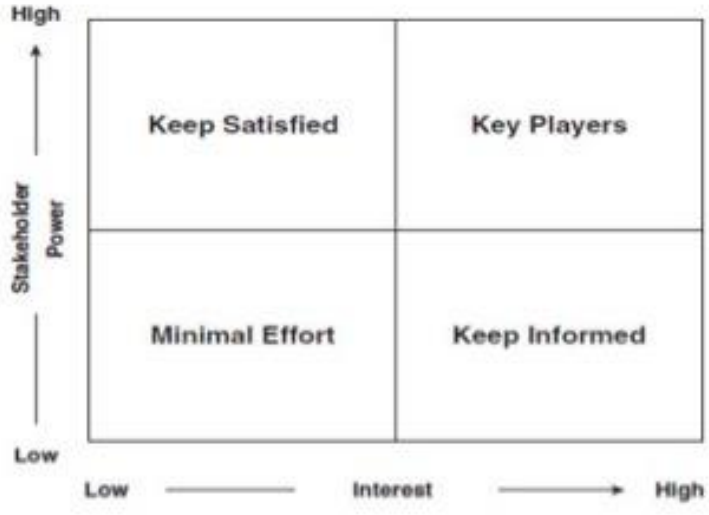


**Fig. 1. Matrix Power-Interest Stakeholder**

The next step is to compile and group the expectations of stakeholders (formulated in stakeholder value) based on the results of interviews with the stakeholders that have been conducted previously and are included in stakeholder groups with high power and interest. According to Hidayat et al. (2020), stakeholder groups with high power can play a role as parties who intervene in the policy formulation and implementation stages. The level of interest and power of stakeholders must be considered to anticipate problems that can occur (Bryson, 2004).

### 2.2. Problem Tree Analysis

Problem tree analysis is an approach/method used to identify the cause of a problem. Silverman (1994) uses the term tree diagram and says that it is a tree diagram or system designed to arrange cause and effect relationships. Problem tree analysis is performed by formulating a more structured way of thinking about the cause-and-effect components of priority problems. This method can be applied if the problem has been identified and prioritized.

Problem tree analysis has several objectives, including performing a detailed analysis to discover the cause of the main problem previously identified, analysing the effect of the main problem on performance/results effect/impact on the organization or other stakeholders, illustrates the relationship between the main problem, the cause of the problem and the impact of the main problem in an image or graph, seeks to resolve the problem main problem by examining the consequent components of the problem.

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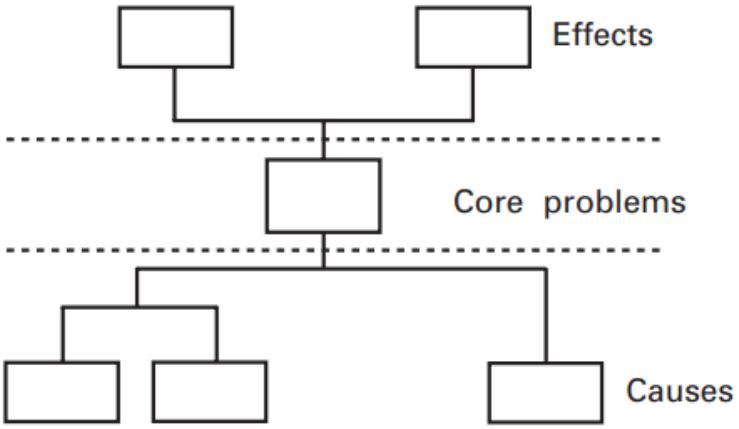


**Fig. 2. Problem Tree Analysis Diagrams**

### 2.3. Value-Focused Thinking (VFT)

Value-Focused Thinking (VFT) is a decision-framework concept introduced by Keeney (1992), which emphasizes that values are used for evaluation and should reflect the objectives of the decision-makers. There are two distinct types of objectives: fundamental objectives (an essential cause for interest in the decision situation) and mean objectives (a method to attain them). The hierarchy of fundamental objectives can suggest the set of objectives for which criteria should be established (Vivas and Oliveira, 2017). VFT is designed to concentrate the decision-maker's attention on the essential activities preceding the solution of a decision problem. There are fundamental and mean objectives that are value-driven.

**Table 2. Literature review summary**

| | Selection of employee recruitment alternatives | | | | | | | Combination and improving the selection of employee recruitment alternatives | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Authors | AHP | Analytic Network Process (ANP) | Fuzzy AHP | Manpower Projections & Forecasting | Negotiation | Multi-Stakeholder Self-Adaptive Systems | Recruitment Criteria | Problem Tree Analysis | Value-Focused Thinking (VFT) | Multiparty Negotiations |
| Wei-Hung Hsiao et al., 2011 | ✓ | x | x | x | x | x | x | x | x | x |
| Kartik Singh et al., 2015 | ✓ | ✓ | x | x | x | x | x | x | x | x |
| Ramadan Krebish Ablhamid et al., 2013 | x | x | ✓ | x | x | x | x | x | x | x |
| Morris A. Horowitz et all., 1966 | x | x | x | ✓ | x | x | x | x | x | ✓ |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vargas, L.G. et al., 2023 | x | x | x | x | ✓ | x | x | x | x | ✓ |
| Wohlrab, R. and Garlan, D., 2023 | x | x | x | x | x | **v** | x | x | x | **v** |
| Tholen, G., 2023 | x | x | x | x | x | x | ✓ | x | x | **v** |
| Our Study | ✓ | x | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

### 2.4. Analytic Hierarchy Process (AHP)

One method of calculating options in a negotiation is the "Analysis Hierarchy Process" (AHP). This is a common and widely used method of decision-making by multiple criteria. This method was discovered by Saaty in 1980 and allows the use of qualitative and quantitative criteria for evaluation. The development of AHP construction method technology is also available via the application. The methodology used is based on the Analytic Hierarchy Process previously employed in a retributive conflict in which each party calculates the incremental benefits it gets and the costs to its opponent (Wohlrab, R et al, 2023).

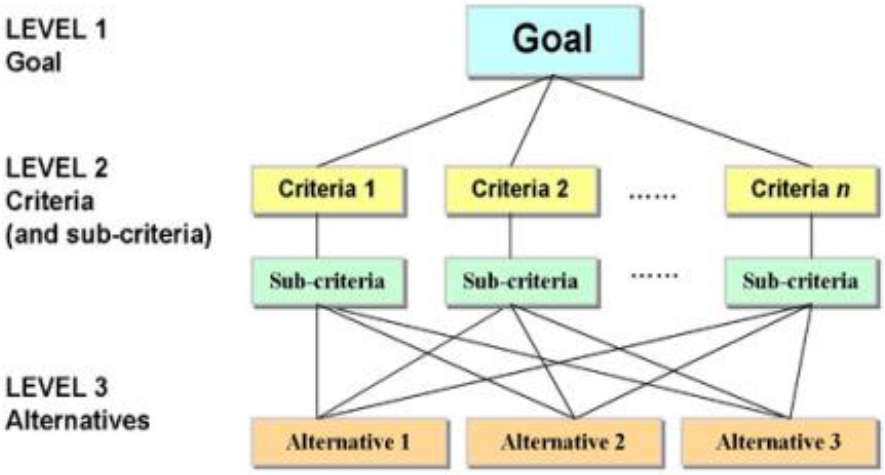


**Fig. 3. Analysis Hierarchy Process Diagrams**

From the results of the previous qualitative analysis formulation in the form of the AHP hierarchy structure, quantitative analysis was carried out starting from the distribution of questionnaires related to several paired questions that were interconnected at each level that had been mapped previously in the AHP hierarchy structure. The questionnaire was distributed to respondents who were part of the decision-making process at operator recruitment mining company. Mining Operation Division Stakeholders can use the fundamental scale of value (a pairwise numerical rating) to represent the intensities of judgments.

**Table 3. Pairwise Numerical Rating (T.L Saaty, 1970)**

| Intensity of importance | Definition | Explanation |
|---|---|---|
| 1 | Equal importance | Two activities contribute equally to the objective |
| 3 | Moderate importance | Experience and judgement slightly favour one activity over another |
| 5 | Essential importance | Experience and judgement strongly favour one activity over another |
| 7 | Very strong importance | An activity is favoured very strongly over another; its dominance demonstrated in practice |

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| | | |
|---|---|---|
| 9 | Extreme importance | The evidence favouring one activity over another is of the highest possible order of affirmation |
| 2,4,6,8 | Intermediate values | When compromise is needed between two |

### 2.5. Forecasting

In "Spyros Makridakis: "An interview with the International Journal of Forecasting" (2004), basically by trying to have alternative plans when something does not go the way it is supposed to go. Not relying only on one path in case it is not successful. Forecasting is a method of planning and controlling production to deal with future uncertainty. Specifically, to predict future product needs or demands.

Forecasting methods are divided into two, which are qualitative and quantitative methods. The qualitative method is carried out on the basis of comments and descriptive analysis, while the quantitative method is carried out on the basis of mathematical calculations. The two most frequently used quantitative forecasting methods are time series and causal methods. A time series method is a prediction method based on past data of a variable and/or past errors sequentially over time, such as days, weeks, months, and years. There are two analysis tools to use this time series method, smoothing and decomposition. Smoothing bases its predictions on the principle of averaging past errors (Averaging Smoothing Past Error) by adding the percentage error of previous predictions (percent error), obtained from the difference between prices actual value and predicted value (predicted value). Decomposition bases its predictions by dividing time series data into multiple components, such as trends, cycles, seasonality, and random effects; then combine the predictions of these components (minus random effects).

