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Training Needs Analysis (TNA) Regulatory Development Strategy to Increase The Effectiveness of Training Programs at PT BIB

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ABSTRACT
The increasing production target of PT Borneo Indobara (PT BIB) to 54 million tons by 2026 necessitates strategic improvements in workforce competency through effective training programs. However, the current implementation of Training Needs Analysis (TNA) at PT BIB reveals significant gaps, including poor regulatory structure, minimal supervisor involvement, and inadequate post-training evaluation, resulting in misaligned training delivery. This research aims to analyze the TNA process, evaluate training effectiveness, identify influencing factors, and develop a structured regulatory strategy using the RACI Matrix approach. Employing a mixed-methods design, the study integrates qualitative methods (interviews and observations) with quantitative analysis (descriptive statistics, mean ranking, and Pearson correlation) involving 150 respondents. The results demonstrate that the absence of formal TNA regulations and limited stakeholder engagement undermine the alignment between training programs and operational realities. The implementation of the RACI Matrix significantly clarifies roles and responsibilities across departments, particularly enhancing the involvement of supervisors, and is associated with a marked improvement in training effectiveness ($p < 0.001$). The study concludes that adopting RACI-based TNA regulations, coupled with performance-focused evaluation systems and periodic monitoring, can significantly enhance employee competence and contribute to the achievement of corporate goals. This research offers a novel, practical framework for improving training governance and invites further longitudinal exploration on the sustainability and broader applicability of the proposed model.

Keywords: Training Needs Analysis, training effectiveness, TNA regulations, RACI Matrix, supervisor involvement

INTRODUCTION
In the global mining industry, employee competency development is key to operational sustainability, increased productivity, and compliance with occupational safety standards (Febriyarso & Ruslan, 2021; Marnisah et al., 2022; Mazurchenko & Zelenka, 2022; Treviño-Elizondo & García-Reyes, 2023; Younas & Bari, 2020). In Indonesia, the coal mining sector is facing pressure from the energy transition, regulatory changes, and the need for more competent human resources. PT Borneo Indobara (PT BIB), as one of the largest mining companies, is faced with the challenge of the effectiveness of its employee training program which is currently dominated by decisions from the Human Resource & General Affairs (HRGA) division without the direct involvement of supervisors. This creates a gap between real needs in the field and training materials, thereby reducing the effectiveness of competency development (Apornak et al., 2021; Chusminah & Haryati, 2019; Iriyanti et al., 2022; Sitohang & Suhaeni, 2022).

This condition reflects a broader problem in the Indonesian mining industry, namely the lack of competency-based training planning and internal regulations governing supervisor involvement in Training Needs Analysis (TNA) (Bansal & Prakash Tripathi, 2017; Merriman et al., 2023; Rajapakshe et al., 2022; Sahoo & Mishra, 2019). Without improvements to the structure and mechanisms of TNA, it will be difficult for companies to ensure the impact of training on performance and the achievement of business targets.

This research is supported by the human resource management theory of Stoner (1995) and Guest (1987) which emphasizes the importance of integrating HR policies for organizational effectiveness, as well as Herzberg's (1959) motivation-hygiene theory about the importance of intrinsic and extrinsic factors in work motivation.

This study aims to examine the TNA regulatory development strategy to increase the effectiveness of training programs at PT BIB using a mixed-methods method, through qualitative (interviews with HRGA, supervisors, and SHE) and quantitative approaches (correlation analysis between variables). The novelty of this study lies in its integration of the RACI Matrix into the Training Needs Analysis (TNA) regulatory framework, which has not been explicitly addressed in earlier studies. While Rezza (2018) and Niazi (2011) discussed the importance of inter-organizational coordination and training strategies, they did not provide a structured governance model for clarifying stakeholder roles in the TNA process. Similarly, Sundari & Kusmiati (2022) highlighted the weaknesses in operational-level TNA, but did not offer a mechanism to ensure accountability and transparency. This research uniquely contributes by proposing a formal implementation of the RACI Matrix to institutionalize supervisor involvement, ensure regulatory clarity, and enhance training alignment with operational needs, supported by empirical correlation analysis that quantitatively confirms its effectiveness.

RESEARCH METHODS

This study uses a descriptive design with a mixed-methods approach, combining qualitative and quantitative methods. A qualitative approach was used to explore the mechanism of Training Needs Analysis (TNA) at PT BIB and the obstacles that arise due to the absence of formal regulations. A quantitative approach was used to measure the effectiveness of training programs and the relationship between TNA regulation, supervisor roles, and training effectiveness.

Data were collected through in-depth interviews with HRGA, Supervisors, and Department Heads, questionnaires to 150 respondents (using the Slovin formula), and field observations. Primary data came from interviews, questionnaires, and observations, while secondary data was obtained from internal company documentation and literature studies related to TNA.

