The Impact of Motivation Factors on Performance of Public Construction Projects in Yemen [1]

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ABSTRACT

Human factors seem to be not highly respected in construction projects in Yemen. Construction project managers and contractors focus on the technical skills of project key individuals. However, less attention is paid to their capabilities of managing project people. This study is to identify motivation factors that most significantly impact the performance of public construction project performance. The data were collected through a questionnaire from 91 construction project team members representing 18 project teams executed by 18 first-class construction companies in Yemen. The relative importance index (RII) was determined the most significant motivation factors. In addition, multiple regression analysis used to find the influence of motivation factors. The top motivational factors ranked by companies' managements were; (1) relationship with colleagues, (2) advancement, (3) work itself, and (4) achievement. Among the 10 motivational factors investigated, only three motivational factors- achievement, appreciation and relationship with colleagues- significantly influence the time performance of construction projects. The findings imply that the time performance of construction projects will be improved if motivation factors are properly applied in construction project environment. The study recommended proper handling of motivation factors which are a part of human factors for achieving improved project time performance.

Keywords: Motivation factors, Human factors, Construction, Public Projects, Project performance, RII, Yemen.

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1. INTRODUCTION

The construction industry in Yemen is suffering from poor performance leading to time and cost overruns. Most local projects in Yemen always experience cost overruns and delays. Certainly, there are high rates of cost and time overruns due to the project delays, inadequate documentation, shortage of resources, poor planning, unstable prices and decreased contribution to the socio-economic growth in the country (Najib et al 2018; Gamil and Rahman 2020; Sultan and Alaghbri 2020; Alaghbari et al 2018; and Kassem et al. 2020).

Previous studies by (Alaghbari et al. 2018; Alaghbari and Sultan 2015; Najib et al. 2018; Gamil and Rahman 2020; Sultan and Alaghbari, 2017; Kassem et al. 2020) indicated that the Yemeni construction sector is facing many challenges and problems. The methods of building have been quickly changing from traditional to modern methods of building. This is considered a major challenge facing the construction industry in Yemen. As a result, the industry has been incapable of meeting the requirements of the increasing modern forms of construction management. In addition, Gamil and Rahman (2020) and Alaghbari et al (2018) found that some of the problems that the construction industry in Yemen is facing are the insufficient use of materials, unfair competition among contractors, poor planning, lack of highly skilled labor, limited funding, poor management and supervision, and lack of efficient human resources management. The failure of the Yemeni construction industry is associated with many factors that accumulate to the current state of the construction industry (Najib et al. 2018). Many governmental financed projects have been suspended or failed to achieve their initial plans and thus made a financial burden to the industry and the expansion of urbanization Sultan and Alaghbari (2018) and Alaghbari et al (2018). Gamil and Abdul Rahman (2020) identified the factors of failures which comprised of five different categories which included management and leadership related factors (MLF) and human resources related factors (HRF).

Many construction projects in Yemen experience poor performance leading to project delays due to neglecting the human factors in project environent. Many construction projects in Yemen do not meet their time goals. According Alaghbari & Sultan (2015) and Alaghbari et al., (2018) and the construction industry in Yemen experiences project delays. Besides, Al Seraji (2010) found that 91% of building projects experience delays. Due to such delays, contractors incur much costs and thus their profits decraase.

To sum up, the construction industry is a major industry in Yemen, like any other developing country. The industry suffers from poor performance due to many challenges and difficulties. This study assumes that a better understanding of motivational factors which part of human factors

that influence project performance will help in better management of project people and thus enhancing the project performance.

The study findings will help in improving project performance by maximizing the project individuals' output. Additionally, it will help project managers to manage project people properly by motivating them, building effective project team working with minimum team conflict to improve project performance and overcoming the problems related to workers' behaviors.

2. LITERATURE REVIEW

2.1 The construction project performance

Project performance is defined as "*an evaluation of how well individuals, groups or organizations have done in pursuit of a specific objective*" (Ankrah 2007). Project performance is also defined as *"a construct that measures the extent of successful completion of project*" (Cheng et al. 2012). Furthermore, Kibuchi (2012) defined project performance as *"the scale of completion of a project within the original set budget or set cost target (contract sum), the set of specifications or the standards of workmanship, the contract period, client satisfaction and environmental sustainability."*

Many researchers have extensively studied construction project performance. The successful completion of construction project is related to its performance. The construction project is successful if the project goals of time, cost and quality are achieved (Omran et al. 2012). However, Ashraf & Rowlinson (2015) citing Cheng et al. (2012) stated that the concept of successful project performance is very subjective and its description depends on the study context.