Qualitative forecasting methods are more subjective than quantitative methods. This is because qualitative methods are heavily influenced by a person's background, such as emotions, education level, intuition, etc. So, each person's results will most likely be different.

### 2.6. Negotiation

Negotiation is an interpersonal decision-making process necessary whenever we cannot achieve our objectives single-handedly. For this reason, negotiation is your key communication and influence tool in most relationships.

Before negotiating, it is necessary to determine the negotiator's conflict style. Continue to analyze internal and external factors before determining the type of negotiation to be used. Conflict types are identified in 5 types: competing, collaborating, compromising, avoiding, and accommodating.

#### 2.6.1. Internal and External Analysis

External analysis is the process by which businesses objectively assess the changes in their industry and the broader world that could affect their current business operations to ensure they can adapt to changes and continue to succeed within an industry. Pestle is external analytical tool that identifies how various factors may affect an organization and its competitive standing. PESTLE examines Political, Economic, Sociocultural, Technological, Legal, and Environmental factors.

Internal analysis is the process of analyzing various internal components of the company both tangible and intangible like; company's processes, assets, and resources to helps the decision-makers of the company to determine the growing areas and develop a business plan and practical business strategy. SWOT is part of internal analytical tool SWOT is an acronym used to describe the particular Strengths, Weaknesses, Opportunities, and Threats that are strategic factors for a specific company. A SWOT should represent an organization's core competencies while also identifying opportunities. A SWOT helps your team understand the current state, determine where to go next, and inform the strategic actions that can be taken to achieve organization's desired future state. A SWOT analysis combines external and internal analysis to summarize your Strengths, Weaknesses, Opportunities and Threats.

#### 2.6.2. Types of Negotiation

Negotiation is the process by which people deal with their differences. Whether those differences involve the purchase of a new automobile, a labor contract dispute, the terms of a sale, or a complex alliance between two companies, resolutions are typically sought through negotiations. To negotiate is to seek mutual agreement through dialogue. There are essentially two kinds of negotiation: distributive negotiation and integrative negotiation. Most negotiations combine elements of both types, but for the purposes of understanding, it's important to examine each type in its pure form. The golden rules of negotiation: People will not negotiate with you unless they believe you can help them or hurt them.

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In a distributive negotiation, parties compete over the distribution of a fixed sum of value. The key question in a distributed negotiation is "Who will claim the most value?". A gain by one side is made at the expense of the other. This is also known as a zero-sum negotiation. The second kind of negotiation is integrative negotiation. In this type of negotiation, parties cooperate to achieve maximum benefits by integrating their interests into an agreement. This is also known as a "win-win" negotiation. You probably conduct many integrative negotiations with your friends or neighbours, for example: you might negotiate with a neighbour about the boundary between your properties.

### 2.6.3. Complex Negotiation

In the book The Mind and Heart of the Negotiator (Leigh L. Thompson, 2022) it is explained how to handle complex negotiation situations, to negotiate effectively in complex situations, negotiators need all of the skills negotiation. That negotiations within and between organizations are embedded in an intricate web of interdependent relationships and interests. The other parties may include negotiators, agents, constituents, and third parties. The six levels of analysis beyond one-on-one negotiation: (1) multiparty negotiations; (2) coalitions; (3) principal–agent relationships; (4) constituencies; (5) team negotiations; and (6) team-on-team negotiations, or intergroup negotiations. For each level, we identify key challenges and suggest practical advice and strategies for maximizing negotiation effectiveness.

A multiparty negotiation is formed when a group of three or more individuals, each representing their own interests, attempts to resolve perceived differences of interest. The involvement of more than two principals at the negotiation table complicates the situation enormously. Social interactions become more complex, information-processing demands increase exponentially, and coalitions form. Despite all these obstacles, groups make more accurate judgments and more readily aggregate information than do individuals.

Consider four key challenges of multiparty negotiations followed by some practical advice. Four key challenges of multiparty negotiations: dividing resources, coalitions, formulating trade-offs, voting and majority rule. Strategies for successful multiparty negotiations: “Know Who Will Be at The Table; Manage Information and Systematize Proposal Making; Brainstorm Options; Develop and Assign Process Roles; Stay at The Table, Allow for Some Point of Agreement, Even if Only on Process; Avoid The “Equal Shares” Bias; Avoid The Agreement Bias; Avoid Sequential Bargaining”.

## 3. METHODOLOGY

The data used in the research is divided into 2 parts: primary and secondary data. In addition to the Kutai East Regional Regulatory Document No. 1 of 2022, primary data were also obtained from interviews and questionnaires with a number of stakeholder representatives. At the same time, secondary data was obtained from several studies and documents about the requirements of company executives.

### 3.1. Interview and Questioner

This research data comes from interviews and questionnaires with stakeholders. Identify stakeholders to see their strengths and expectations regarding the executive recruiting process. Semi-structured interview questions were used to conduct interviews and focus group discussions (FGD) with relevant stakeholders. The relevant stakeholders are company representatives (HR and operations department), East Kutai Regional Government and East Kutai Manpower Department.

The collection of data for operator evaluation is directly related to the users of the operator's services, ie the mining company's operations department, including the operations department, the training department heavy equipment, administration and security departments. They generated evaluation parameters for two types of operators: local (unskilled) and non-local (skilled) operators. The evaluation also applies to the combination of these two types of operators.

The questionnaire uses an online application related to different position levels in operational departments. A total of 103 reporters participated in filling out the ballot, representing 6 positions.

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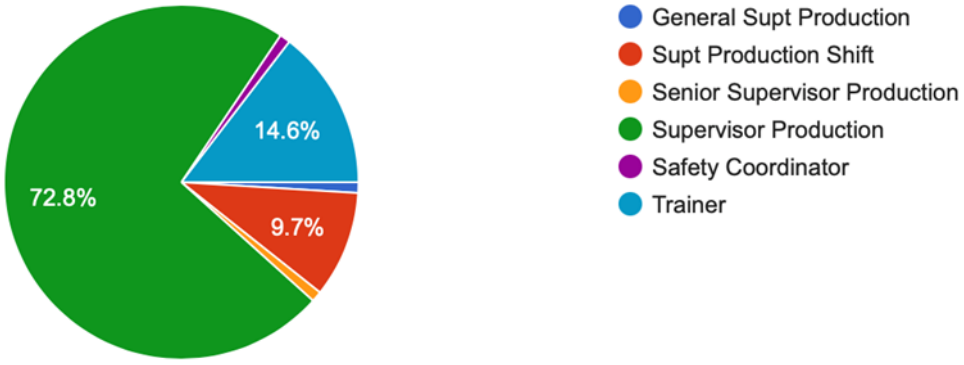


**Fig. 4. Distribution of Stakeholder Correspondence by Job Position**

Interviews and discussions in group discussion forums are the basis for collecting data for processing in stakeholder analysis and value-focused thinking (VFT). Meanwhile, the questionnaire is used to enter data into the AHP super-decision application.

## 4. RESULTS AND ANALYSIS

In this section, the results obtained from stakeholder identification, stakeholder analysis, value-focused thinking, analysis hierarchy proces, forecasting, style of conflicts identification, analysis internal and external analysis, types of negotiations and finally multi-party negotiations.

### 4.1. Stakeholder Analysis

The company plans to increase production following expected fluctuations in global coal prices. Therefore, it is necessary to regulate the need for additional heavy equipment operators to support coal mining operations. Coal production in 2023 is planned to increase by 5 million tonnes compared to actual mining in 2022 of 50 million tonnes.

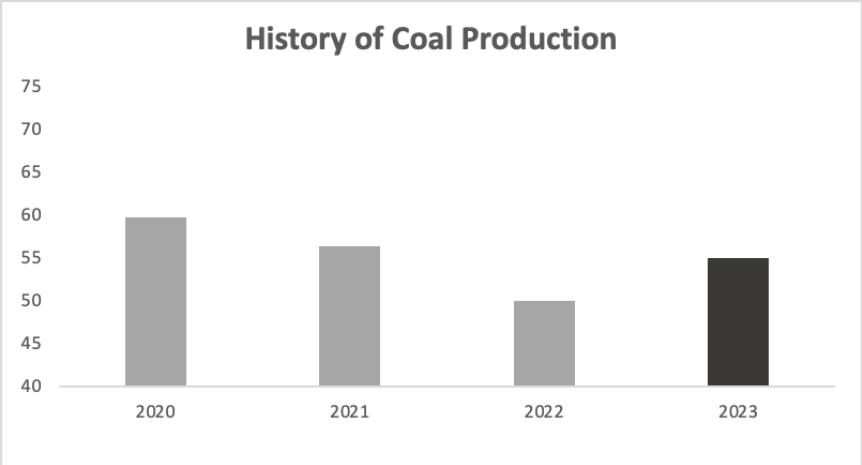


**Fig. 5. History of Coal Production of Mining Companies in East Kutai**

Below is the Mining Operations Division (MOD) heavy equipment operator requirement plan from 2022 to 2031 and the local and non-local labor composition after operator recruitment in 2022 and 2023.

This stakeholder analysis is part of a values-focused thinking framework and was used by the authors to identify stakeholder positions in the recruitment process of Mining Operation Division operators in the quadrants of the power and interest matrix. It is one of the theoretical approaches. Based on the results of secondary data analysis of long-term planning documents on the needs of MOD operators, stakeholders identified his five groups: East Kutai Local Government, East Kutai Manpower Department (Disnaker), Mining Operation Division of coal company, Human Resources of coal company and social organization of East Kutai region (Non-Government Organization).

