ASSESSING THE PERFORMANCE OF CONSTRUCTION WORKERS IN PENINSULA MALAYSIA

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ABSTRACT

Manpower is the most valuable asset in the construction industry. Workers' performance is an important factor contributing to the timely completion and success of a construction project. The construction industry in Malaysia is labour intensive. Unfortunately, most empirical studies have revealed that the output of the industry is quite low when compared with many developed countries. This paper assesses the performance of construction workers in Peninsula Malaysia and finds some useful measures which would contribute towards its improvement.

Keywords: *Performance, construction workers, Peninsula Malaysia*

INTRODUCTION

Construction Industry is one of the most labour intensive industries (Rowlinson and Walker, 1995, and Agapiou et. al, 1995). Gilleared (1992) indicated that, in some construction projects, the cost of construction workers make up 30% - 50% of the overall project cost, thus construction workers cost make up a fairly good portion of the total cost of a project. Since construction workers constitutes a large part of the construction cost and the quantity of construction workers hour in performing a task in construction is more susceptible to the influence of management than are materials or capital, improvement of construction worker's performance should be a major and continual concern to achieve the project objectives. Construction workers performance is an important factor contributing to the timely completion and success of a construction project.

Several studies have been undertaken on construction worker performance in Malaysia, Singapore, Hong Kong and other state in Southeast Asia with the view to find measures which would contribute towards its improvement. A research conducted by Abdul Kadir et. al (2005) focused on factors affecting construction worker's performance for Malaysia Residential Projects. A study was carried by Narayanan et. al (2006) to compare the construction workers productivity in the project with published data of productivity from other countries. The result showed that most of the construction worker's productivity rates and performance are generally competitive compared to India and Australia. Ofori and Chan (2006) had conducted a paper which focuses on the factors which contribute to the current level of performance of the construction industry, and those which lead to its improvement.

Some studies had shown that productivity of construction workers on site are relatively low since in some cases it has been found that waiting or other idle time consumes 30% of the work day. Ogunlana and Olomolaiye (1992) noted that on the average, workers spend approximately half of their working day, after allowing for lunch breaks and absences on productive work; while the remaining time is not spent directly on production but rather on waiting, receiving instructions and idling.

Therefore assessing the performance of construction workers in Peninsula Malaysia is important in identifying the criteria of a good construction worker, identifying the factors that affect the construction workers performance and to formulate recommendations to improve construction worker's performance.

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WHO IS THE CONSTRUCTION WORKERS?

Construction worker are worker skilled in building offices or dwelling. Bureau of Labour Statistics of U.S Department of Labour had given introductions and explanations about the characteristics of construction workers in Occupational Outlook Handbook. The construction workers characteristic are based on the Nature of Work, Working Conditions, Education & Training Requirements and Construction Trades.

AN OVERVIEW OF MALAYSIAN CONSTRUCTION INDUSTRY

A study conducted by Standards and Industrial Research Institute of Malaysia (SIRIM) for Department of Standards Malaysia (DSM) in 2002 cited that Malaysia is still catching up to international levels of development of developments in the areas of standards for building and construction materials, building and civil engineering. To continuously enhance the level of productivity and quality, the Malaysia construction industry will need to address the inability to attract and develop local workforce for the industry mainly due to the "Dirty, Dangerous and Difficult" image of the image.

The construction industry in Malaysia provides job opportunities to approximately 900,000 people in 2005 which is equivalent to 9% of total workforce in Malaysia (refer table 1). However there is still heavy dependence on foreign worker especially from Indonesia, Myanmar, Bangladesh and the association of Southeast Asian Nations (ASEAN) region.

