

THE FACTORS IMPACTING THE QUALITY OF WORK LIFE OF CONTRACTED EMPLOYEES IN THE PROVINCIAL ELECTRICITY AUTHORITY'S ELECTRIC POWER SYSTEM

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ABSTRACT

Purpose – This study examines factors influencing the quality of work life (QWL) of outsourced employees in Thailand's electricity sector, focusing on labor management practices.

Methodology – A quantitative survey design was employed, utilizing structured questionnaires to collect data from 484 outsourced employees of the Provincial Electricity Authority (PEA). Descriptive and inferential statistical analyses, including t-tests, ANOVA, and multiple regression analysis, were used to examine the relationships between labor management factors and QWL.

Results – The study found that workplace safety, skill development, and labor relations significantly influence QWL, with workplace safety management being the most critical factor. Organizational size was also found to impact on QWL, as employees in larger firms reported better working conditions. However, compensation and welfare management were identified as areas needing improvement, with moderate satisfaction levels reported.

Implications – Based on the research findings, the implications suggest that outsourcing organizations should prioritize skill development management as the most critical factor influencing quality of work life, followed by workplace safety and labor relations management. While organizational size significantly impacts employee well-being, addressing compensation inadequacies remains essential for sustainable workforce retention and satisfaction.

Originality/Value – This study contributes to the literature on labor management by providing empirical insights into outsourced employee experiences in the energy sector. It underscores the importance of structured labor policies to balance cost efficiency with workforce well-being, promoting sustainable employment practices.

Keywords: Quality of work life, Contracted employees, Electricity authority

Paper Type: Research Article

INTRODUCTION

Electricity is a fundamental driver of national development, supporting multiple sectors such as communication, transportation, agriculture, and industry (Horta-Gómez et al., 2021). Recognizing its critical role, Thailand has implemented the Power Development Plan (PDP) 2018–2037, designed to meet growing energy demands while ensuring sustainable economic development (Energy Policy and Planning Office [EPPO], 2019). This initiative is managed by key energy organizations, including the Electricity Generating Authority of Thailand (EGAT), the Metropolitan Electricity Authority (MEA), and the Provincial Electricity Authority (PEA). Among these, the PEA plays a significant role in expanding electricity access to 77 provinces across the country, ensuring equitable distribution of energy resources. However, the increasing complexity

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of electricity infrastructure development has led to the widespread adoption of outsourcing strategies to enhance operational efficiency and cost-effectiveness (Vilko, 2013).

Despite its economic advantages, outsourcing presents significant challenges, particularly concerning the quality of work life for outsourced employees. In the fiscal year 2024, the PEA employed over 20,250 outsourced workers, highlighting the extensive reliance on external labor for electricity distribution and maintenance (Provincial Electricity Authority [PEA], 2024). Outsourced employees often face precarious working conditions, including higher risks of workplace incidents, inadequate healthcare coverage, lower wages, and limited employment benefits. These factors contribute to reduced job satisfaction and increased turnover rates, potentially affecting service reliability and operational efficiency. Ensuring a high quality of work life for outsourced employees is, therefore, essential for maintaining workforce stability and improving performance within the electricity sector.

This study aims to examine the factors influencing the quality of work life for outsourced employees in Thailand's electricity sector and to propose effective management strategies that promote employee well-being and organizational sustainability. By identifying key determinants such as workplace safety, equitable compensation, and employee welfare programs, the research seeks to enhance human resource management practices in both public and private energy organizations. The findings are expected to provide valuable insights for policymakers and business leaders in shaping sustainable labor strategies that balance cost efficiency with workforce well-being, ultimately strengthening Thailand's energy sector competitiveness.