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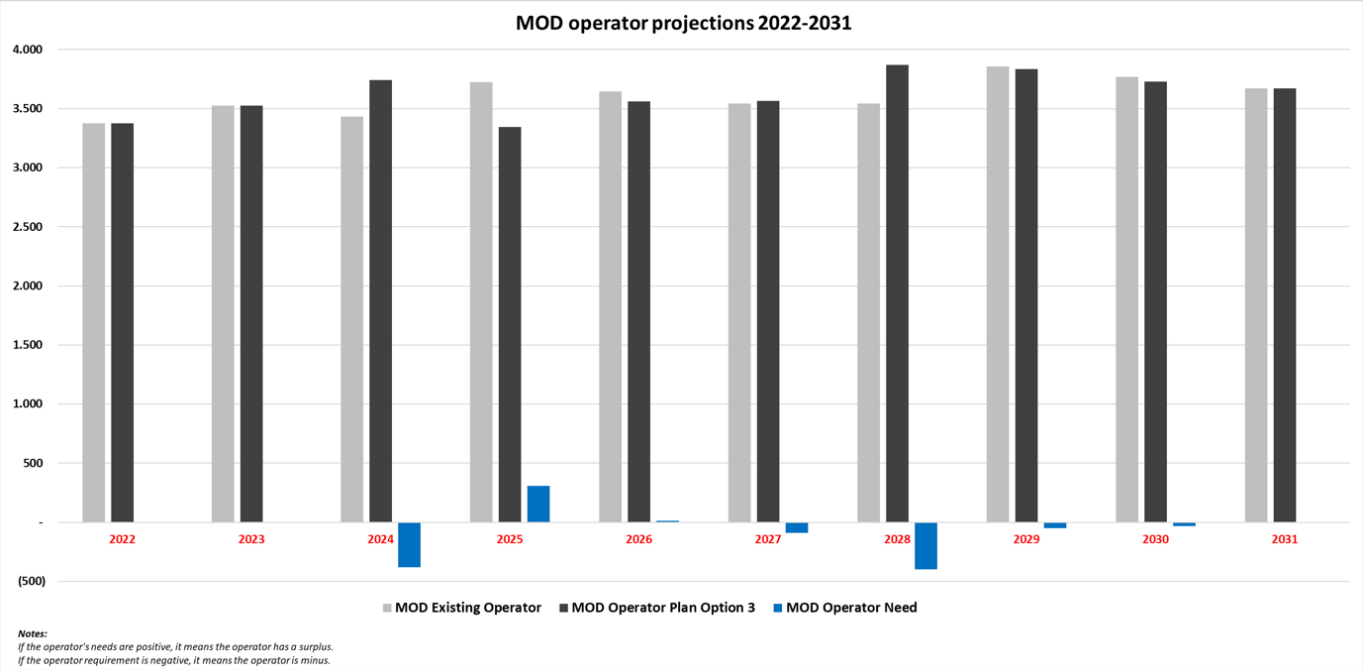


**Fig. 6. Mining Operation Division Operator Projection 2022 – 2031**

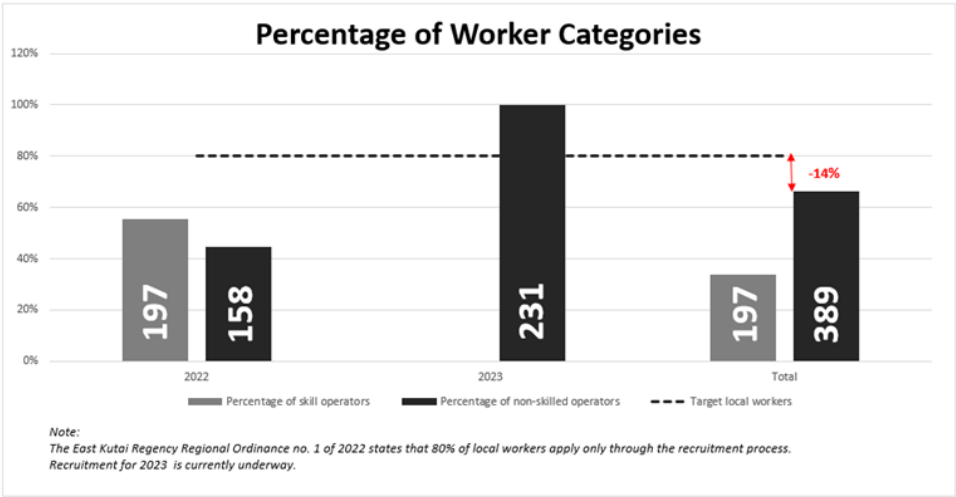


**Fig. 7. Percentage of Worker Categories 2022 - 2023**

Each of these stakeholders has a role or function with a status of involvement and interest in the operator recruitment process of the Mining Operation Division. The stakeholder analysis in this study began with structured interviews in working group discussion forums with stakeholders and a questionnaire survey of stakeholders in the Mining Operation Division within coal company to determine the values of interest level (Xi) and power level (Yi) measure all stakeholders' interest. Once these values are determined, the next step is to perform the analysis starting from equation (1) above to obtain the average values of importance (X) and performance ($\bar{Y}$). From this average value, the average value of importance ($\bar{x}$) and the average value of power level ($Y$ ) are calculated using the above equation (2), and the limit value in the Cartesian diagram is determined, that is (2.67; 2.00). Interest groups were then mapped into a power-interest matrix. From the power and interest matrix map, 2 stakeholders in the major stakeholder category, (key players), 2 stakeholders in the stay satisfied category, and 1 in the least effort category. You can see that there are human stakeholders. Based on the results of brainstorming with all involved parties.

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**Table 4. The value of the level of interest and power of operator recruitment process stakeholders**

| No. | Stakeholders | Level of Interest (Xi) | | | | Level of Power (Yi) | | | | Category |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Operator Skill (Non-Local Worker) | Operator non-Skill (Local Worker) | Combination | *X* | Operator Skill (Non-Local Worker) | Operator non-Skill (Local Worker) | Combination | *Y* | |
| 1 | East Kutai Local Government | 2 | 4 | 3 | 3,00 | 2 | 4 | 4 | 3,33 | Keep Satisfied |
| 2 | East Kutai Manpower Department (Disnaker) | 2 | 4 | 3 | 3,00 | 2 | 4 | 4 | 3,33 | Keep Satisfied |
| 3 | Mining Operation Division of coal company | 3 | 3 | 4 | 3,33 | 3 | 4 | 4 | 3,67 | Key Player |
| 4 | Human Resources of coal company | 3 | 3 | 4 | 3,33 | 3 | 4 | 4 | 3,67 | Key Player |
| 5 | Social organization of East Kutai region (Non-Government Organization) | 2 | 4 | 2 | 2,67 | 2 | 2 | 2 | 2,00 | Minimal Effort |
| | | | | *Average X* | 3,07 | | | *Average Y* | 3,20 | |

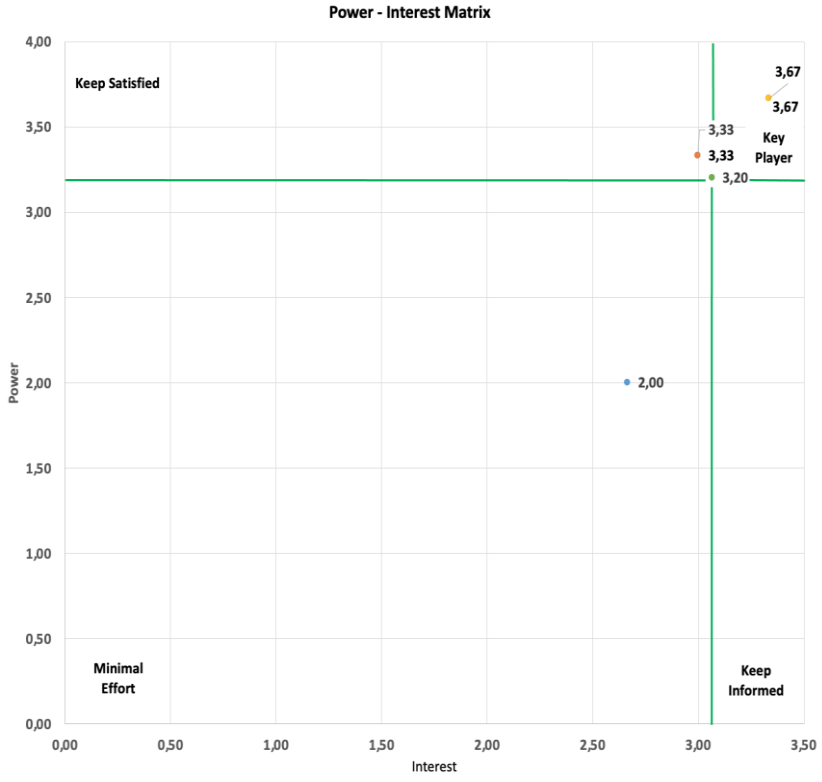


**Fig. 8. Power Interest Matrix Recruitment MOD Operator**

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As a result of the interviews and analysis using a qualitative approach using content analysis techniques, the results of the analysis carried out by the author regarding the stakeholders' expectations regarding the recruitment process of Mining Operation Division PT KPC operators are presented in Table 5 below.