Table 1: Employment by Sector, Year 2001 – 2005

YEAR	CONSTRUCTION WORKERS	TOTAL WORKFORCE IN MALAYSIA	CONSTRUCTION AS % OF TOTAL WORKFORCE
2001	846,000	9,535,500	8.9%
2002	905,100	9,542,600	9.5%
2003	942,500	9,869,700	9.5%
2004	890,800	9,979,500	8.9%
2005	904,400		

Source: Department of Statistic Malaysia : Yearbook of Statistic 2006

A study by Malaysia Government (2003) also found that foreign workers are predominantly young and unskilled., 67% did not have any formal training or possessed only a primary education. As seen in table 2, unskilled (general) workers make up almost half of the total workers registered with CIDB and outnumber semi- skilled and skilled workers by more than two to one.

Table 2: Workers Registered with CIDB (as of June 2007)

TYP	NUMBER REGISTERED WITH	PERCENT OF TOTAL
General Workers	388,71	50.6
Semi-skilled workers	40,65	5.3%
Skilled Workers	118,26	15.4
Site Supervisors	69,68	9.0%
Construction Managers	46,54	6.0%
Administration Personnel	105,09	13.7
TOTAL	76895	100

Source: Department of Statistic Malaysia; Yearbook Statistic 2006

Since the construction industry use of unskilled worker has several effects on productivity, there will always be a need for assessment of those construction workers to track their performance and identify the factors contributing to declining performance of the Malaysian Construction Industry. From the feedback of assessment, some useful measures which would contribute towards its improvement can be formulated

PERFORMANCE MEASUREMENT

Performance measurement provides a review of how well employees are able to meet expectations. Different techniques performance measurements have been developed, the specific technique used depends on the type of work being evaluated and the performance measures chosen must reflect the nature and complexity of the job duties.

Campbell (1999) admitted that performance measurement by a manager is based on a combination of both objective and subjective data; it is about 'shaping' rather than 'grading' behaviour. So, managers should talk to their employees about what they are doing both positive and negative on a regular basis. Employer has to let people know what he expects of them.

According to Brewer and Skinner (2003), there are some determinants of effective performance. A simple scheme that can be useful for understanding the diverse influences on performance is to consider three important factors, they are 'can do (personal capacity)', 'will do (motivation)', 'opportunity to do (work environment)',

Can do (personal capacity) is related to worker knowledge, skills, abilities and other personal capacities form the foundation of effective performance such as ability, health, intelligence and confidence.

Will do (motivation) refers to an individual's desire to achieve certain standards of performance and to achieve particular outcomes. High motivation contributes to effective performance and is driven and sustained by perceptions that work is meaningful and significant; confidence that a task or role can be performed successfully; clear performance standards, expectations or goals, and availability of performance feedback, and perceptions those fair and adequate rewards such as pay, status, promotion are provided.

Opportunity to do (work environment) refers to the factors that facilitate or inhibit effective performance include tools, materials and equipment, working conditions, actions of co-workers, leader behaviour such as clarifying roles, providing rewards for performance, organizational policies, rules and procedures, availability of required information, and time availability. The most skilled and motivated workers will not be able to perform effectively unless their work environment maximise supports and minimise constraints.

CRITERIA OF A GOOD CONSTRUCTION WORKER

There are several criteria and it is very subjective. Quality of work, quantity of work, initiative and resourcefulness, job skill and ability, work habits and teamwork and cooperation are the main criteria for a good construction worker.

Quality of work refers to effort that consistently achieves desired outcomes with a minimum of avoidable errors and problems. It considers thoroughness, accuracy, neatness, completeness and the need to review the workers for error.

Quantity of work considers the extent to which the worker accomplishes assigned work of a specified quality within a specified time period. It also considers the worker's ability to manage multiple assignments simultaneously, and handle normal and/or substantial work loads.