LITERATURE REVIEW

Organizational Features

Organizational features, particularly registered capital, business duration, and the number of employees, serve as critical indicators of a firm's structural capacity and long-term sustainability. Registered capital reflects the financial resources legally committed to business operations, influencing the firm's ability to invest in innovation and expansion (Ausat et al., 2023). Companies with higher registered capital often have greater access to financial and institutional support, enhancing competitiveness and resilience in dynamic markets. The duration of business operations, or firm age, signifies an organization's experience and stability, affecting reputation, customer trust, and overall market presence (Chaudhry et al., 2021). Established businesses typically benefit from accumulated industry knowledge and operational efficiencies, making them more adaptable to market fluctuations. Conversely, newer firms may struggle with resource limitations and market entry barriers. The number of employees is another vital feature, serving as a direct measure of an organization's scale and capacity to manage workloads and projects effectively (Pratama et al., 2022). Workforce size correlates with operational efficiency and the ability to implement strategic initiatives. However, excessive growth without proper human resource management can lead to inefficiencies and higher turnover rates. Research highlights the importance of organizational features in shaping employee performance and overall firm success. Sutaguna et al. (2023) found that a well-structured organization with adequate resources and employee support positively impacts productivity and job satisfaction. Similarly, Onputtha et al. (2023) emphasized that organizations with strong financial backing and stable workforce structures are better equipped to adopt sustainable practices, particularly in industries with environmental concerns. Collectively, these organizational characteristics provide a foundation for evaluating business resilience, strategic potential, and long-term sustainability.

Labor Management Factors

Labor management factors encompass a range of essential practices, including workplace safety management, income administration and welfare, labor protection, labor relations, and skill development. The management of workplace safety is pivotal in minimizing occupational hazards and enhancing worker productivity, as effective safety training—especially through innovative approaches like VR-based programs—significantly improves knowledge, skills, and safety behaviors (Adami et al., 2021). Income administration and welfare management are equally critical, as fair compensation and comprehensive welfare systems not only motivate employees

but also foster organizational commitment and reduce turnover (Fitzgerald, 2024). Labor protection management ensures compliance with legal standards and safeguards workers' rights, which is essential for maintaining ethical business practices and organizational reputation (da Silva & Amaral, 2019). Furthermore, managing labor relations involves cultivating a cooperative environment between management and employees, which enhances trust and promotes collective problem-solving, thereby driving organizational innovation (Javed et al., 2019). Lastly, the management of skill development is crucial in adapting to technological advancements and maintaining competitiveness, particularly in sectors facing rapid change (Rodrigues et al., 2021). Effective labor management strategies not only contribute to employee satisfaction and well-being but are also instrumental in achieving sustainable business performance, as evidenced in the sustainable practices of the Thai automobile industry (Onputtha et al., 2023). These factors collectively underscore the importance of a holistic approach to labor management, aligning organizational objectives with employee welfare to foster long-term success.

Quality of Work Life

Quality of Work Life (QWL) is a multidimensional concept encompassing fair compensation, workplace safety, career growth, personal development, teamwork, organizational rights, work-life balance, and community engagement. Fair and sufficient compensation ensures financial stability and job satisfaction, directly influencing organizational commitment (Chomphuchai, 2018). Workplace safety is equally vital, as hazardous environments lead to stress and decreased productivity (Cooper & Marshall, 1976). Career progression and job security enhance employee morale, as individuals seek long-term stability and professional advancement (Cascio, 2003). Moreover, providing opportunities for skill enhancement fosters continuous learning and adaptability, which are crucial in dynamic work environments (Riampreecha et al., 2022). Collaboration and teamwork cultivate a supportive workplace culture, reducing stress and improving efficiency (Cascio, 2000). Additionally, ensuring rights and liberties within the organization strengthens trust and engagement, fostering an inclusive work atmosphere (Promthat & Veerayannon, 2021). Maintaining a harmonious work-life balance prevents burnout and promotes overall well-being, making employees more effective in both professional and personal capacities (Chomphuchai, 2018). Lastly, organizational initiatives that encourage employees to contribute to the community create a sense of purpose, reinforcing positive workplace culture (Riampreecha et al., 2022). Research indicates that organizations prioritizing these QWL factors experience lower turnover rates, higher job satisfaction, and improved productivity (Promthat & Veerayannon, 2021). Thus, fostering a high QWL is not only beneficial for employees but also instrumental in achieving long-term business success.

