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**THE EFFECT OF WORK MOTIVATION AND WORK ENVIRONMENT ON  
EMPLOYEE PERFORMANCE AT PT PERKEBUNAN NUSANTARA  
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**Abstract**

This study aims to determine the partial and simultaneous effects of work motivation and work environment on employee performance at PT Perkebunan Nusantara IV Regional II Unit PKS Sosa. This research is a quantitative study applying a survey method with structured questionnaires for data collection. The respondents involved were 58 male employees. Data analysis methods included validity and reliability tests, classical assumption tests, multiple linear regression analysis, and hypothesis testing (t-test and F-test) using SPSS version 23 software. The results showed that partially, work motivation had a significant effect on employee performance with a significance value of  $0.018 < 0.05$  (t-statistic 2.429). The work environment also significantly affected employee performance partially with a significance value of  $0.006 < 0.05$  (t-statistic 2.888). Simultaneously, work motivation and work environment had a significant effect on employee performance with a significance value of  $0.000 < 0.05$  (F-statistic 19.651). The coefficient of determination ( $R^2$ ) of 41.7% indicated that both independent variables could explain employee performance variants, while the remaining 58.3% was influenced by other variables outside this research model. Based on the partial test, the work environment was identified as the most dominant variable affecting employee performance at PKS Sosa due to its smaller significance value.

***Keywords: Employee performance, work environment, work motivation.***

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**INTRODUCTION**

Palm oil plantations are one of the strategic sectors in Indonesia's economy, making a significant contribution to state revenue, employment, and regional development. State-owned plantation companies such as PT Perkebunan Nusantara IV play a key role in enhancing productivity and efficiency in palm oil processing. In their operational activities, the success of these companies is heavily influenced by the quality of the human resources (HR) they have, especially employees directly involved in the production process and factory operations. Employee performance is one of the key factors determining an organization's success in achieving its established objectives. Performance can be defined as the quality and quantity of work accomplished by an employee in carrying out their duties and responsibilities in accordance with company standards (Mangkunegara, 2017). Therefore, companies must consider various factors that can influence employee performance to ensure that organizational goals are achieved optimally.

One of the dominant factors influencing performance is work motivation. Work motivation is the provision of a driving force that generates a person's enthusiasm for work, so that they are willing to cooperate, work effectively, and integrate all their efforts to achieve job satisfaction (Hasibuan, 2016). Employees with high work motivation tend to be more enthusiastic in performing their tasks, take on greater responsibility, and strive to achieve optimal work results. In addition to motivation, the work environment factor also has a significant contribution. The work environment includes all tools and materials encountered, the conditions around a person's workplace, work methods, as well as work arrangements both individually and in groups (Sedarmayanti, 2017). A conducive, safe, and comfortable work environment can boost employees' work spirit, thereby positively impacting the improvement of their performance. At PT Perkebunan Nusantara IV Regional II Unit PKS Sosa, employee

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performance is a very crucial factor in supporting the smooth processing of Fresh Fruit Bunches (FFB) into palm oil. However, in practice, employee performance is not always at an optimal level. Field observations show several issues, such as differences in responsibility, achievement, and work recognition, which lead to uneven motivation. In addition, the challenging physical conditions of the factory—such as high noise levels, hot working temperatures, and limited facilities—also trigger a decline in concentration and work efficiency. These operational problems are reinforced by indications of employees being late in starting work activities, including during morning assemblies, which has the potential to disrupt the rhythm of the production process. To limit the scope of the study, this research is focused on employees at PT Perkebunan Nusantara IV Regional II Unit PKS Sosa, by measuring the influence of the Work Motivation variable ( $X_1$ ) reviewed from the aspects of responsibility, achievement, promotion, and recognition, as well as the Work Environment variable ( $X_2$ ) reviewed from the aspects of lighting, temperature, noise, layout, and interpersonal relationships on Employee Performance ( $Y$ ). Based on this background, this study aims to empirically prove the effect of work motivation and work environment, both partially and simultaneously, on employee performance, while also identifying the most dominant variable affecting performance in the Sosa PKS unit. The results of this study are expected to provide theoretical contributions for the development of HR management as well as practical input for company management in formulating policies for improving motivational aspects and the work environment of employees.