Table 3: Measures of Quality of Work

MEASURES	DESCRIPTIONS
Accuracy	The extent to which work is free from errors or omissions
Thoroughness	The extent to which work is completed with all details covered avoiding the necessity to perform further work to complete it.
Neatness of Work Product	The extent to which a finished work product exceeds the acceptable standard for legibility, cleanliness and orderliness
Oral Expression	The extent to a worker is capable of verbally expressing himself or herself clearly, concisely and effectively to others.
Written Expression	The extent to which a worker is capable of expressing his or her thoughts in writing in a logical manner and sequence using appropriate grammar, punctuation and sentence structure

Table 4: Measures of Quantity of Work

MEASURES	DESCRIPTIONS
Amount of Work performed	The volume of work produced in relation to the amount of work requiring completion or attention
Completion of work on Schedule	The extent to which an employee completes work within given or reasonable time limits
Efficiency	Completes tasks in an effective and timely manner and adheres to policies for attendance and punctuality.

Initiative and resourcefulness is the ability and willingness of a worker to think and act without being instructed in great detail. It is a measure on the degree to which the worker demonstrates independent action and resourcefulness on the job by developing new methods, offering constructive suggestions and/or seeking additional work.

Table 5: Measures of Initiative and Resourcefulness

MEASURES	DESCRIPTIONS
Creativity and Innovation	The extent to which the worker develops new ideas, alternative methods, suggests different procedures, enhancements to existing conditions and overall improvement within his / her area of responsibility
Accountability	The extent of personally accountable for his actions and seeks and assumes additional responsibilities.
Independence	The ability of a worker works effectively and efficiently with minimal supervision. Enthusiasm The extent to which a worker displays readiness and energy to undertake new and possibly taxing projects

Job skills and ability is the measure of a worker understanding of job duties and ability to accomplish job. It is the extent to which the worker knows and demonstrates how and why to do all phases of assigned work, given the worker length of time in his or her current position.

Table 6: Measures of Job Skills and Ability

MEASURES	DESCRIPTIONS
Job Understanding	The degree to which the worker perceives clearly and fully the nature and functioning of his/her job in the organizational setting and assignment
Job Knowledge and Skills	The extent to which the worker possesses the knowledge or skill to perform the job.
Analytical Ability	The ability to analyze facts, arrive at alternative solutions and provide acceptable recommendations
Judgment	The ability to interpret correctly a situation and make sound evaluations as demonstrated by practical decisions and their results.
Initiative in Work Improvement	The extent to which the worker applies himself or herself to their responsibilities and seeks to improve the level of work by initiating action on their own to accomplish the task without direction.
Supervision Required	The amount of supervision needed to assure that the worker will perform his or her assigned duties in an acceptable and timely manner.
Physical Condition	The extent to which the worker is physically capable of performing more strenuous aspects of the job.

Work habits consider the extent of worker display positive, cooperative attitude toward work assignments and requirements as well as consider extent of worker with established work rules and organizational policies.

Table 7: Measures of Work Habit

MEASURES	DESCRIPTIONS
Observance of Working Hours	The extent to which a worker deviates, without permission being prompt and/or present during designated work periods
Attendance	The extent to which the worker absences himself or herself from the job.
Observance of Rules and Procedures	The extent to which a worker follows established departmental rules and procedures.
Follows Instructions	The ability to perform according to written on verbal instructions
Plans and Organizes Work	The ability to develop an approach to work which will effectively utilize time, material and staff hours in an equitable manner to achieve the greatest results with a minimum of time and effort
Coordinating With Others	The extent to which the employee organizes his or her work activities to operate harmoniously with the work of others to achieve the best possible results for all.
Attention to duty	The extent to which a worker accomplishes work goals with a minimum amount of time and effort.
Care of Equipment	The extent to which equipment is properly expanded, used and cared for.
Exercise Proper Safety Practices	The extent to which the worker practices rules of safety to protect self and others.

Teamwork and cooperation consider how well worker establishes effective working relationships when dealing with supervisor, co-workers and/or the public.