METHODOLOGY

This study employed a quantitative survey design to assess the Quality of Work Life (QWL) among outsourced personnel in the power system of the Provincial Electricity Authority (PEA). A structured questionnaire was utilized to collect data on various factors influencing QWL, including personal and organizational characteristics, as well as labor management aspects. The survey design facilitated the systematic collection of quantifiable data, enabling statistical analysis to identify relationships between variables and draw generalizable conclusions about the outsourced workforce's experiences.

This research aimed to study the Quality of Work Life (QWL) of contract employees of the Provincial Electricity Authority (PEA). Given the challenge of determining the exact total population of contract employees, the researcher utilized a quota sampling method to ensure representation across different operational areas of the PEA. The population was conceptually divided into 4 regions. The researcher then set quotas for each region, aiming for a diverse representation of employees. Data were collected from 484 contract employees until the determined quotas for each region were met, ensuring a broad range of perspectives for analysis.

The conceptual model comprises two main parts. The first part was to study the influence of personal characteristics (including gender, age, education level, marital status, income, dependents, debt obligations, work experience, training experience, work type, and regional

location) and organizational characteristics (registered capital, business operation duration, and number of employees) that are significantly related to the quality of work life among outsourced employees in the electricity system. In this part, the hypothesis (H1) was that personal characteristics and organizational characteristics influenced the quality of work life among outsourced employees in the electricity system of the Provincial Electricity Authority. The second part was to study the influence of labor management factors: management of workplace safety, income administration and welfare, management of labor protection, management of labor relations, and management of skill development on the overall quality of work life of outsourced employees. Accordingly, the hypothesis (H2) was that labor management factors influenced the quality of work life among outsourced employees in the electricity system of the Provincial Electricity Authority.

This research used a questionnaire as the main tool for data collection to assess the Quality of Work Life (QWL) of contract employees of the Provincial Electricity Authority (PEA). The questionnaire was systematically designed and divided into five main sections: Personal characteristics, consisting of 11 closed-ended questions to collect information on gender, age, education level, marital status, income, financial burden, work experience, training, job type, and workplace; Organizational characteristics, consisting of three closed-ended questions on registered capital, company operation period, and number of employees. These data were obtained from secondary sources such as the Department of Business Development; Labor management factors, consisting of 25 questions to assess employees' perceptions of workplace safety, welfare, income, labor protection, workplace relations, and skill development; Quality of Work Life (QWL), consisting of 40 questions to assess employees' perceptions of salary, working conditions, job security, skill development opportunities, teamwork, organizational rights, work-life balance, and social contribution; and Additional suggestions, which were sections that allowed respondents to express their opinions or provide additional suggestions. The data collection process was conducted between August and October 2024, starting with ethical approval from the relevant ethics committees. To ensure that the research complies with ethical standards, paper questionnaires were prepared for distribution, and a request was submitted through the Graduate School, North Bangkok University, to request permission to collect data. After receiving permission, questionnaires were distributed to the selected sample group and the returned questionnaires were collected. After that, the returned questionnaires were checked for completeness and accuracy and were used for further analysis.

Data analysis in this research was conducted to achieve the stated objectives by using descriptive and inferential statistics. In the first step, descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize information about the personal characteristics, organizational characteristics, and quality of work life (QWL) of the respondents. Later, inferential statistics were used to test the differences and relationships between the variables. The t-test was used to compare the differences in QWL between the sample groups with different personal characteristics and organizational characteristics. For comparisons between more than two groups, a one-way analysis of variance (ANOVA) was used, with the Levene's test for homogeneity of variance being tested if the variances were found to be homogeneous. The Least Significant Difference (LSD) test was used for pairwise differences, but if the variances were not homogeneous, the Welch's test and the Dunnett T3 pairwise test were used. In addition, the Multiple Regression Analysis (MRA) was used to study the labor management factors influencing QWL by considering the adjusted regression coefficient (Adjusted R^2), F-statistic and t-statistic to assess the appropriateness of the model and the significance of the independent variables studied.