Previous studies showed that human factors significantly influence construction project performance. For example, Orando (2013) considered human factors as critical sources of enhancing project performance. Kibuchi (2012) also found that human factors significantly help in improving construction project performance.

Orando (2013) studied the impact of human factors on the productivity of construction projects in South Africa, which were motivation, skill development, communication, leadership and organizational culture factors.

Previous studies indicate that motivation significantly influences organization's success. This view is in consistent with that of Yusoff et al. (2013) who stressed the importance of motivating employees for organization's success.

2.2 The motivational factors

This study will investigate the influence of ten motivational factors identified by Herzberg's theory: appreciation, achievement, work itself, advancement, relationship with colleagues, relationship with direct supervisor, job security, salary, company policy, and work conditions. These factors are briefly discussed below.

Appreciation

Previous studies by (Sekhar et al. 2013; Gido and Clement 2011; Kibuchi 2012; Orando 2013) emphasized the importance of appreciation to motivate construction project team members because people need to be respected and their achievements to be appreciated. In addition, appreciating employees for their good work significantly motivates them, makes them work harder, and to be more loyal to the company. Those studies suggested that appreciation positively drives the behaviours of project team members towards improving their performance. Therefore, literature stressed the significant impact of appreciation on employees' performance.

Achievement

Achievement motivation is defined as the ability that inspires people (Tatar et al. 2011). Venkatesan et al. (2009) identified achievement as the most significant motivator for project engineers in India, followed by appreciation. Also, Aiyetan and Olotuah (2006) found that achievement is ranked the second important motivator after salary in the construction industry in Nigeria.

Relationship with colleagues

Previous studies emphasized the importance of establishing good relationships between project team members to performance in construction projects as it contributes to improving communication and building respect among the project team members (Orando, 2013). According to Gido and Clements (2011), cooperative project team members are willing to help the team members who have difficulty in performing their tasks and hence improve their skills. In addition, Orando concluded that relationship with colleagues is ranked the fourth motivational factor influencing productivity of construction projects in South Africa.

Above studies indicate that good relationship with colleagues motivates project team members and positively directs their behaviours of being cooperative, willingness to help and respect colleagues and sharing information and ideas about work.

Work itself

The job that requires various skills to be done intrinsically motivates employee more than the task that needs only one skill Hackman & Oldham (1980). Therefore, the employees can be motivated by giving them tasks that require more skills so as to develop their skills and assist them to take more responsibility. The studies of Aiyetan and Olotuah (2006) and Venkatesan et al. (2009) concluded that the nature of job is the third most important factor to motivate construction workforce. Therefore, willingness to accept responsibility is a major behaviour that is positively directed by the work itself motivational factor.

Relationship with direct supervisor

Previous studies indicate that good relationship with supervisor significantly motivates project team members. For example, Kazaz et al. (2008) who emphasized the importance of supervising labours during project execution as poor supervision can cause project delay and cost overruns. Furthermore, Yisa et al. (2000) identified disrespect from supervisors as the highest demotivating factor of construction site managers in Iran.

Job Security

Sekhar et al. (2013) considered job security as a significant motivator especially for younger employees. Monese and Thwala (2012) found that job security is the most significant factor that influences construction workforce in South Africa.

Salary

According to Kazaz et al. (2008) salary is the main reason that forces an individual to work in a job due to its importance in satisfying the physiological needs that are the basic needs of people. Inadequate payment makes the construction workforce unsatisfied and this negatively affects their performance. In addition, Parkin et al. (2009) concluded that money is the most influential motivational factor for motivating construction workers in Turkey. Furthermore, Zakeri et al. (1997) found that money is the most significant motivating factor among the Iranian construction workforce.

To summarize, previous studies emphasized the significance of motivating construction workforce to achieve better project performance. The motivational factors that most significantly influence project performance are different from country to country. This may be due to the difference in employees' need in the different countries. Furthermore, motivation in project

environment positively affects the behaviours of construction project people towards improving their performance and thus enhancing project performance.

2.3 The impact of motivation on construction project performance

According to Kazaz et al. (2008) the productivity of construction project workforce is associated with motivating them. They also emphasized the significance of motivating workforce because the quality of their performance depends primarily on motivation. Therefore, motivation enhances the productivity of project workforce. Additionally, Jarkas et al. (2015) who identified motivation as a significant factor that significantly influences productivity in construction projects in Kuwait. Therefore, to increase the productivity of project workforce and hence improve project performance, project team members should be motivated.