Table 8: Measures of Teamwork and Cooperation

MEASURES	DESCRIPTIONS
Acceptance of Supervision	The manner in which the worker carries out orders or suggestions relating to specific tasks or recurring responsibilities
Getting along with Fellow Workers	The extent to which the worker willingly cooperates with other workers when the job requires it. Other workers include those within the unit, division and department as well as those from other departments.
Meeting and Handling the Public	The effectiveness of the employee in relating to the public for the mutual satisfaction of both in carrying out in specific responsibilities

MOTIVATING FACTOR AFFECTING PERFORMANCE

Motivation is the set of forces that causes people to engage in one behaviour rather than some alternative behaviour (Brewer and Skinner, 2003). DeCenzo and Robbins (1996) defines motivation as 'the willingness to do something, conditioned by the action's ability to satisfy some need and people are motivated through expectations for rewards they value'. Motivation is the inner force that drives individuals to accomplish personal and organizational goals.

Bittel and John (1990) gave his opinion that 'Employee performance is greatly influenced by the workers expectancy of what the job will provide their attitudes toward personal achievement and advancement, and their wish for harmony in workplace'. Hill (1979) stated that 'the amount of opportunity people see in their jobs has a direct relationship to their job performance'.

Understanding the factors that affect employee motivation is a complex process. It involves the unique feelings, thoughts and past experiences of each individual as we share variety of relationship within and outside the organization. Besides that motivation can also be provided by allowing workers to participate in the goal setting activities, the goals must be conceivable, believable, controllable, measureable and desirable. "Workers respond best when they are given broader responsibilities, encouraged to contribute and helped to take satisfaction in their work' (Catt and Donald, 1989).

DE-MOTIVATING FACTORS INFLUENCING PERFORMANCE

Many researchers had conducted research on the factors influencing construction workers' performance. Various factors have been identified by different researchers from the time aspect in different construction industries in different countries i.e. Thailand (Makulsawatudom et al, 2002), Indonesia (Kaming et al. 1997), Singapore (Lim and Alum, 1995), Iran (Zakeri et. al, 1996), Higeria (Olomolaiye et. al, 1987) and USA (Motwani et. al, 1995).

Most of the writer in the opinion that lack of material, design changes, lack of tools and equipment, absenteeism at the workplace, poor communication, poor site layout, inspection delay, rework, inclement weather and physical site consitions are the most significant factors that affect the construction worker' performance and productivity in those countries (see table 9).

Table 9: Significant factors affecting Worker Performance in Thailand, Indonesia, Singapore, Iran, Nigeria, and USA

FACTORS	COUNTRIE					
	Thailand	**Indonesia**	**Singapore**	**Iran**	**Nigeria**	**USA**
Lack of Materials	_/	_/		_/	_/	_/
Design Changes	_/			_/		_/
Lack of Tools and	_/	_/		_/	_/	_/
Absenteeism at the	_/	_/	_/	_/	_/	
Poor Communication	_/		_/			
Inspection Delay	/			_/	_/	
Rework	_/	_/	_/	_/		
Physical Site Conditions	_/			_/		_/
Inclement Weather				_/	_/	_/

RESEARCH METHODOLOGY

The research adopted four principle methods namely literature review, questionnaire survey, interviews and case study were used for the study. A thorough literature search for either primary sources or secondary sources was conducted through academic research journals, proceedings, dissertations, occasional papers, publications, textbooks, newspaper and online database. Referring to previous research design also enables the author to grasp the problems and issues related to the topic of study and provide important insight to the author on how to design an efficient research study.

Questionnaire survey is the main research methodology used to achieve the research objectives. Two hundred and fifty (250) sets of questionnaires were distributed to targeted respondents in Kuala Lumpur and Selangor state by post and via the internet. The questionnaire contains seven (7) questions with i contingency question (question2), 1 open-ended question (question 3) and the rest are multiple choice questions. Targeted respondents ranging from consultant firms, and contracting and they were chosen randomly from various professional organizations which representing their respective professions.

Data obtained from the returned questionnaire was sorted out and analyzed using SPSS Version 11.5. Ultimately, conclusions were drawn up to summarize the data gained from questionnaire survey and literature review.

FINDINGS

Two hundred and fifty (250) questionnaires were distributed and the rate of return was 15.2%. All questionnaires ad been distributed around Kuala Lumpur and State of Selangor.