RESULTS

Personal Characteristics of Outsourced Employees

Comprehensive and legitimate responses were obtained from 484 questionnaires in this investigation. The personal characteristics of outsourced employees were analyzed, and several significant trends were identified. The details are shown below.

Table 1. Personal Characteristics of Outsourced Employees

Personal Characteristics of Outsourced Employees	Number (Persons)	Percentage (%)
1. Gender		
1.1 Male	455	94.00
1.2 Female	29	6.00
2. Age		
2.1 30 years or younger	259	53.50
2.2 31 - 40 years	141	29.10
2.3 41 - 50 years	55	11.40
2.4 51 - 60 years	29	6.00
3. Educational		
3.1 High school / Vocational Certificate or lower	194	40.10
3.2 Diploma / Associate Degree	196	40.50
3.3 Bachelor's Degree	94	19.40
4. Status of marriage		
4.1 Single	312	64.50
4.2 Married	148	30.60
4.3 Window / Divorced / Separated	24	5.00
5. Income (THB/day)		
5.1 350 - 400	259	53.50
5.2 401 - 450	82	16.90
5.3 451 - 500	73	15.10
5.4 More than 500	70	14.50
6. The need to provide for dependents		
6.1 No dependents	160	33.10
6.2 Up to 4,000 THB/month	133	27.50
6.3 4,001 - 8,000 THB/month	141	29.10
6.4 More than 8,000 THB/month	50	10.30
7. Financial responsibilities, such as debt repayment		
7.1 No debt	167	34.50
7.2 Up to 4,000 THB/month	176	36.40
7.3 4,001 - 8,000 THB/month	102	21.10
7.4 More than 8,000 THB/month	39	8.10
8. Relevant work experience		
8.1 1 - 3 years	206	42.60
8.2 4 - 6 years	130	26.90
8.3 7 - 9 years	58	12.00
8.4 10 years or more	90	18.60
9. Prior training or skill-building experience		
9.1 Yes.	441	91.10
9.2 No.	43	8.90
10. The kind of work done on the electrical system		
10.1 Standard-level workers	234	48.30
10.2 Skilled workers	157	32.40
10.3 Specialized workers	93	19.20
11. The regional work site		
11.1 Northern Region	162	33.50
11.2 Northeastern Region	124	25.60
11.3 Central Region	103	21.30
11.4 Southern Region	95	19.60
Total	484	100

From Table 1, The analysis of the personal characteristics of outsourced employees who work in the electricity system of the Provincial Electricity Authority (PEA) illustrates specific attributes of this workforce, which are essential for the operation of the electrical system. With a high school or equivalent education, the majority of respondents were male and aged 30 or younger. Basic living expenses were only marginally covered by the average daily income of 350–400 THB, which was earned by the majority of individuals who were single. Within the 4,000 THB per month limit, this group typically maintained manageable debt levels and did not have any dependents. These findings are indicative of the financial vulnerability of this demographic and the necessity of skill development to improve their employment security and career prospects.

Number and Percentage of Outsourcing Organizations of Outsourced Employees

Table 2. Number and Percentage of Outsourcing Organizations of Outsourced Employees in the Electricity System of the Provincial Electricity Authority, Classified by Organizational Characteristics

Organizational Characteristics	Number (Persons)	Percentage (%)
1. Registered Capital		
1.1 Not exceeding 100 million THB	339	70.00
1.2 More than 100 million THB	145	30.00
2. Business Operation Duration		
2.1 Not exceeding 20 years	11	2.30
2.2 More than 20 years	473	97.70
3. Number of Employees		
3.1 Not exceeding 1,500 employees	100	20.70
3.2 1,501–2,000 employees	69	14.30
3.3 More than 2,000 employees	315	65.10
Total	484	100

From Table 2, presents the results of the organizational characteristics analysis of outsourced employees in the Provincial Electricity Authority's electricity system. The majority of organizations have a registered capital of less than 100 million THB, have been in operation for more than 20 years, and employ more than 2,000 staff members. Strong labor management capabilities and stability are reflected in these attributes.