**Table 5. The wish list of 5 stakeholders is in the high power-interest category.**

| No | Stakeholders | Expectation |
|---|---|---|
| 1 | East Kutai Local Government | Optimal absorption of local worker to reduce unemployment. Decrease in the unemployment index and increase in the welfare index. Implementation of Regional Regulation No.1 of 2022 by all companies. |
| 2 | East Kutai Manpower Department (Disnaker) | Implementation of Regional Regulation No.1 of 2022 by all companies. There was no violation of the 80% quota for local workers. |
| 3 | Mining Operation Division of coal company | Get skilled workers quickly to avoid disruption to your operations. Retaining qualified local workers to meet the 80% local worker quota. If only local unskilled labor is available, training is not expected to last long. Negotiation and communication exist between businesses and governments to minimize social conflicts. |
| 4 | Human Resources of coal company | Implementation of recruitment in accordance with applicable regulations. Achievement of minimum local workers and no violations of Regional Regulation No. 1 of 2022. There is no social conflict between the company and its stakeholders. |
| 5 | Social organization of East Kutai region (Non-Government Organization) | Absorption of local workers from various community organizations. Optimizing the role of community organizations in providing local workers. |

### 4.2. Problem Tree Analysis

Given the objective of meeting local workers under the East Kutai Regional Regulation No. 1 of 2022 and considering the various obstacles that may arise in recruiting local workers, there will be delays in meeting the minimum quota of local workers. There is a possibility of cessation of the operator of the mine operations sector if not adequately and appropriately mitigated. Based on working group discussion interviews with stakeholders, several impacts of not achieving local workforce quotas were identified. In a working group discussion with stakeholders and some literature reviews, the possible causes of delays in the completion of work by local workers and the selection of qualifications of skilled and unskilled workers are almost similar to causes in several other areas. A similar pattern is seen, which the authors can explain as follows:

1. **Operator Compliance Factors:** The addition of production capacity must be followed by the addition of operators through the recruitment of new operators. Mining Operation Division recruit new operators based on 2 classifications: non-skill operators (green operators; GO) and skilled operators. The coal company needs to immediately get a new operator who is experienced, so he can immediately operate the equipment.
2. **Regional Welfare Assessment Factors:** Based on the Badan Pusat Statistics (BPS) of Kutai Timur Regency report, "East Kutai in Figures" 2023. The Unemployment Rate by Regency/Municipality in East Kutai, 2022 is 5.35. The opening of employment opportunities in coal company will be an opportunity for the East Kutai Regional Government to reduce the

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unemployment rate in East Kutai District. Therefore, the government strongly desires to increase the quota of local workers. This is despite Article 23 of the East Kutai Regency Regional Ordinance No. 1 of 2022 (Perda Kabupaten Kutai Timur No. 1 tahun 2022) stating that at least 80% are occupied by local workers.

3. **Legal Compliance Factors:** This is despite Article 23 of the East Kutai Regency Regional Ordinance No. 1 of 2022 (Perda Kabupaten Kutai Timur No. 1 tahun 2022) stating that at least 80% are occupied by local workers. The East Kutai Regional Regulatory Document No. 1 of 2022, Article 23(7). "Companies/employers should endeavor to replenish the workforce referred to in paragraph (4) within a maximum of two years after the entry into force of this local regulation". Same as East Kutai Regional Ordinance No. 1 of 2022, Article 39 on "Administrative Witnesses". If the legal aspects are not met, warnings and sanctions will be given for violations in the recruitment process.
4. **Company Image Factors:** The coal company should take into account the need to build a good relationship between the company and the local government. Since coal company's relationship with the government is not limited to workers, the company relationship with the government also extends to several other aspects, such as environmental protection, corporate social responsibility (CSR), and corporate image interests. is also based on surrounding communities, etc. Therefore, the company should also consider the interests expressed by the East Kutai local government.

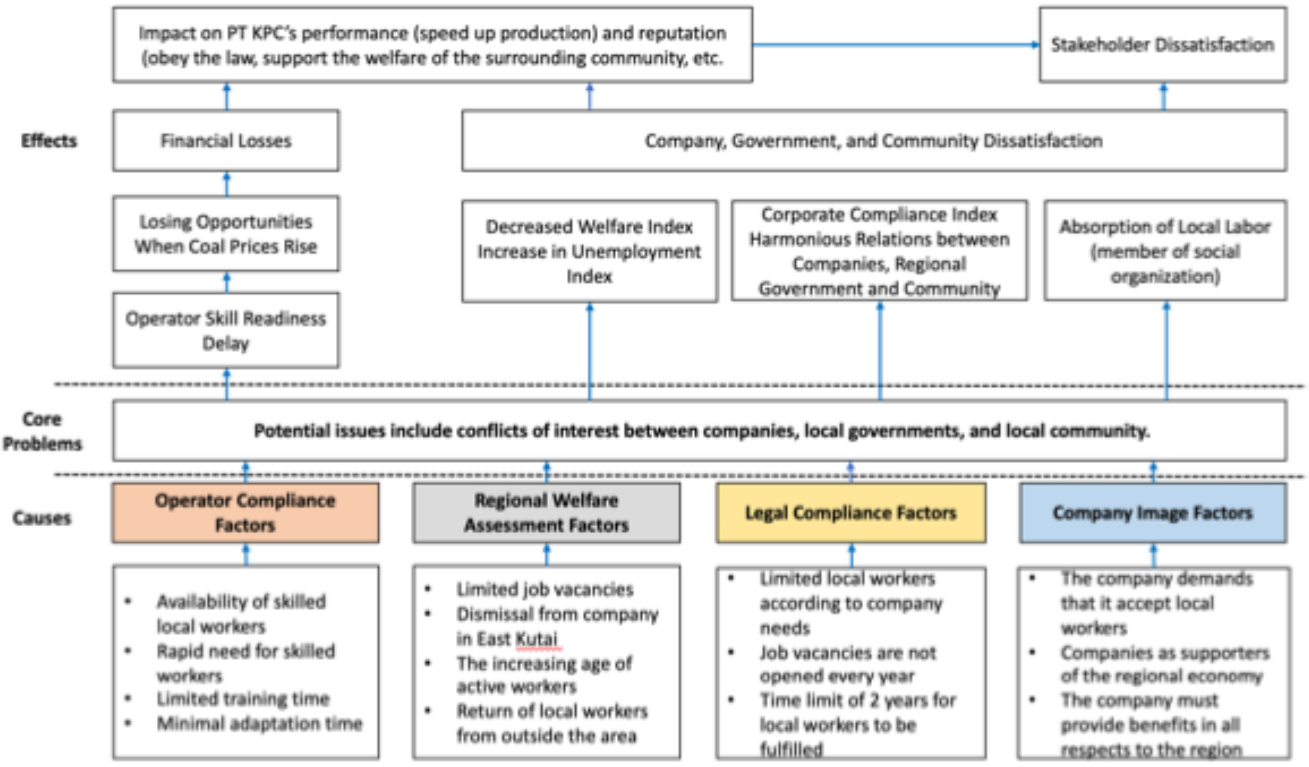


**Fig. 9. Problem Tree Analysis**

### 4.3. Value-Focused Thinking (VFT)

Based on the results of interviews on the expectations of stakeholders within operator recruitment process, as shown in Table 5 above, the mean-end objectives hierarchy tool can help determine the fundamental objectives of this study. As shown in figure 9, the top-level fundamental objectives are operator recruitment accordance with Regional Regulation No.1 of 2022. At the second level, there are six mean objectives to optimizing operator recruitment to meet the needs of Mining Operation Division according to stakeholder expectations.

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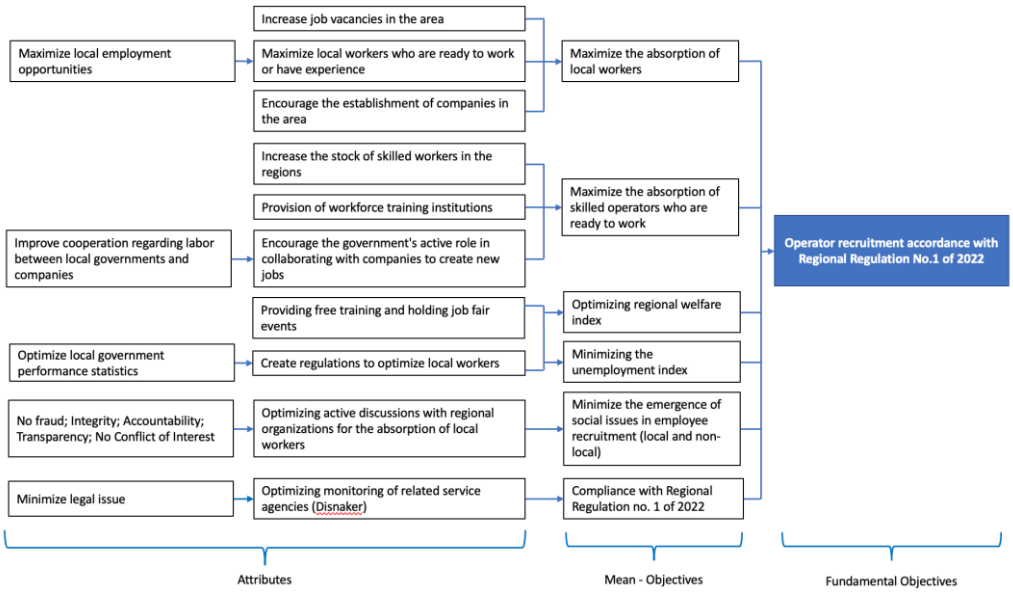