Qualitative analysis was conducted using narrative analysis techniques, by identifying key themes related to TNA's weaknesses, supervisor involvement, and regulatory needs. Quantitative analysis includes descriptive statistics to illustrate data distribution, mean ranking analysis to determine TNA regulatory preferences, and correlation analysis (Pearson correlation) to examine the relationship between TNA regulation, supervisor roles, and training effectiveness.

The interview sample was selected by the purposive sampling method, while the quantitative sample was calculated based on the Slovin formula with an error rate of 5%. This method allows the research to obtain comprehensive and in-depth data to formulate a more effective TNA regulatory development strategy at PT BIB.

RESULTS AND DISCUSSION

This study analyses the effectiveness of the Training Needs Analysis (TNA) mechanism at PT BIB. Based on the narrative analysis of the interviews, it was found that although TNA has been systematically run, the involvement of other departments in the TNA process is still low, regulations are not well documented, and the role of supervisors has not been optimal. As a result, training programs are often less relevant to operational needs.

From the qualitative analysis using interview and observation data, several findings were obtained as below:

1. TNA Implementation Mechanism

   TNA at PT BIB has been running systematically through HRGA with input from managers and supervisors. However, many departments feel less involved, so the training is not on target.
2. TNA Regulations and Policies

   TNA regulations exist through company SOPs, but are considered to be less documented and transparent, causing weak coordination between departments.
3. Involvement of Parties in the Preparation of TNA

   Other departments feel that they are only recommenders with no real influence on the final decision, so the need for training in the field is less accommodated.
4. The Role of the Supervisor in Identifying Training Needs

   Supervisors have a role, but their input is often not accommodated by the HRGA, exacerbated by time constraints, low understanding of TNA mechanisms, and lack of regulation.
5. Training Needs Identification Methods

   Identification is carried out through performance evaluations, interviews, and industry analysis, but it is still top-down and does not reflect real conditions on the ground.
6. Effectiveness and Impact of TNA Implementation

   The implementation of TNA is considered ineffective, with training that is often irrelevant and has minimal impact on improving competence and productivity.
7. Recommended Improvements

   Some proposals: clarifying TNA regulations, strengthening the role of supervisors and department heads, developing data-driven systems, and conducting periodic evaluations.

From the quantitative analysis using a questionnaire to 150 respondents, several key findings were obtained:

1. Descriptive Statistics

   Descriptive Statistics show that the data collected is valid without bias.

Descriptive Statistics

	Mean	Std. Deviation	N
Efektivitas Pelatihan	4.1600	.96294	150
Keterlibatan Supervisor	3.9600	.98226	150
Regulasi TNA	4.0400	1.00922	150

Figure 1. Descriptive Statistics

2. Mean Ranking Analysis

The Mean Ranking Analysis shows that the RACI Matrix is the most effective regulation to improve the TNA mechanism, compared to improving SOPs and updating supervisor job desks.

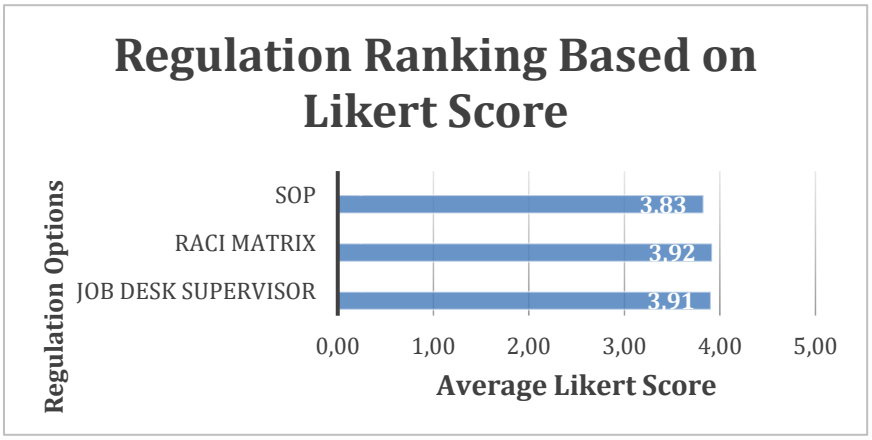

Figure 2. Mean Ranking Analysis

3. Correlation Analysis

Correlation Analysis proved that there was a significant positive relationship between training effectiveness, supervisor involvement, and implementation RACI Matrix ($p < 0.001$).