COMPANY AND THE RESPONDENT PROFILE

The survey result shows that 47.4% are from Contractor Firm, 31.6% from Quantity Surveying Firm, and 18.4% from Architectural Firm. Respondent from Contractor Firm are selected from Grade 4, 5, 6 and 7 who registered with CIDB. In total 18.8% are from Contractor Grade 4, 31.3% are from Contractor Grade 5, 31.3% from Contractor Grade 6 and 18.8% are from Contractor Grade 7.

Most of the respondent involved with building works. 81.6% involved with housing Project, 78.9% office buildings, 47.4% shopping Malls are less involved in civil engineering works i.e highways 31.6%, bridges 28.9% and tunnels 13.2%.

Most of the respondents are from experienced construction companies with 15 years and above. Only 6 respondents are from the new construction companies where having experiences less than 5 years.

EVALUATION OF CONSTRUCTION WORKERS' PERFORMANCE

All respondent are required to assess the performance of construction worker based on 6 main criteria, they are quality of work, quantity of work, initiative, job knowledge, work habits and teamwork and cooperation. The respondents have to evaluate by giving answer in a form of scale from 1 to 5. 1 refers to unacceptable, 2 refers to Improvement Needed, 3 refers to Meet Expectations, 4 refers to exceeds Expectations and 5 refers to Outstanding.

Table 10: Measures on Quality of Works

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Work is through and accurate	38	2	4	2.76	0.590
Work is organized and presented	38	2	4	2.87	0.704
Work product is free of flaws and	38	2	4	2.79	0.664

Table 11: Measures on Quantity of Works

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Complete works assigned	38	2	5	3.24	0.714
Complete works on time	38	2	5	2.95	0.769
Works quickly and efficiency	38	1	5	2.95	0.804
Performs well under pressure	38	2	5	2.84	0.718
Work output matches the expectations established	37	2	5	3.05	0.815

Table 12: Measures on Initiative

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Accept new tasks	37	2	5	2.86	0.787
Assumes responsibility for	38	1	4	2.76	0.714
Works independently when Appropriate	38	2	5	2.97	0.753
Actively seeks new assignment	38	1	5	2.68	0.962

Table 13: Measures on Job Knowledge

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Degree of technical knowledge	38	2	5	3.21	0.811
Understanding of job procedures	38	2	5	3.16	0.789
Applies standard procedure	38	2	5	3.03	0.636
Demonstrates the knowledge and skill necessary to	37	2	5	3.16	0.800
Understands the expectations of the job and stays current with new technologies, methods	38	2	5	3.00	0.959

Table 14: Measures on Work Habits

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Attends work regularly	38	2	5	3.34	0.815
Arrives to work promptly	38	2	5	3.21	0.843
Adjust to changing	38	2	5	3.08	0.784
Embrace positive change	38	2	5	3.11	0.798
Comply with instructions	38	2	5	3.50	0.726

Table 15: Measures on Teamwork and Cooperation

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Is willing to work with others	38	2	5	3.24	0.786
Is able to work with others	38	2	5	3.34	0.781
Set group success as priority	38	2	5	2.97	0.788
Shows concern for others	38	2	5	2.97	0.716
Earns respect & confidence of Others	38	2	5	3.16	0.855

On quality of works (refer table 10), the mean range from 2.76 to 2.87. The average mean is 2.81. It shows that the perspectives of the respondent on construction worker's performance on quality of work are all just nearly to meet expectation (at the scale 3).

Table 11 shows the data collection for quantity of works. The mean for quantity of works range from 2.84 to 3.24. The average mean is 3.00 which is fall under the scale of 'Meets Expectations'.

Whereas under the initiative criteria (refer table 12), the result shows that the scale is nearly to meet expectations. The mean for this criteria range from 2.68 to 2.97 with the average mean 2.81.

There are five categories under the job knowledge criteria (refer table 13) and the mean are range from 3.00 to 3.21 with an average 3.11. Therefore most of the respondent in the opinion that the job knowledge for the construction worker are meets expectation (at the scale 3).