Labor Management Factors for Outsourced Employees

Table 3. Mean and Standard Deviation of Labor Management Factors for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Overall

Labor Management Factors	\bar{X}	S.D.	Management Level
1. Management of workplace safety	4.27	.621	High
2. Income administration and welfare	3.18	.627	Moderate
3. Management of labor protection	3.82	.776	High
4. Management of labor relations	3.59	.851	High
5. Management of skill development	3.86	.787	High
Overall	3.74	.604	High

From Table 3, The mean and standard deviation of labor management factors for outsourced employees operating in the electricity system of the Provincial Electricity Authority, with a total sample of 484 respondents, were analyzed in Table 3. The following results were obtained: In

general, the labor management factors were evaluated at a high level, with a mean score of ($\bar{X} = 3.74$, S.D.=.604). The mean score of workplace safety management was the greatest among the individual factors at a high level ($\bar{X} = 4.27$, S.D.=.621). Conversely, welfare and income management exhibited the lowest mean score, which was classified as moderate ($\bar{X} = 3.18$, S.D.=.627)

Table 4. Quality of Work Life Standard Deviation and Mean for Outsourced Employees in the Provincial Electricity Authority's Electricity System (Overall)

Quality of Work Life Factors (Overall)	\bar{X}	S.D.	Level
1. Fair and sufficient compensation	3.06	.823	Moderate
2. Workplace safety	3.85	.670	High
3. Career progression and job security	3.92	.606	High
4. Opportunities to enhance one's personal skills	3.85	.647	High
5. Collaboration and teamwork.	4.14	.616	High
6 Rights and liberties within the organization	3.91	.670	High
7. Maintaining a harmonious work-life equilibrium	3.74	.684	High
8. Contribution to the community	3.81	.725	High
Overall	3.78	.515	High

From Table 4, The following findings were disclosed by the comparison of the mean and standard deviation of the quality of work life (QWL) for outsourced employees operating in the electricity system of the Provincial Electricity Authority of Thailand on a sample of 484 respondents, as shown in Table 4. In general, the QWL of outsourced personnel was evaluated at a high level, with a mean score of ($\bar{X} = 3.78$, S.D.=.515). The mean score for cooperation and collaboration was the best among the individual dimensions, with a rating of high levels ($\bar{X} = 4.14$, S.D.=.616). In contrast, the mean score for adequate and reasonable compensation was the lowest, with a moderate rating ($\bar{X} = 3.06$, S.D.=.823).

Hypothesis Testing

Table 5. Summary of Variance Analysis of Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Based on Personal Characteristics

Personal Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority		
	Statistic t, F Statistics ^a	p-value	Statistical Hypothesis Test Results
1. Gender	.075 (t-test)	.940	Rejected
2. Age	.845 (One-way ANOVA)	.470	Rejected
3. Education Level	2.874 (One-way ANOVA)	.057	Rejected
4. Marital Status	.621 (One-way ANOVA)	.538	Rejected
5. Income	1.156 (One-way ANOVA)	.326	Rejected
6. Responsibility for Supporting Dependents	1.256 (One-way ANOVA)	.289	Rejected
7. Debt Repayment or Other Obligations	2.359 (One-way ANOVA)	.071	Rejected

Table 5. (Cont.)

Personal Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority		
	Statistic t, F Statistics^a	p-value	Statistical Hypothesis Test Results
8. Work Experience	1.679 (One-way ANOVA)	.171	Rejected
9. Experience in Training and Development	1.461 (t-test)	.144	Rejected
10. Type of Work Performed in the Electricity System	2.243 (One-way ANOVA)	.107	Rejected
11. Regional Work Location	1.988 (One-way ANOVA)	.115	Rejected

From Table 5, the following personal characteristics were identified: Tested using the t-test (Independent Samples Test), variables with two groups included gender and experience in training and development. The F-test (One-way ANOVA) was employed to evaluate variables with more than two groups. These variables included age, education level, marital status, income, responsibility for supporting dependents, debt repayment or other obligations, work experience, type of work performed in the electricity system, and regional work location.