## METHOD

This research uses a quantitative approach that is objective and structured with data analysis based on numerical data. The method applied is the survey method, where information is obtained directly from respondents in the field using structured questionnaire instruments to measure the portrait of factual conditions and to test causal relationships between variables (Sugiyono, 2017).

The research was conducted at PT Perkebunan Nusantara IV Regional II Unit PKS Sosa. Primary data collection was carried out through the distribution of questionnaires scheduled for the early semester of 2026. The population in this study consisted of all employees at Unit PKS Sosa, totaling 58 people. Considering the relatively small population size (less than 100), the sampling technique used was nonprobability sampling with a saturated sampling type (census), so that all members of the population (58 employees) were used as the research sample (Sugiyono, 2017).

The type of data used is quantitative data. The sources of data consist of:

1. **Primary Data:** Obtained directly from respondents through the completion of structured questionnaires.
2. **Secondary Data:** Obtained indirectly through the study of internal company documents (production reports, attendance, SOPs) as well as literature studies from scientific journals and relevant books.

Data collection techniques were carried out using three methods, namely non-participant observation in the factory workstation environment, literature study, and questionnaire distribution. Measurement of respondents' attitudes and perceptions used a Likert Scale that had been modified with score weight gradations from 1 to 5 (5 = Strongly Agree, 4 = Agree, 3 = Somewhat Agree, 2 = Disagree, 1 = Strongly Disagree).

The variables in this research consist of two independent variables ( $X$ ) and one dependent variable ( $Y$ ) which are described as follows:

1. **Work Motivation ( $X_1$ ):** The driving force or stimulant of employee work enthusiasm (Hasibuan, 2019), measured through indicators: responsibility, work achievement, promotion opportunities, performance recognition, and job challenges.
2. **Work Environment ( $X_2$ ):** The suitability of workplace conditions that affect the completion of employee tasks (Farizki, 2017), measured through indicators: lighting, air temperature, noise, use of color, required movement space, workability, and inter-employee relationships.
3. **Employee Performance ( $Y$ ):** The actual behavior or work achievement displayed by an individual according to their role and responsibilities in the company (Rivai, 2015), measured through indicators: quality of work results, quantity of work results, punctuality, initiative, and responsibility.

Before the questionnaire is distributed to the main sample, an instrument feasibility test is first conducted on 30 respondents outside the sample. Validity testing uses the criteria of comparing the calculated  $r$  value  $\geq$  the table  $r$  value, while reliability testing uses the limit of Cronbach's Alpha coefficient  $> 0.60$  so that the instrument is declared reliable.

Before performing multiple linear regression analysis, the model was tested using a series of classical assumption tests with the help of SPSS version 23 software, including:

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1. **Normality Test:** Using the Kolmogorov-Smirnov test with the criterion that data is normally distributed if the significance value  $> 0.05$ .
2. **Heteroscedasticity Test:** Using scatterplot analysis and the Glejser test (free from disturbances if the significance value  $> 0.05$ ).
3. **Multicollinearity Test:** Measuring the tolerance value ( $> 0.1$ ) and Variance Inflation Factor ( $VIF < 5$ ) to ensure there is no perfect relationship among independent variables.

## Data Analysis and Hypothesis Testing Techniques

Data analysis uses inferential statistical analysis with a Multiple Linear Regression model to test the functional influence of work motivation (X1) and work environment (X2) on employee performance (Y). The general multiple regression equation is formulated as follows:  $Y = \alpha + b_1X_1 + b_2X_2 + e$ .