Motivation significantly contributes to cost saving, improved productivity, the satisfaction of project people, and better quality of work. However, the absence of project team's motivation results in conflict among project team members. It also decreases productivity and may lead to a complete failure of meeting the project goals. A highly motivated project team always put exert efforts eagerly to make high-quality work and considerably contribute to achieving project goals (Verma, 1998).

Motivating project team is highly required for achieving timely completion of projects. Well-motivated workers are promoted to use their highest efforts and thus significantly play a vital role in achieving the timely completion of projects. Motivation inspires workforce to enhance their performance and hence improve project performance. Well-motivated employees exert more efforts towards achieving the firm's goals through good performance. They continuously look for better ways of efficient work execution to enhance performance. Therefore, project managers should understand the aspects of human behaviour to continuously motivate the project team members (Verma, 1996; Lawal & Okhankhuele, 2014).

In studying the influence of human factors on construction project productivity in South Africa, Orando (2013) emphasized the significant impact of motivating project people on construction project productivity. Of the five human factors investigated by the study, motivation was found to be the second human factor influencing project productivity. Also, the study identified 12 motivational factors and found salary to be the most influential motivational factor that affects the construction project productivity.

Martiz and Ogwueleka (2013) investigated the motivational factors that affect the behaviours of construction project individuals towards project success in Nigeria. The study used qualitative and quantitative approach and collected data from 63 construction practitioners representing 10

contractors. The study identified 33 motivational factors and concluded that motivation positively influences the project team's behaviour to improve the project performance. Using relative importance index, the study found that rewards, promotions and participation in decision making are the motivational factors that most significantly influence the construction people's behaviour towards achieving the highest project productivity and thus successful completion of project.
Lawal and Okhankhuele (2014) studied the influence of motivation on project execution in Nigeria. Having answers from 61 respondents through 14-item questionnaire and using regression analysis, their study concluded that motivating project team strongly positively related to project performance. The study also identified salary as the most influential motivational factor influencing project performance followed by recognition. Therefore, the project workforce must be motivated to enhance the construction project productivity.

Dwivedula and Bredillet (2009) investigated the relationship between motivation and project success in various industries. Their research studied the influence of five motivational factors (perceived equity, work climate, job security, employee development and objectivity). The correlation and regression analysis of the data collected from 199 project workers through questionnaire demonstrated a moderate to strong relationship between motivational factors and project success. However, their study did not investigate the influence of many motivational factors that have been considered by previous studies to have significant influence on project performance.

3. METHODOLOGY

The study used a quantitative research approach. It focuses on the influence of motivation factors (independent variables) on construction project performance (dependent variable).

The questionnaire was developed based on previous studies and used as a tool to collect data for this study. The respondents are requested to select construction projects executed in Yemen during the past ten years in which they were involved and answer the questionnaire based on their experience in the chosen projects. Likert scale was applied and used in the questionnaire to assess the individual´s opinion of the given questions. Rrespondents were required to score on Likert-scale from 1 - 5 points where: (1= strongly disagree to 5= strongly agree). These scales are 25-item scale measuring motivation developed by Tech-Hong and Waheed (2011). However, the dependent variable (project time performance) measured using the time measure using a 6 -item scale developed by Azmy (2012). The scales used in this study have acceptable validity because Cronbach's Alpha of all scales ranged between 0.838 and 0.95.

The population of this study was 67 construction companies which registered and classified as First Class Contractors in the Ministry of Public Works and Highways that executed construction projects in the last ten years. The respondents were selected in two stages. Forty construction companies included in the contractors' list were sampled in the first stage. Due to the current war in the country, the sample size was 18 contractors representing 45% of the study total population. In the second stage, at least 4 project team members who worked together in a project executed by each sampled contractor is targeted. The selected project team members include project manager, engineer, supervisor, project human resource manager, surveyor, etc. 115 questionnaires were received out of 135 questionnaires were distributed. Only 91 questionnaires were valid for analysis with response rate of 85.9%.

4. DATA ANALYAIA AND FINDINGS

Table (1) presents the descriptive analysis of project performance variables. The value of responses assessing the overall time performance of projects as perceived by the respondents is (RII =63%) which is moderate.