In general, the analysis revealed that the quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority did not exhibit statistically significant differences when categorized by gender, age, education level, marital status, income, responsibility for supporting dependents, debt repayment or other obligations, work experience, experience in training and development, type of work performed, or regional work location. Variables with two groups, such as registered capital and business operation duration, were subjected to the t-test (Independent Samples Test) in terms of organizational characteristics. Specifically, the F-test (One-way ANOVA) was implemented for variables with more than two groups, with a focus on the number of employees.

Table 6. Variance Analysis of Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Based on Organizational Characteristics

Organizational Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority of Thailand		
	Statistic F Statistic^a	p-value	Statistical Hypothesis Test Results
1. Capital that is registered	-.285 (t-test)	.775	Rejected
2. The duration of business operations Duration	-.652 (t-test)	.515	Rejected
3. The number of employees	5.406** (One-way ANOVA)	.005	Rejected

Note: ** Note: Statistical significance at the .01 level., a. Asymptotically, F distributed

From Table 6, organizational characteristics were examined, which identified the subsequent:

1. The t-test (Independent Samples Test) was employed to test variables with two groups, including registered capital and business operation duration. The analysis revealed that the quality of work life (QWL) of outsourced employees in the Provincial Electricity Authority's

electricity system did not differ significantly when categorized by registered capital and business operation duration (p-value >.05). The null hypothesis (H_0) was, therefore, not rejected.

2. The analysis indicates that the QWL of outsourced employees differed significantly at .01 level (p-value =.005) when categorized by the number of employees for variables with more than two groups, as tested using the F-test (One-way ANOVA). For this reason, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted.

Table 7. Analysis of Labor Management Factors Influencing the Overall Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority

Labor Management Factors	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	SE	Beta		
(Constant)	1.197	.109		10.958	<.001
1. Management of workplace safety	.183	.033	.220	5.560**	<.001
2. Income administration and welfare	.144	.028	.176	5.094**	<.001
3. Management of labor protection	.067	.029	.101	2.321*	.021
4. Management of labor relations	.127	.030	.210	4.295**	<.001
5. Management of skill development	.165	.034	.251	4.850**	<.001

R = .788, R² = .620, Adjusted R² = .616, SEE = .31963, F = 156.135, p-value=<.001

Note: Statistical significance at the .01 level (**), at the .05 level (*).

From Table 7, the multiple regression analysis demonstrated that the five labor management factors collectively accounted for 61.6% of the variance in the quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority (Adjusted R² =.616). At statistical significance levels of.01 and.05., the QWL of outsourced employees was significantly influenced by the factors of workplace safety management, welfare and income management, labor protection management, labor relations management, and skill development management. The quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority was determined to be most significantly influenced by skill development management (Beta =.251), workplace safety management (Beta =.220), and labor protection management (Beta =.101), all of which were weighed in relation to the influence of independent variables. The equation can be written as follows:

Overall Quality of Work Life = 1.197 + 0.183 Management of workplace safety + 0.144 Income administration and welfare + 0.067 Management of labor protection + 0.127 Management of labor relations + 0.165 Management of skill development

DISCUSSION AND IMPLICATIONS

From evaluating the quality of work life (QWL) of outsourced personnel within the energy system of the Provincial energy Authority (PEA) in relation to their individual and organizational attributes, the finding highlights the significant influence of individual and organizational attributes on employee well-being and job satisfaction. The findings indicate that while personal characteristics such as gender, age, education level, marital status, income, and debt obligations do not significantly affect QWL, organizational attributes, particularly workforce size, play a critical role (Promthat & Veerayannon, 2021). Employees in larger organizations with stable operational structures tend to experience better work conditions and job security, reinforcing previous research emphasizing the benefits of well-established firms in fostering employee satisfaction (Jitkasem, 2020; Sukcharoen, 2020). The study underscores that companies with over 2,000 employees and extensive business operations offer stronger labor management capabilities, which are positively associated with better QWL. This aligns with Herzberg et al.'s (1959) motivation-hygiene theory, suggesting that larger firms provide greater job security and career development opportunities, thereby improving employee morale.