**Fig. 10. Hierarchy of Fundamental Objectives**

**Table 6. The wish list of 5 stakeholders is in the high power-interest category.**

| No. | Mean Objectives (VFT) | Criteria (AHP) | Description |
|---|---|---|---|
| 1 | Maximize the absorption of local workers | Understanding of unit operations training<br>Practice operating the unit<br>Safety procedures<br>Involvement in accidents<br>Safety behavior<br>Productivity<br>Understanding work safety<br>Permission to leave work<br>Resign<br>Saturation<br>Stress level<br>Absence | Make the most of hiring local workers for any position your company needs. Local employees in accordance with standards required by the company: unit operating training, unit operating practices, safety procedures, involvement in accidents, safe behavior, productivity, understanding of occupational safety, tardiness and permission to leave the workplace; Layoffs, overwork, stress levels, absenteeism. |
| 2 | Maximize the absorption of skilled operators who are ready to work | Understanding of unit operations training<br>Practice operating the unit<br>Safety procedures<br>Involvement in accidents<br>Safety behavior<br>Productivity<br>Understanding work safety | Rapid recruitment of experts according to the standards required by the company: understanding of the operation of the unit, training, practice of unit operation, safety procedures, accident involvement, safety behavior, productivity, understanding of occupational safety. |

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| | | | | |
|---|---|---|---|---|
| 3 | Optimizing regional welfare index | Resign<br>Saturation<br>Stress<br>Absence | level | Local governments strive to optimize the local welfare index by maximizing the absorption of local workers for each vacancy. Additionally, efforts are being made to minimize local employee turnover due to burnout and stress issues. |
| 4 | Minimizing the unemployment index | Resign<br>Saturation<br>Stress<br>Absence | level | Local governments aim to optimize local unemployment indicators by maximizing the absorption of local workers for each vacant position. Governments are developing regional regulations and trying to communicate centrally with businesses. Apart from reducing the overseas migration rate of local workers. |
| 5 | Minimize the emergence of social issues in employee recruitment (local and non-local) | Resign<br>Saturation<br>Stress level | | Work with stakeholders to prevent disputes regarding the intake of local and non-local workers and balance the company's labor needs with the availability of qualified local workers. |
| 6 | Compliance with Regional Regulation No. 1 of 2022 | Understanding of unit operations training<br>Practice operating the unit<br>Safety procedures<br>Involvement in accidents<br>Safety behavior<br>Productivity<br>Understanding work safety | | Local governments issue local regulations to prevent a decline in the welfare index and an increase in the unemployment index by optimizing the local workforce, and businesses are required to comply with the applicable regulations. |

Prior to solving a decision problem, the VFT in figure 9 was intended to help the decision-maker concentrate on the fundamental and means activities. After problems are identified and the values (criteria) to be considered in the evaluation are determined, the values-driven approach is typically used to generate significant alternatives to achieve the values. Then, based on the results of interviews with stakeholders with questions about what alternative strategies are appropriate in the context of determining operator type selection in the Mining Operation Division operator recruitment process to meet fundamental objectives ("Maximizing the completion time of the project based on stakeholder expectations"), it is known that there are five alternative operator recruitment schemes, namely:

1. 100% skilled operator (non-local operator)
2. Combination of 80% skilled operators (non-local operators) and 20% non-skilled operators (local operators)
3. A balanced combination between skilled operators (non-local operators) and non-skilled operators (local operators)
4. Combination of 20% skilled operators (non-local operators) and 80% non-skilled operators (local operators)
5. 100% non-skilled operators (local operators)

The process of developing alternatives to the fundamental objectives hierarchy (VFT) and based on the interview results is as described in Network Figure 10.

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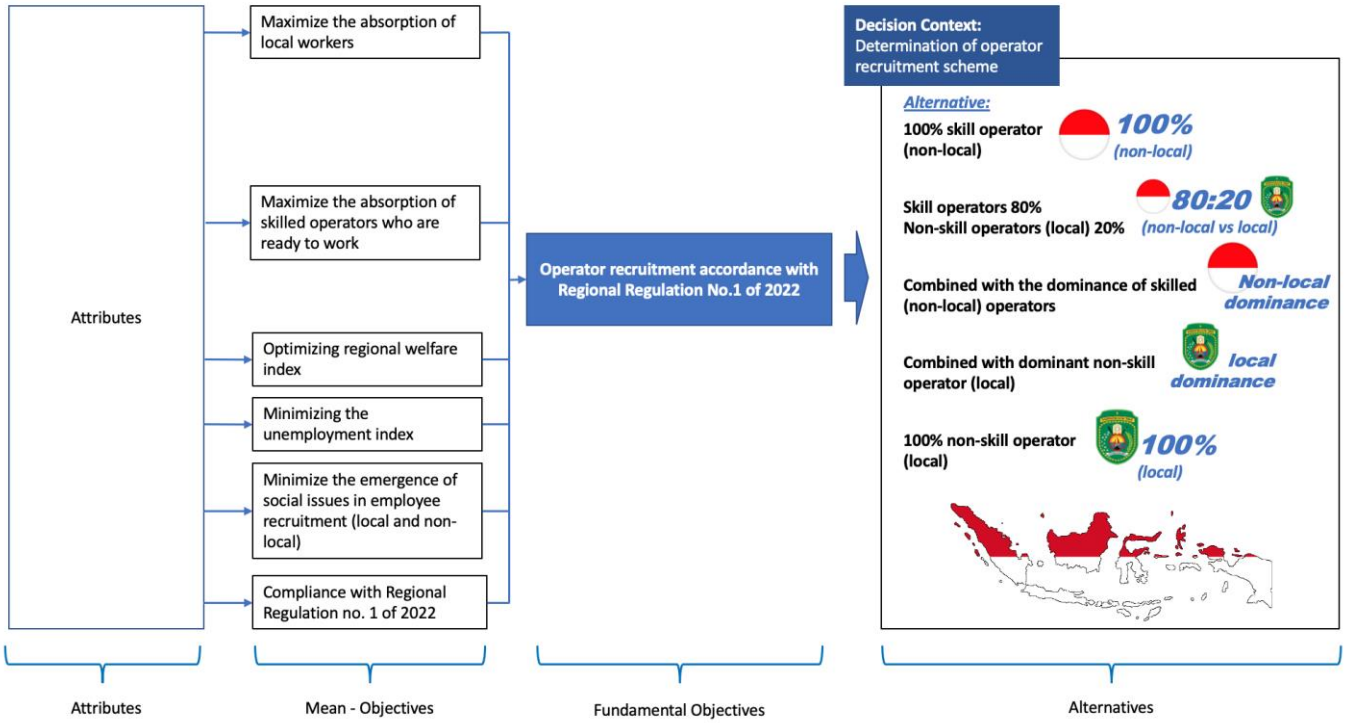


**Fig. 11. VFT Process for Developing Alternative with A Fundamental Objective Hierarchy.**

The results of the analysis led to some criteria for the decision-making process regarding the five options. These criteria are:

1. Training
2. Safety
3. Production
4. Administration
5. Employee Engagement

### 4.4. Analysis Hierarchy Process (AHP)

The aim of this analysis is the composition of the best operators for the process of accepting new operators for the coal mining company. The context for selecting operator composition is to optimize operator selection according to company needs and in line with Regional Regulation No. 1 of 2022, bearing in mind that based on the results of the initial identification, it is necessary to adjust the composition of operators and have discussions between all stakeholders to avoid the emergence of conflicts. The possibility of conflict arising due to a mismatch in stakeholder expectations cannot be met. To meet the expectations of these stakeholders and based on the results of the analysis in the chapter above, five alternative operator compositions are proposed in the new operator recruitment process. The questionnaire involved 103 correspondents with various levels of positions from 7 departments in the mining operations division.

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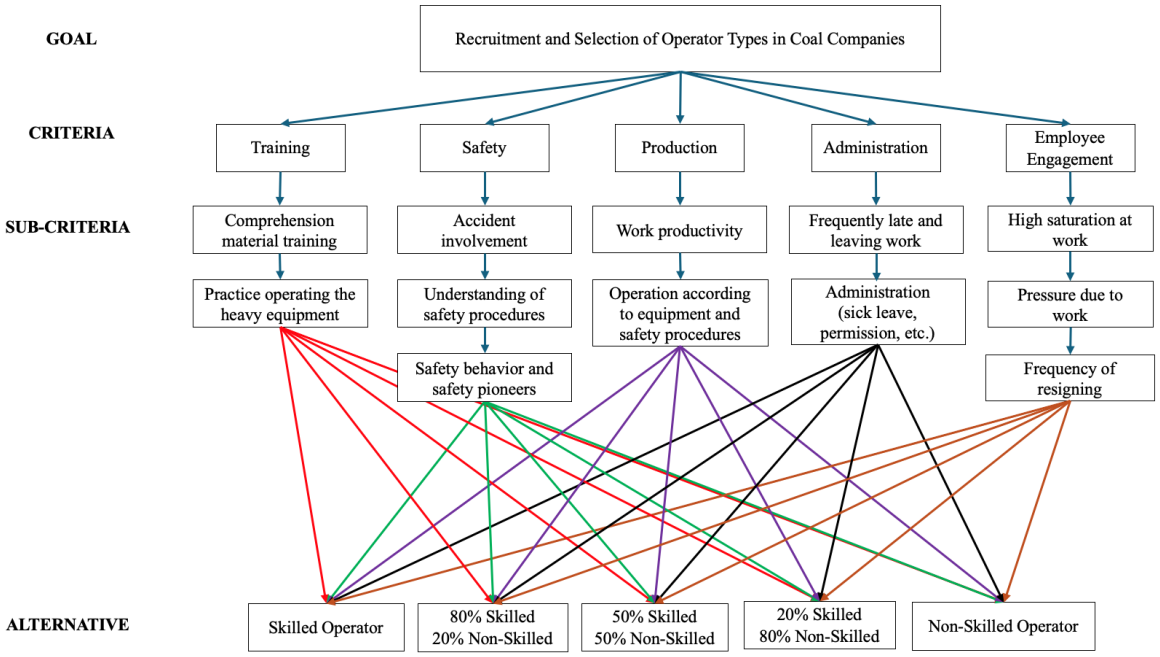