Correlations

		Efektivitas Pelatihan	Keterlibatan Supervisor	RACI matrix
Pearson Correlation	Efektivitas Pelatihan	1.000	.695	.636
	Keterlibatan Supervisor	.695	1.000	.658
	RACI matrix	.636	.658	1.000
Sig. (1-tailed)	Efektivitas Pelatihan	.	<.001	<.001
	Keterlibatan Supervisor	.000	.	.000
	RACI matrix	.000	.000	.
N	Efektivitas Pelatihan	150	150	150
	Keterlibatan Supervisor	150	150	150
	RACI matrix	150	150	150

Figure 3 Correlation Analysis

These results confirm the hypothesis that the implementation of the RACI Matrix that clarifies the roles and responsibilities, particularly of supervisors, contributes to increased training effectiveness.

As a solution, this study proposes the implementation of the RACI Matrix which explicitly regulates the roles of HRGA, STC, Dept Head, Supervisor, and Employees in all stages of TNA starting from identifying needs, implementing, to evaluating training. By involving supervisors more actively, the training program is expected to be more in line with real needs in the field, and has a direct impact on improving employee competence and productivity. The following is the RACI matrix compiled by the researcher to increase the effectiveness of the training program at PT BIB.

Information:

R (Responsible) : Directly responsible for the execution of duties
A (Accountable) : Primary responsibility for decisions and final results
C (Consulted) : Be consulted before a decision or action is taken
I (Informed) : Be informed about the progress of the task

Tables 1. RACI Matrix

TNA Activities		TOP Management	HRGA	STC	Dept Head	supervisor	Employee
Identify Training Needs	Gaps in Compliance with laws and regulations which include government regulations related to K3LH (Safety, Occupational Health and Environment) Industry standards and internal company policies as well as mandatory certifications and licenses	I	A	R	C	I	I
	Gaps in employee needs in doing work include Technical Skills, Non-technical Skills (Soft Skills) and Understanding of work procedures 2. gaps in employee needs in doing work include Technical Skills, Non-technical Skills (Soft Skills) and Understanding of work procedures	I	A	C	C	R	I
	Employee development for career advancement and promotion preparation, Leadership skills development, Cross-functional training	I	A	C	C	R	I
Training Implementation	Selection of Training Type (internal or external and Organizer)	I	A	R	C	C	I
	Training planning and schedule	I	A	R	C	C	I
	Budget Allocation	A	A	R	C	C	I
	Socialization of training programs	I	A	R	C	I	I
	Submission of Training Implementation	I	I	I	C	C	R
	Training Implementation Agreement	A	R	C	C	C	I
Evaluation	Evaluation of the Process of Identifying Training Needs	I	A	R	C	I	I
	Evaluation of the Implementation of Training	I	A	R	C	I	I
	Evaluation of Results which includes the Impact of Training on Performance	I	A	C	C	R	I
Data collection and documentation of the results of identification of Training Needs, Implementation of Training and Evaluation Results		I	A	R	C	C	I

To increase the effectiveness of the training program at PT Borneo Indobara (PT BIB), an implementation strategy was designed with the main focus on the implementation of the RACI Matrix in the Training Needs Analysis (TNA) process, increasing supervisor involvement, and conducting periodic evaluation and adjustment of the training program.

This implementation strategy begins with a discussion with all stakeholders (Supervisors, HRGA, Department Heads, and Top Management) to agree on their respective roles and responsibilities. Furthermore, the RACI Matrix will be aligned with the company's internal regulations and policies to ensure there are no procedural conflicts. After that, an implementation simulation was carried out to identify obstacles in the field, before finally compiling the final document of the RACI Matrix as an official guideline. Full implementation is carried out after obtaining the approval of Top Management, so as to have the strength of legality and ensure the commitment of all parties.

This series of steps is designed to support a more systematic, structured, and effective TNA process in encouraging the development of employee competencies at PT BIB.

CONCLUSION

This study revealed that the training program implementation at PT Borneo Indobara (PT BIB) still encounters significant challenges, particularly due to the unstructured approach to Training Needs Analysis (TNA), where HRGA independently determines training needs without technical input from operational departments, resulting in minimal involvement from supervisors and STCs. The lack of specific TNA regulations, ineffective communication, and inadequate post-training evaluations further contribute to the misalignment between training programs and actual field needs. Correlation analysis confirmed a significant relationship between TNA regulations, supervisor involvement, and training program success. The RACI Matrix approach emerged as an effective solution to clarify stakeholder roles and improve accountability, earning the highest

Likert score (3.92). Consequently, recommended actions include enforcing RACI-based TNA processes with supervisor involvement, enhancing evaluation systems to measure performance impact, and establishing ongoing monitoring mechanisms. These measures aim to improve training effectiveness, strengthen employee competencies, and enhance organizational competitiveness. For future research, a longitudinal study is recommended to assess the sustained impact of RACI-based TNA on performance and productivity. Employing a mixed-methods approach with both quantitative metrics and qualitative insights could yield a comprehensive understanding, while comparative studies across departments or similar industries may offer valuable perspectives on the scalability and contextual adaptability of the model.

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