Moreover, labor management factors such as skill development, workplace safety, and labor protection significantly enhance QWL, as organizations that prioritize these aspects contribute to employee motivation and overall job performance (Cascio, 2000; Laosaensuk, 2019). Conversely, income administration and welfare management were found to be areas requiring improvement, as employees reported moderate satisfaction with compensation levels (Smith, 2019). The moderate rating for income administration reflects the inadequacy of the current daily wage range of 350-400 THB, which barely covers basic living expenses and fails to provide financial security for employees supporting dependents or managing debt obligations. To address this critical gap, organizations should implement performance-based compensation structures, establish comprehensive health insurance coverage, and provide housing or transportation allowances that align with regional cost-of-living standards. Such improvements in compensation packages would not only enhance employee retention and motivation but also strengthen the overall effectiveness of other labor management factors identified in this study.

The study further highlights that employees engaged in skill development initiatives report higher job satisfaction, as continuous training fosters adaptability and career growth (Cascio, 2003; Riampreecha et al., 2022). Additionally, workplace safety was identified as a key determinant of QWL, consistent with findings emphasizing the critical role of risk mitigation and hazard prevention in enhancing employee productivity and reducing occupational stress (Sirimongkol, 2021; Chatterjee, 2018). Strong labor relations management also contributes to organizational trust, ensuring effective communication and collaboration, which are essential for employee retention and workplace harmony (Turner, 2017; Javed et al., 2019). Furthermore, research on outsourced employees suggests that financial vulnerability is prevalent, particularly among workers with lower educational attainment and limited income, underscoring the necessity for better financial planning and support systems within organizations (Sukcharoen, 2020; Promthat & Veerayannon, 2021). Overall, the study affirms that organizational features and labor management factors collectively shape QWL, with larger, well-established organizations providing employees with greater stability, enhanced workplace conditions, and career development opportunities, thereby fostering long-term job satisfaction and business sustainability.

From examining the labor management methods of outsourcing contractors that affect the quality of work life of outsourced workers inside the energy system of the PEA, the findings reveal that labor management methods employed by outsourcing contractors significantly influence the quality of work life (QWL) of outsourced workers within the energy system of the Provincial Electricity Authority (PEA). Among the key labor management factors, workplace safety management emerged as a critical determinant of employee well-being, underscoring the importance of providing a secure working environment and mitigating occupational hazards (Sirimongkol, 2021; Chatterjee, 2018). Outsourcing organizations that prioritize safety initiatives foster higher job satisfaction and lower stress levels, contributing to overall employee stability. Additionally, income administration and welfare management play a substantial role in ensuring financial security for outsourced employees, although findings indicate a gap between compensation structures and employee expectations (Smith, 2019; Fitzgerald, 2024). While fair wages and benefits enhance productivity and motivation, inadequate compensation may lead to dissatisfaction and hinder workforce retention. Labor protection measures, such as adherence to labor laws and enforcement of fair employment practices, further support workforce stability by safeguarding workers' rights and maintaining a balanced work-life dynamic (Laosaensuk, 2019; da Silva & Amaral, 2019). The findings suggest that organizations that prioritize labor protection cultivate trust and foster higher employee engagement. Strong labor relations management is another influential factor, as positive workplace relationships and open communication channels enhance collaboration and reduce turnover rates (Turner, 2017; Javed et al., 2019). Organizations with effective labor relations strategies tend to experience higher job commitment and employee satisfaction.