Hypothesis testing is carried out both partially and simultaneously using a significance level of  $\alpha = 0.05$  (5%), under the following conditions:

1. **t-test (Partial):** Testing the individual effect of each independent variable on the dependent variable (X1 on Y; and X2 on Y). The hypothesis is accepted if the calculated  $t >$  the table  $t$  or the Significance value  $< 0.05$ .
2. **F Test (Simultaneous):** Testing the combined effect of all independent variables (X1 and X2) simultaneously on the dependent variable (Y). The hypothesis is accepted if the calculated  $F >$  table  $F$  or the significance value  $< 0.05$ .
3. **Coefficient of Determination (R<sup>2</sup>):** Using the Adjusted R Square value to measure the percentage of variability in the employee performance variable (Y) that can be explained by the variations in the work motivation variable (X1) and the work environment (X2) within the regression model.

## RESULTS AND DISCUSSION

### Respondent Characteristics and Instrument Suitability

Analysis of respondent characteristics shows that all operational employee samples at PT Nusantara IV Plantation Regional II PKS Sosa Unit, which consists of 58 people (100%) of the type male gender. This condition aligns with the operational characteristics of the coconut processing industry. Palm oil at the factory station, the majority of which requires high physical activity and mechanical capacity, so that the need for labor is dominated by men. Before further analysis is carried out, The research instrument was first tested for its suitability through validity and reliability tests.

Table 1. Validity Test of Work Motivation Variable (X1)

Item	R Count	R tabel	Information
M1	0,734	0,258	Valid
M2	0,78	0,258	Valid
M3	0,628	0,258	Valid
M4	0,618	0,258	Valid
M5	0,735	0,258	Valid
M6	0,772	0,258	Valid
M7	0,655	0,258	Valid
M8	0,454	0,258	Valid
M9	0,716	0,258	Valid
M10	0,772	0,258	Valid

Table 2. Validity Test of Work Environment Variable (X2)

Item	R Count	R tabel	Information
L1	0,544	0,258	Valid
L2	0,564	0,258	Valid
L3	0,638	0,258	Valid
L4	0,607	0,258	Valid
L5	0,753	0,258	Valid
L6	0,768	0,258	Valid
L7	0,721	0,258	Valid
L8	0,677	0,258	Valid
L9	0,673	0,258	Valid
L10	0,798	0,258	Valid

Table 3. Validity Test of Employee Performance Variable (Y)

Item	R Count	R tabel	Information
K1	0,656	0,258	Valid
K2	0,587	0,258	Valid
K3	0,694	0,258	Valid
K4	0,767	0,258	Valid
K5	0,644	0,258	Valid
K6	0,807	0,258	Valid
K7	0,764	0,258	Valid
K8	0,649	0,258	Valid
K9	0,678	0,258	Valid
K10	0,807	0,258	Valid

Table 4. Reliability Test Results

Variabel	Cronbach Alpha	Keterangan
Work motivation	0,862	Reliabel
Work environment	0,856	Reliabel
Employee performance	0,856	Reliabel

The test results show that all questionnaire items for the Work Motivation (X1), Work Environment (X2), and Employee Performance (Y) variables are declared valid because they have a calculated r value greater than the table r, which is 0.258. In addition, the reliability test using Cronbach's Alpha coefficient resulted in values above the threshold of 0.60 for all variables, with details of Work Motivation at (0.862), Work Environment at (0.856), and Employee Performance at (0.856), thus all research instruments have a good level of internal consistency.

### Multiple Linear Regression Analysis and Hypothesis Testing

Multiple linear regression analysis is applied to map the direction of the functional relationship between independent variables and the dependent variable. Based on data processing results using SPSS version 23 software, the regression equation model obtained is as follows:

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Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.697	3.604		3.801	.000
	X1	.288	.119	.325	2.429	.018
	X2	.344	.119	.387	2.888	.006

Based on the table, the multiple linear regression equation is obtained as follows:

$$Y = 13,697 + 0,288 X_1 + 0,344 X_2$$

Based on the equation model and partial test results (t-test), the following meanings are obtained:

1. The Effect of Work Motivation on Employee Performance: The work motivation variable (X1) has a calculated r value of 2.429 with a significance value of 0.018. Because the significance value is less than  $\alpha = 0.05$  ( $0.018 < 0.05$ ), the first hypothesis is accepted. This proves that partially, work motivation has a positive and significant effect on employee performance at PT Perkebunan Nusantara IV Regional II Unit PKS Sosa. This internal driving force is proven to be able to foster enthusiasm and work effectiveness among employees in achieving organizational targets.
2. The Influence of the Work Environment on Employee Performance: The work environment variable (X2) has a calculated r value of 2.888 with a significance value of 0.006. Considering the significance value is smaller than  $\alpha = 0.05$  ( $0.006 < 0.05$ ), the second hypothesis is accepted, indicating that the work environment partially has a positive and significant effect on employee performance. Both physical and non-physical conditions in the factory area directly impact the level of concentration and comfort of employees while on duty.

Through the test results, the work environment was identified as the most dominant variable affecting employee performance at PKS Sosa. This is supported by the regression coefficient of the work environment being greater ( $0.344 > 0.288$ ) and a smaller significance value compared to the work motivation variable ( $0.006 < 0.018$ ). These findings confirm that the arrangement of both the physical and social environment at the palm oil mill station contributes more strongly to controlling fluctuations in employee performance. Next, through simultaneous testing (F test), an F calculated value of 19.651 was obtained with a significance value of 0.000. Because the significance value is much smaller than 0.05 ( $0.000 < 0.05$ ), it can be concluded that simultaneously work motivation and work environment have a significant effect on employee performance. The accuracy of this regression model is reinforced by the coefficient of determination (R<sup>2</sup>) value, which shows an R-square of 0.417. This value indicates that the contribution of the variation from the combination of work motivation and work environment variables in explaining employee performance variation is 41.7%. Meanwhile, the remaining variation of 58.3% is explained by other external variables outside this research model, such as competencies, workload, leadership, and industry compensation systems. Viewed from these results, the stability of productivity in processing fresh fruit bunches (FFB) into crude palm oil (CPO) and palm kernel at the Sosa PKS unit requires a balanced integration between the drive of work motivation and a conducive work environment.

**Conclusion and Suggestions**

Based on the results of data analysis and discussion regarding the influence of work motivation and work environment on employee performance at PT Perkebunan Nusantara IV Regional II Unit PKS Sosa, several conclusions can be drawn: First, work motivation partially proved to have a positive and significant effect on employee performance, indicated by a significance value of  $0.018 < 0.05$  and a t-value of 2.429. This indicates that strengthening motivational aspects such as responsibility and performance recognition can trigger an increase in employees' contributions to achieving organizational targets. Second, the work environment partially also has a positive and significant effect on employee performance with a significance value of  $0.006 < 0.05$  and a t-value of 2.888. A conducive, safe, and adequate work environment, both physically and interpersonally, contributes significantly to minimizing operational obstacles and enhancing employee work focus. Third, simultaneous testing shows that work motivation and the work environment together have a significant effect on employee performance, with a significance value of  $0.000 < 0.05$  and an F count of 19.654. Based on the regression values and partial test results, the work environment variable (0.344) is found to be the most dominant factor affecting employee

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performance compared to work motivation (0.288). Overall, these two independent variables can explain 41.7% of the variation in employee performance, while the remaining 58.3% is influenced by other variables not explored in this study. Referring to the research findings, the management of PT Perkebunan Nusantara IV Regional II Unit PKS Sosa is advised to prioritize the arrangement of the physical work environment, considering that this variable has the most dominant influence in triggering employee productivity. Concrete efforts can be made through optimizing air circulation, controlling the noise level of factory machinery, and providing adequate occupational safety facilities to ensure operational comfort. In addition, work motivation improvement needs to be continuously accommodated through performance recognition (reward aspect) as well as providing objective promotion opportunities to reduce disparities in motivation among employees. For future researchers, it is recommended to expand the scope of the study by integrating other external and internal organizational variables that have not been revealed in this research model, such as leadership style, work discipline, or organizational culture, in order to provide a more comprehensive picture of the determinants of employee performance in the palm oil plantation industry sector.

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