**Fig. 12. The Structure A Hierarchy of AHP Model**

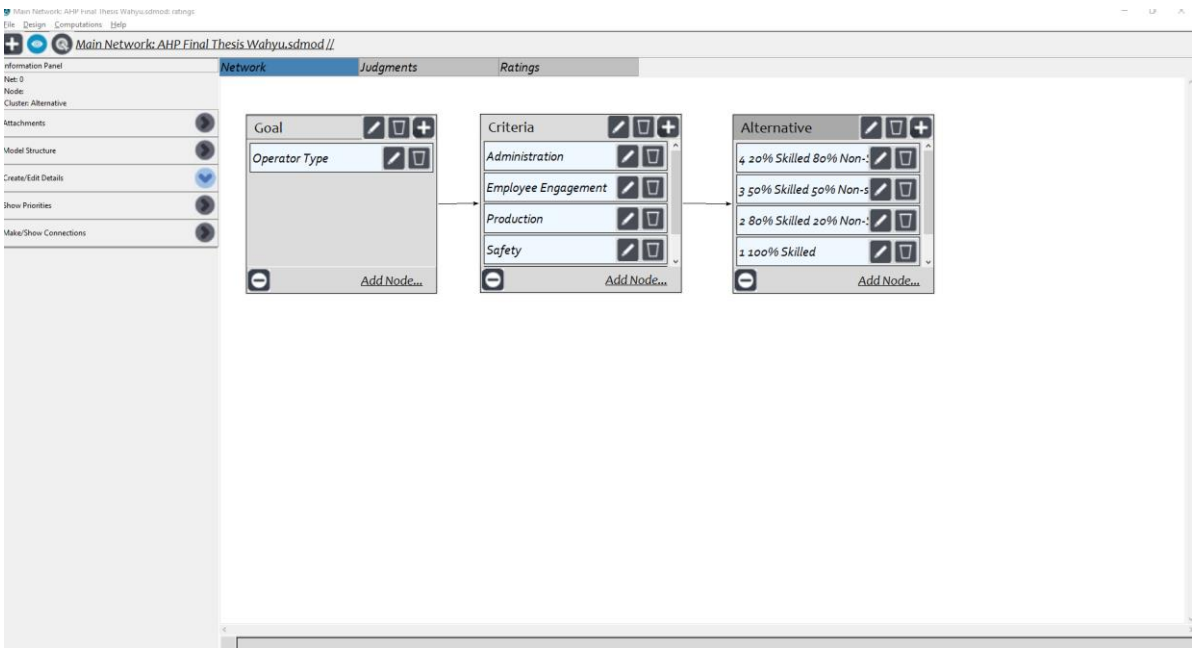


**Fig. 13. Developing an AHP Structure in The Super Decision Application**

### 4.4.1. Pairwise comparison of AHP-model

The pairwise comparisons of the aforementioned criteria and sub-criteria have been translated into a questionnaire for the selected respondents to complete with their ratings for each comparison table. Table 3 depicts how stakeholders can use a fundamental scale of value (a pairwise numerical rating) to represent the intensities of judgments.

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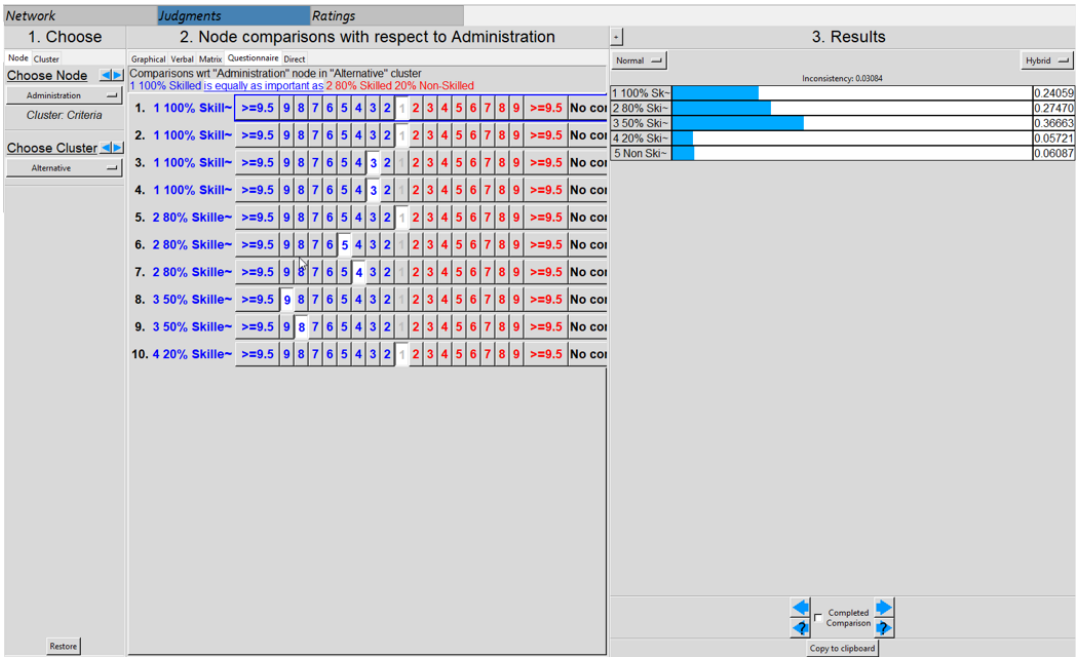


**Fig. 14. Alternative Pairwise Based on Administrative Criteria**

### 4.4.2. Synthesize The Results to Determine the Best Alternative Solution

From the results of the pairwise comparison of both criteria levels and alternative levels in figure 14 above, the next step is to synthesize calculations with the help of Super Decision AHP software. Before using the software, it is necessary to first prepare a pairwise comparison matrix both at the criteria level and alternative levels, as input data in the Super Decision AHP software.

**Table 7. Pairwise comparison matrix of criteria**

| | Training | Safety | Production | Administration | Employee Engangement |
|---|---|---|---|---|---|
| Training | 1,00 | 6,00 | 5,00 | 3,00 | 9,00 |
| Safety | 0,17 | 1,00 | 0,83 | 0,50 | 1,50 |
| Production | 0,20 | 1,20 | 1,00 | 0,60 | 1,80 |
| Administration | 0,33 | 2,00 | 1,67 | 1,00 | 3,00 |
| Employee Engangement | 0,11 | 0,67 | 0,56 | 0,33 | 1,00 |

### 4.4.3. Development of Priority Ranking, Consistency Ratio, and Conclusion

The calculation process of the data that has been collected is analyzed with the help of Super Decision AHP software so that ranking priorities are obtained both at the criteria level and at alternative levels.

The consistency of the decision-maker's judgments during the series of pairwise comparisons is an important factor in determining the quality of the ultimate decision. The next stage of the AHP methodology is to calculate the consistency ratio, which measures the degree of congruence between paired assessments provided by the decision maker. The consistency ratio calculation has also been carried out with the help of Super Decision AHP software, with the result that both at the criterion level and at the alternative level show a ratio value below 0.1 (see table 8). This means that the pairwise comparison submitted by respondents is consistent (Acceptable).

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**Table 8. Summary result of consistency ratio calculation**

| No | Item | Consistency Ratio (CR) by Super Decision | Result | Remarks |
|---|---|---|---|---|
| 1 | Pairwise comparison matrix of criteria | 0,02286 | CR<0,1 | Acceptable |
| 2 | Pairwise comparison matrix of alternatives | | | |
| | Training | 0,00037 | CR<0,1 | Acceptable |
| | Safety | 0,00037 | CR<0,1 | Acceptable |
| | Production | 0,00154 | CR<0,1 | Acceptable |
| | Administration | 0,03084 | CR<0,1 | Acceptable |
| | Employee Engagement | 0,01200 | CR<0,1 | Acceptable |

Based on the results of analysis and calculations using Super Decision AHP, it is known that the synthesis of pairwise comparison results (see Figure IV.9) is as follows:

1. 100% skilled operator : 46,06%
2. 80% skilled 20% non-skilled operator : 21,98%
3. 50% skilled 50% non-skilled operator : 14,96%
4. Non-skilled operator 100% : 9,09%
5. 20% skilled 80% non-skilled operator : 7,91%

From the results above, it can be concluded that the alternative 1 100% skilled operator gets the highest value and is the best choice for operator types mining operation division operator recruitment, which is expected to be in accordance with the expectations of stakeholders.