Furthermore, skill development management remains a crucial driver of long-term employment sustainability, equipping outsourced employees with the necessary competencies to adapt to industry demands and technological advancements (Cascio, 2000; Rodrigues et al.,

2021). Workers engaged in continuous learning opportunities exhibit higher motivation and career stability, reinforcing the long-term benefits of investment in training programs. The results highlight that outsourcing contractors with structured labor management approaches are more effective in improving QWL, with workplace safety and skill development management being particularly impactful (Onputtha et al., 2023; Sutaguna et al., 2023). However, while organizations demonstrate a commitment to these areas, challenges persist in meeting employee expectations regarding income administration and welfare (Promthat & Veerayannon, 2021; Piyaporn Promthat, 2021). Addressing these gaps through equitable compensation policies and enhanced welfare programs would further enhance the overall QWL of outsourced employees. Ultimately, the study underscores the necessity for outsourcing contractors to adopt comprehensive labor management strategies that integrate safety, fair wages, legal protections, positive workplace relations, and continuous skill development to foster a more stable and productive workforce (Cascio, 2003; Herzberg et al., 1959).

The findings of this research offer both practical and theoretical implications for labor management and the quality of work life (QWL) of outsourced employees in the energy sector. Practically, the study highlights the need for outsourcing contractors to implement structured labor management strategies that prioritize workplace safety, fair compensation, skill development, and strong labor relations. Organizations that invest in safety measures and continuous training programs can enhance job satisfaction, reduce employee turnover, and improve overall workforce productivity. Addressing wage disparities and enhancing welfare policies are also critical for increasing employee retention and financial security. Furthermore, ensuring compliance with labor protection laws strengthens trust and fosters a stable work environment. Theoretically, this research reinforces the relevance of motivation and labor management theories, particularly Herzberg's Two-Factor Theory, which suggests that both hygiene factors (such as salary and job security) and motivators (such as career development opportunities) influence job satisfaction. Additionally, the study contributes to organizational commitment literature by demonstrating how effective labor management practices improve employee engagement and long-term workforce stability. By bridging theoretical insights with real-world applications, this research provides valuable guidance for policymakers, business leaders, and HR professionals in designing sustainable labor policies that enhance both worker well-being and organizational success.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

This study, while providing valuable insights into labor management and the quality of work life (QWL) of outsourced employees in the energy sector, has several limitations that open avenues for future research. One key limitation is its focus on general labor management factors without examining the impact of technological advancements in electrical systems. Future research could analyze how the adoption of new technologies or innovations influences workplace safety, operational efficiency, and overall QWL among outsourced employees. Additionally, this study does not account for organizational culture and internal communication systems, which play a crucial role in shaping job satisfaction and minimizing conflicts between outsourced and regular employees. Exploring these aspects in future studies could provide deeper insights into how strong communication frameworks and an inclusive organizational culture contribute to workforce cohesion and productivity.

Another limitation is the study's reliance on cross-sectional data, which may not capture long-term changes in labor management practices and employee well-being. Longitudinal studies could provide a more comprehensive understanding of how sustained improvements in labor policies impact outsourced employees over time. Furthermore, expanding research to include different industries or multinational outsourcing contexts could enhance the generalizability of the findings. Addressing these gaps would offer a more holistic perspective on improving labor management strategies and fostering a more equitable and sustainable work environment for outsourced employees.

CONCLUSION

The Provincial Electrical Authority's outsourced workers' quality of work life (QWL) management is illuminated by this study. Safety, welfare, income, labor protection, labor relations, and skill development affect QWL. Most importantly, workplace safety contributed to job stability, professional growth, and decreased workplace dangers. However, welfare and income still limit employee motivation and happiness, highlighting the need for improvements. Maintaining employment standards and perks fosters work-life balance. Strong labor relations support cooperation and organizational commitment, while skills development boosts employee potential and work flexibility. According to the findings, firms should emphasize the full development of these measures, focusing on outsourced employee skills and welfare. Employment security and workplace efficiency depend on this.

CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest found in this research.

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