As for work habits criteria (refer table 14), the mean range from 3.08 to 3.50 with an average mean of 3.25. All measures above 'meets expectations' and nearly to 'exceeds expectations'.

And for the last criteria (refer table 15), the mean range from 2.97 to 3.34 with an average mean of 3.14. All measures above 'meets expectations' and nearly to 'exceeds expectations'.

MOTIVATING FACTORS THAT EFFECT CONSTRUCTION WORKER'S PERFORMANCE

For this category all respondent are required to give scale on the motivating factor that already list out in questions. The scale for Motivating factors that effect construction workers' performance are also range from 1 to 5. I refers to Strongly Disagree, 2 refers to Disagree, 3 refers to Average, 4 refers to Agree and 5 refers to Strongly Agree. The results are as per Table 16.

Table 16 – Measures on Motivating Factors

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Job Security	38	2	5	3.66	0.781
Recognition for doing a good	38	2	5	3.45	0.795
Adequate compensation	38	3	5	3.68	0.620
Fringe benefits	38	2	5	3.58	0.642
Loyalty and fairness of Management	38	2	5	3.58	0.826
Good team working	38	2	5	3.71	0.835
Pleasant physical working Environment	38	2	5	3.53	0.687
Clear instruction and guidance	38	3	5	3.87	0.623
Interesting and challenging	38	1	5	3.29	1.037
Task which best make the best use	38	2	5	3.53	0.797

The mean for Motivating factor range from 3.29 to 3.87 with an average mean 3.59. The result shows that all respondent are agree with the motivating factor that affects the construction workers performance.

DE-MOTIVATING FACTORS THAT AFFECT CONSTRUCTION WORKER'S PERFORMANCE

For this category all respondent are required to give scale on the de-motivating factor that already

list out in questions. The scale for de-motivating factors that effect construction workers' performance are also range from 1 to 5. I refers to Strongly Disagree, 2 refers to Disagree, 3 refers to Average, 4 refers to Agree and 5 refers to Strongly Agree. The results are as per Table 17.

The mean for de-motivating factor range from 3.13 to 3.74 with an average mean 3.47. The result shows that all respondent are nearly agree with the measures for de-motivating factor that affect the construction workers performance.

Table 17: Measures on De-motivating Factors

MEASURES	VALID	MINIMU	MAXIMU	MEAN	STD DEVIA.
Lack of trades' skill	38	2	5	3.68	0.775
Waiting for materials	38	2	5	3.34	0.909
Lack of tools and equipment	38	2	5	3.39	0.887
Poor Construction methods	38	2	5	3.42	0.948
Project uniqueness	37	1	5	3.14	0.787
Tools and equipment	37	2	5	3.27	0.871
Repair on finishing works	38	1	5	3.21	0.811
Overcrowding	38	2	5	3.13	0.741
Poor communication	38	1	5	3.66	0.909
Lack of training	38	2	5	3.74	0.891
Language barriers	38	2	5	3.74	0.795
Lack of teamwork	38	2	5	3.53	0.862
Design change	38	2	5	3.61	0.790
Delays in schedule	38	2	5	3.66	0.781

RECOMMENDATION TO IMPROVE THE PERFORMANCE OF CONSTRUCTION WORKERS

There are 14 recommendations proposed for this questions.. For this category all respondent are required to give scale on the recommendations to improve the performance of construction workers factor that already list out in questions. The scale for recommendations to improve the performance that effect construction workers' performance are also range from 1 to 5. I refers to Strongly Disagree, 2 refers to Disagree, 3 refers to Average, 4 refers to Agree and 5 refers to Strongly Agree. The results are as per Table 18.