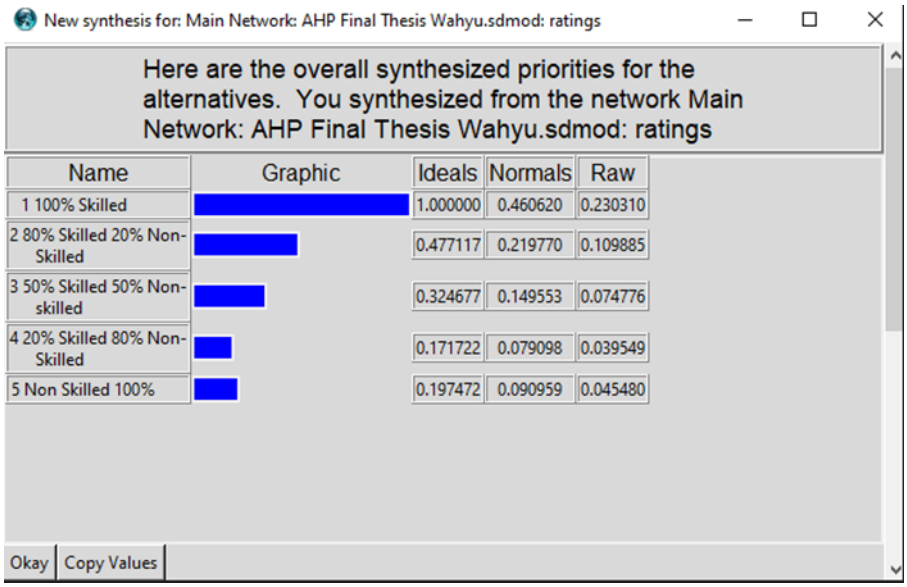


**Fig. 15. Alternatives Synthesized Priorities from Super Decision AHP.**

### 4.5. Forecasting

Based on Table IV.7 and Figure IV.8, the mining operation division is expected to have a shortage of 381 operators from 2024 onwards. From 2025 to 2026, there will be a surplus of 318 operators in the mining operation division. Therefore, no additional operators were hired during this period. Extra operators are typically used for things like training and optimizing computational operation delays. Recruitment of new operators will be carried out again in 2027 and will be implemented in stages until 2030. Recruitment of 92 operators will begin in 2027, and the hiring is expected to peak at 397 operators in 2028. It will gradually decrease from 2029 to 2030. Meanwhile, no operator was hired in 2031 as the company "Izin Usaha Pertambangan Khusus" (IUPK) expires

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in 2031 for him. Operator demand calculations are not yet grouped based on classification of qualified operators (non-local) and non-qualified operators (local). The composition of local and non-local operators for each vacancy must be 80% local and 20% non-local or 100% local operators, according to East Kutai Regional Regulation No.1 of 2022. In 2022 and 2023, the operator configuration that has been recruited will be adopted as a reference, with a total of 34% local operators and 66% non-local operators. Therefore, it will affect the composition of operator recruitment for the next year, so forecasting and negotiations will need to be carried out with the parties so that overall, everything is in line with his East Kutai Regional Regulation No. 1 of 2022. Based on forecasting simulation calculations of stakeholder negotiations, only options 4 and 5 are available. These two options require adjusting the proportion of local and non-local operators. Option alternative 4 is to adjust the composition in 2028 by moving to 100% local operators to bring the ratio closer to East Kutai Regional Regulation No. 1 in 2022. However, the result of 78% still falls short of the target of 80%. Therefore, this needs to be negotiated so that the 2% shortfall remains within the acceptable range and is covered in the last two years, i.e. in 2029 and 2030. In the end, the cumulative share of local operators was 83%, which exceeds the minimum requirements for local operators.

Some of the factors underlying the need for coordination and negotiation are that the composition of local and non-local operators in 2022-2023 is not ideal (with non-local operators dominating and the difference between is too large). The 80% share of local operators will not be achieved in 2025-2026, there is a surplus of operators, and no recruitment is taking place. It is impossible to achieve an 80% share of local operators in 2028, as operators will need to be hired by 2028 for 2029-2030. As a result, there will be a surplus of operators in 2028.

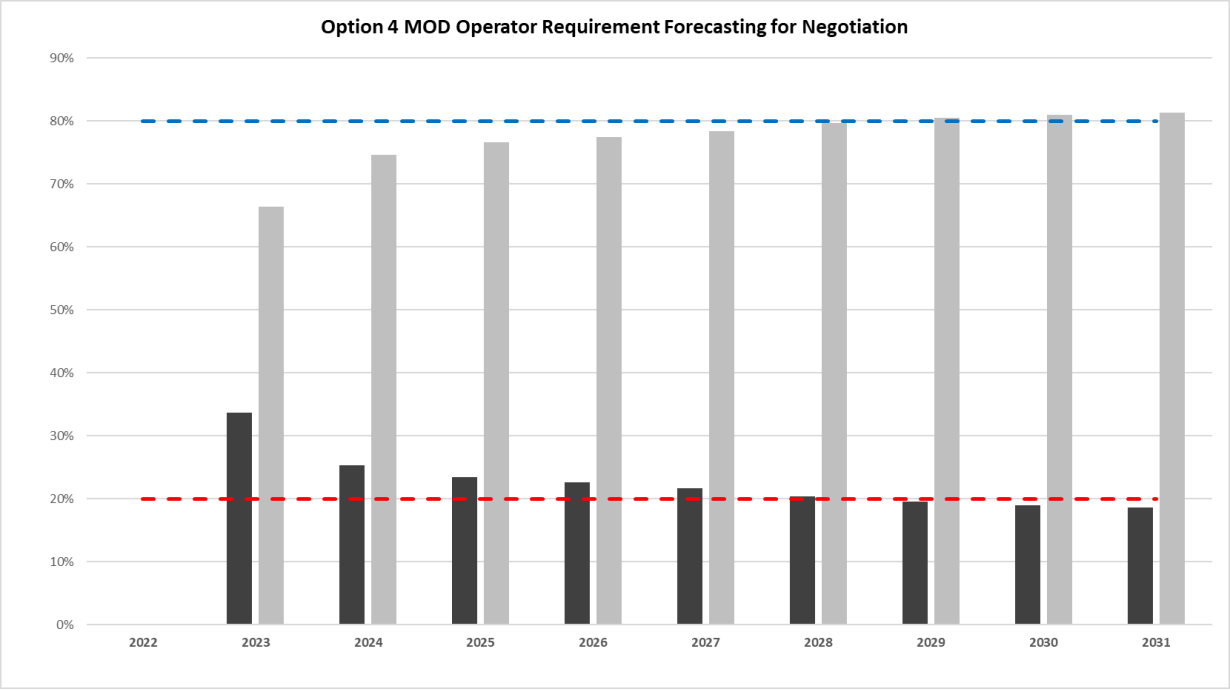


**Fig. 16. MOD Operator Requirement Forecasting for Alternative 4 Negotiation**

### 4.6. Negotiations

Based on initial identification of negotiations on the coal company operator recruitment process involving Mining Operations Division, Human Resources, East Kutai Regional Government and East Kutai Manpower Department, the type of conflict that will emerge from these negotiations is "collaborating style".

The consideration for selection is as follows: The issue of the needs of the coal company operators, the unemployment rate and the welfare of East Kutai are three things of equal importance. These three things are interconnected so the relationship between the relevant parties (the coal company, Kutai East Regional Government and Manpower Department) is also very important. So that these problems can be solved together.

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#### 4.6.1. External Analysis Tool - Pestle Analysis

The executive recruitment process of coal company is influenced not only by internal company factors (recruitment team, labor needs, etc.) but also by external factors. External factors will be analyzed using PESTLE, PESTLE examines Political, Economic, Sociocultural, Technological, Legal, and Environmental factors.

**Political factors:** East Kutai Regional Regulation No.1 of 2022 (Labor Law 80% local workers). Image of East Kutai Regency Government: East Kutai Regency Unemployment Rate Statistics, East Kutai Regency Welfare Statistics.

**Economic factors:** The increase in world coal prices is an opportunity for coal mining companies to increase coal production and increase profits. Most people in East Kutai district work in the coal mining sector. East Kutai Regency is known as a coal mining town. The economic sector depends heavily on the mining industry.

**Social factors:** The East Kutai Regency is an area with heterogeneous cultures from various regions of Indonesia, united by factors of occupation and place of residence. Most people in East Kutai district work in the coal mining sector, East Kutai district is known as a coal production area.

**Technological factors:** Technological advances and the speed of the digital information age are affecting the recruitment process. Vacancies are announced through digital platforms, applications are submitted digitally (no paperwork required), selection and interview processes can be carried out online using convenience and selection results are obtained faster.

**Legal factors:** East Kutai District Regional Regulation Number 1 of 2022 Concerning Employment Organization; Part Two Expansion of Job Opportunities Article 23.

**Environmental factors:** "Paris Agreement" - Growing awareness of the potential impacts of climate change and green energy are affecting how companies operate and the products they offer, both creating new markets and retaining existing ones.

#### 4.6.2. Internal Analysis Tool - SWOT Analysis

SWOT helps understand a company's internal conditions related to conflicts arising from the executive selection and hiring process, determine next steps, and inform strategic actions that can be taken to achieve the company's desired goals.

**Strength:** The coal company, one of the largest coal companies in Indonesia, has experience in mining operations since 1982, including labor safety aspects, environmental aspects and productivity aspects. KPC regularly provides workplace safety training, conducts safety and environmental audits, and implements improvement projects.

**Weakness:** The company is a large company that has been involved in the coal field for a long time. In the Boston Consulting Group quadrant (BCG quadrant), KPC enters the Cash Cow quadrant phase. Products in this category mean they have high market share but slow growth. This means that this product has the potential to generate significant profits, but it is simply stagnant.

**Opportunity:** The coal company's operational area is ±61.453 km2, including the Sangatta and Bengalon regions with various lithofacies types and coal qualities. PT KPC is capable of producing coal with many different qualities (low quality, high quality and combined coal).

**Threats:** At the UNFCCC Global Climate Change Summit, commonly known as COP21, Paris announced Indonesia's commitment to reduce greenhouse gas (GHG) emissions by 2030. Of course, mining companies Coal mines are unlikely to produce green and clean energy products to support the Paris Agreement.