Table 18: Recommendations to Improve Construction Worker's Performance

MEASURES	VALID	MINIMU	MAXIMU	MEAN	
Training Programme	38	1	5	3.84	0.823
Financial Incentive	38	1	5	3.71	0.984
Recognition	37	1	5	3.73	0.804
Punishment	38	1	5	3.05	1.038
Role perception	38	1	5	3.29	0.768
Materials and components	38	1	5	3.45	0.795
Plant and equipment	38	1	5	3.55	0.860
Quality of supervision	38	1	5	3.89	0.798
Working condition	38	1	5	3.71	0.768
Time management	38	1	5	3.76	0.883
Communication	37	1	5	3.81	0.845
Greater co-ordination of design and	38	1	5	3.87	0.906
Avoid rework	38	1	5	3.61	0.855
Research	38	1	5	3.29	0.835

The mean for recommendation to improve range from 3.05 to 3.89 with an average mean 3.61. The result shows that all respondent are agree with the recommendations to improve construction workers' performance.

BENEFITS GAINED FROM THE IMPROVING THE CONSTRUCTION WORKERS' PERFORMANCE

Most of the respondent agree that they will get benefit from the improving the construction workers' performance. The respondent agree that performance improvement will bring down the construction cost, will enhance the competitiveness of the company, better quality of work and higher safety on construction site. All respondent disagree that performance improvement will not bring any benefits to the company employees or construction workers.

The data were analyzed using the computer software - Statistical Package for Social Science (SPSS 11.5). The approaches used under SPSS are Frequency Analysis and Descriptive Analysis. The main purpose in choosing

SPSS analysis technique is to provide clear and non-technical formats for common statistical procedures. It is also widely available and covers a broad spectrum of statistical procedures.

CONCLUSIONS

The findings of the research indicate that overall performances of construction workers in Malaysia are just meet the basic expectations of many contractors, project managers and supervisors. The average mean or their performance under various criteria is 3.04, their performance are average and moderate.

Throughout the assessment, construction workers in peninsula Malaysia are more superior in complying with instructions given by the contractors, project managers, construction consultants, supervisors and foreman. They are also able to follow oral instructions, read, interpret and follow written instructions, construction sketches and equipment manuals.

On the sides, construction workers in Peninsula Malaysia are weak in producing accurate and thorough works. Rework and repair on finishing works usually unavoidable in most construction sites in Peninsula Malaysia. Such activities can adversely affect the project performance, productivity and the profit margins of organizations participating in a construction project.

Clear instructions and guidance from supervisors, adequate compensations, job security, fringe benefits and loyalty and fairness o management are the top five significant motivating factors which drive constructions workers in Peninsula Malaysia to a better performance and productivity.

Construction workers prefer clear instructions on how to perform jobs, supervisors should give their clear instructions, explaining the rationale of the job and guiding the workers on how the jobs need to be done. Compensation is what construction workers receive in exchange of their contribution to the construction works. With adequate compensation according to their skills and capabilities, workers are more willing to perform well in jobs.

Construction workers are attracted to and willing to stay with construction companies if they feel they will have a job if they do their works properly. Constructions workers with job security are also more willing to be innovative and take risks or the construction company. A lack of job security decreases satisfaction, commitment and involvement in construction sites.

Fringe benefits are compensations made to construction workers beyond the regular benefit of being paid for their works. Offering health insurance to construction workers, where the workers pay part of the insurance is a typical example of fringe benefits that can be provided y construction companies to motivate the construction workers. Besides that it must be equality o works, pays, hours ad treatments given by supervisors to every construction workers in order to motivate them, favouritism becomes a de motivator and it may lower performance substantially.

The research also indicates that the most significant de-motivating factors affecting the performance o construction workers in Peninsula Malaysia are lack of training programs,

language barriers between supervisors and workers, lack of trade skill, delays to schedule and poor communication. On the other hand, the recommendations proposed by respondents that can improve construction workers'performance are good quality of supervision, greater coordination of design and construction phases, training programs prepared by government and contractors, better communication between supervisors and workers and good time management.

In conclusion, development of the construction industry's human resource capabilities such as construction workers performance has become necessity because productivity, quality and innovation are becoming increasingly important for the Malaysia construction industry.

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