#### 4.6.3. Types of Negotiation

**Integrative Negotiation.** In the recruitment process of Mining Operations Division executives, integration negotiations are expressed through the following three elements:

1. During the negotiation process, a partnership the complex was formed indirectly involving the company, the Eastern Kutai Regional Government and Manpower Department. The partnership between the three parties is long-term 2022 - 2031.
2. All parties agree that negotiations are still on while prioritizing the Eastern Kutai Regional Regulation No. 1 of 2022 with a view to optimizing local labor while prioritizing the competitive aspects of operators.
3. Negotiations conducted benefit all parties involved: the company can acquire operator skills in stages and ultimately remain compliant with Regulation No.1 of the East Kutai region in 2022; The East Kutai regional government can optimize the recruitment process of coal company operators to reduce the unemployment rate and improve the welfare of the East Kutai region; The human resources department can carry out the recruitment process according to Regional Regulation No. 1 of 2022.

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#### 4.6.4. Multiparty Negotiation

Consider four key challenges of multiparty negotiations followed by some practical advice.

**Dividing Resources.** When there are three parties sitting at the negotiating table, negotiating executive recruitment becomes a challenge in multi-party negotiations. To overcome this challenge, it is necessary to divide the resource management tasks of each party. Each side minimizes the struggle for its own interests.

1. Therefore, it is necessary to divide resource management into each department: the coal copmany manages and forecasts the composition of operator types to plan operator needs for 2022 - 2031.
2. Kutai East Regional Government provides data on local skilled and unskilled workers.
3. Kutai East Manpower Department supervises the recruitment process according to the legal aspects of Kutai East Region Regulation No. 1 of 2022.

**Coalitions.** Forming alliances is an easy way to combine interests between groups. Alliances involve cooperation to attract members and competition to share resources. The company can form an alliance with the East Kutai Regional Government for local skilled and unskilled labor, so that the company can recruit skilled labor from outside the region.

**Formulating Trade-Offs.** In a multiparty negotiation, integrative trade-offs may be achieved through either circular or reciprocal logrolling. This challenge can be achieved in circular logging, the company proposes in the first years 2022 and 2023 to request exemption from recruiting more qualified (non-local) operators to speed up the increase in output in the context of rising forest prices. In addition, the company promises that the periods 2024, 2027 and 2028 will strengthen the local workforce. In addition, the company is ready to welcome former workers from mining companies in the East Kutai region with the necessary professional qualifications so that unemployment does not increase in the case of mining companies in East Kutai fired.

**Voting and Majority Rule.** Voting can be done without consensus, especially to determine the choice between the forecast results of option 4 and option 5. Option 1 includes 100% skilled operators (non-local operator), AHP simulation results do not comply with regional regulations No. 1 in 2022. Both options 4 and 5 can meet at least 80% of local workers, only the company wants operators to have enough capacity to increase output to take advantage of the momentum of rising coal prices. Perhaps a vote could take place if there is no deal.

Given that multiparty negotiations are complex and present special challenges, consider the strategies negotiators might use to enhance their ability to expand and slice the pie in a multiparty context. Therefore, multi-party negotiations on the recruitment of operators can be successful.

**Know Who Will Be at The Table.** The negotiating table has 3 negotiators, each bringing their own benefits and strengths. The coal company is interested in recruiting operations staff that match the types of forecast operations staff for operations staff to carry out operations. The company's main asset is the major mining company East Kutai, which has long contributed to and is fully committed to cooperating with the East Kutai regional government to reduce unemployment and improve the welfare of the East Kutai area. The East Kutai regional government has the authority to issue many types of licenses related to the company's business activities, so coordination between the two parties is required. The Department of Labor is responsible for monitoring the development of labor operating procedures and has the right to impose sanctions in case of violation of regulations.

**Manage Information and Systematize Proposal Making.** Based on stakeholder analysis, negotiators will obtain information about the types of stakeholders and manage the information used during the negotiation process Below are the stakeholder categories based on the stakeholder analysis: East Kutai Local Government - keep satisfied, East Kutai Manpower Department (Disnaker) - keep satisfied, Mining Operation Division of coal company - key player, Human Resources of coal company - key player, and Social organization of East Kutai region (Non-Government Organization) - minimum effort.. This information can be used to find mutually beneficial offers.

**Brainstorm Options.** General brainstorming and brainstorming sessions involve all negotiators discussing issues that may arise during the recruitment process and then seeking the most effective solution to each issue that arises. A summary is then created from a number of ideas and solutions and categorized according to the quadrants of the effort and impact matrix. These ideas are categorized into: low effort-high impact, high effort-low impact, low effort-low impact, and high effort-high impact. The final step requires prioritization based on the categorization of ideas.

**Develop and Assign Process Roles.** In negotiations, it is necessary to assign responsible people to be the moderator, the meeting leader, and the note-taker.

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**Stay at The Table.** The determination of the form of integrated negotiation must be clearly understood by all negotiators, to avoid the situation where a member or the entire group leaves the negotiating table when the parties need to reach an agreement. When groups leave the negotiating table, coalitions are likely to form, which can be detrimental and hinder agreement between groups.
**Allow for Some Point of Agreement, Even if Only on Process.** Choosing an integrative negotiation type is very appropriate, negotiators will not be trapped for too long in discussing one issue because some parties will not give in and fight for a settlement.
**Avoid The "Equal Shares" Bias.** One of the main challenges of multi-party negotiations is resource allocation. In the previous discussion, the allocation of resources among the three negotiators was done. Therefore, it is necessary to divide resource management into each department: the coal company manages and forecasts the composition of operator types to plan operator needs for 2022 - 2031. Kutai East Regional Government provides data on local skilled and unskilled workers. Kutai East Manpower Department supervises the recruitment process according to the legal aspects of Kutai East Region Regulation No. 1 of 2022.This distribution is more equal and fairer to avoid biased distribution.
**Avoid The Agreement Bias.** One-sided agreements can occur when negotiators wish to reach common ground with the other side but are reluctant to acknowledge differences in interests. Even such differences can create viable options for the common good. Indirectly, we have moved from an integrative negotiation style to a distributive negotiation style. It must be communicated and agreed that the main priority is the Kutai East Region Regulation No. 1 of 2022 and the negotiated benefits. All parties agree that negotiations are still on while prioritizing the Eastern Kutai Regional Regulation No. 1 of 2022 with a view to optimizing local labor while prioritizing the competitive aspects of operators.
**Avoid Sequential Bargaining.** All negotiators must agree on the choice of integrated negotiation. Choosing an integrated form of negotiation is very suitable, the negotiator will not be stuck discussing one issue for too long because many parties will not give up and struggle to find a solution. It is best to avoid reaching an agreement solely for the purpose of resolving the issue and instead agree on a resolution process. This is reflected in the solution quadrant agreement (effort and impact).

## 5. CONCLUSION

The study identifies and analyzes the main findings:
Using the Stakeholder Analysis and Value-Focused Thinking (VFT) method, the results of the analysis synthesis are known to have 6 (six) stakeholder expectations for this project, namely: maximize the absorption of local workers, maximize the absorption of skilled operators who are ready to work, optimizing regional welfare index, minimizing the unemployment index, minimize the emergence of social issues in employee recruitment (local and non-local), compliance with Regional Regulation No. 1 of 2022.
Value-Focused Thinking (VFT) and the interview method are used to determine several design alternatives in the context of decision-making to determine the heavy equipment operator enrolment and selection in coal company. The results of the synthesis of analysis are known to have five design alternatives, namely: 100% skilled operator (non-local operator), combination of 80% skilled operators (non-local operators) and 20% non-skilled operators (local operators), a balanced combination between skilled operators (non-local operators) and non-skilled operators (local operators), combination of 20% skilled operators (non-local operators) and 80% non-skilled operators (local operators), 100% non-skilled operators (local operators).
Using the Analytic Hierarchy Process (AHP) method with six decision-makers from Mining Operation Division representative, the results of the analysis with the help of AHP Super Decision software show that the "100% skilled operator (non-local operator)" is the best alternative. But so that it can be used for heavy equipment operator enrolment and selection in mining operation division coal company still needs changes to alternative 4 combination of 20% skilled operators (non-local operators) and 80% non-skilled operators (local operators) and composition adjustments in forecasting operator needs for 2022 - 2031. So that the composition of local and non-local operators is in accordance with East Kutai Regional Regulation No.1 of 2022. This will then be communicated and negotiated with stakeholders. The conflict style that occurs in executive recruitment negotiations is the collaborative style, while the type of negotiation used is integrative negotiation. Before entering into negotiations, an external and internal analysis will be performed. External analysis uses PESTLE analysis, while internal analysis uses SWOT analysis. Negotiations involve many parties, so it is necessary to have a successful multi-party negotiation strategy, specifically knowing who will sit at the negotiating table, managing information and systematizing the development of proposals and thinking, brainstorm options, develop and assign roles in the negotiation process, and sit still at the negotiating table, allow some points of agreement, even if only during the process, avoid "equal share" bias, avoid agreement bias, avoid sequential bargaining.

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Therefore, during the negotiations, adjustments were made to the composition of the operator types to take into account the interests of all parties involved. The composition adjustment will take place in 2024 and 2027 with 100% local operators; in 2028 with 10% non-local operators and 90% local operators; then in 2029 and 2030, we will return to alternative 4. Through the described research steps, it can facilitate the interests of stakeholders: compliance with labor law aspects, reduction of unemployment index and increase of welfare index, fulfilling operator-type qualifications through a forecasting scheme.

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