Table (1): Descriptive analysis of project performance

Rank	Factors	Mean	Std. Deviation	Percentage (RII)
1	Documentation and reports were prepared on time	3.52	1.12	70%
2	Dates of performing the main activities were clearly mentioned.	3.41	1.01	68%
3	Unforeseen conditions like site conditions were taken into consideration in the project schedule	3.15	1.20	63%
4	The team established a sense of urgency and adjustments were promptly made to maintain or improve the schedule When needed, the project schedule was quickly updated.	3.10	1.01	62%
5	The project time schedule was updated.	3.09	1.21	62%
6	The project was completed on time.	2.49	1.08	50%
	Project Performance	**3.13**	**0.74**	**63%**

The RII of "Documentation and reports were prepared on time" scored (70%) as the highest item affects Project performance followed with "Dates of performing the main activities were clearly mentioned" with (68%). However, "The project was completed on time" was scored (50%) as the lowest item. This indicates that the projects are poorly performing. This finding is in consistent with the findings of Al-Seraji (2010) who found that (91%) of construction projects in Yemen experience delays. This finding is also supported by the previous studies of Alaghbari and Sultan (2015), Alaghbari et al (2018) and Kassem et al. (2020) which emphasized that construction projects in Yemen suffer from poor performance.

Table (2) shows respondents perceived of the project team members were moderately motivated (67%). Also, four motivational factors were implemented to a large extent as perceived by companies' top management's members; Relationship with colleagues (78%), advancement (75%), work itself (73%), achievement (70%). The respondents perceived that they moderately experienced six motivational factors: Relationship with direct supervisor (68%). Recognition (64%), work conditions (63%), job security (58%), salary (57%), and company policy (55%). Relationship with colleagues was determined as the motivational factor that was most experienced by respondents. The average of (RII) for all motivational factors is (67%).

Table (2): Descriptive analysis of motivational factors by companies' top management's team members

Rank	Factors	Mean	Std. Dev.	Percentage (RII)
1	Relation with colleagues	3.89	0.80	78%
2	Advancement	3.73	0.93	75%
3	Work itself	3.64	0.86	73%
4	Achievement	3.48	1.09	70%
5	Relationship with Direct Supervisor	3.39	0.98	68%
6	Recognition	3.21	1.13	64%
7	Work Conditions	3.18	1.02	63%
8	Job Security	2.88	1.25	58%
9	Salary	2.87	1.08	57%
10	Company Policy	2.75	1.05	55%
	All Motivational Factors	**3.34**	**0.80**	**67%**

However, salary and company policy were identified as the least motivational factors implemented in construction projects with mean values of 57% and 55% respectively. This may be attributed to the focus of construction companies that are management by the owners themselves on reducing project costs. They give less priority for providing a salary that motivates the project team members. They provide the lowest possible salaries to reduce the cost and increase their profits. The study findings also indicate that the policies of construction companies are established to ensure increasing productivity with giving less priority to employees' motivation.

4.1 The most motivational factors preferred by project people (team members)

The project people (team members) were asked to identify, what extent they consider each motivational factor is significant to motivate them towards exerting more efforts in the project.

Table (3): The degree to which each motivational factor is preferred by project people

Rank	Factors	Mean	Std. Deviation	Percentage (RII)
1	Recognition	4.451	.7784	89%
2	Achievement	4.242	.9109	85%
3	Salary	4.066	1.0729	81%
4	Relationship with colleagues	4.000	.8028	80%
5	Relationship with Direct Supervisor	3.956	.9418	79%
6	Job Security	3.912	1.0504	78%
7	Work itself	3.857	.8637	77%
8	Advancement	3.846	.9419	77%
9	Work Conditions	3.495	1.0041	70%
10	Company Policy	3.429	1.0764	69%
	All Motivational Factors	**3.925**	**.944**	**79%**

Table (3) shows that Recognition (with RII = 89%) is the motivational factor that is most preferred by project people followed by Achievement (with RII = 85%). These two factors are perceived by respondents to be extremely significant for motivating project people. However, the other seven motivational factors were perceived by respondents to be very significant for motivating them to exert more efforts at workplace. Therefore, all motivational factors are highly required to motivate project team members. The study findings indicate that project people are highly motivated by appreciating their achievements. Therefore, to motivate the project people efficiently, project managers should appreciate the achievements of each project individual.

Achievement proves to be the second motivational factor preferred by Yemeni construction workforce to be well motivated towards exerting more efforts at workplace. This finding indicates that Yemeni construction team members are highly achievement-motivated. They are motivated by assigning challenging jobs to them. This finding is supported by Venkatesan et al. (2008) who identified achievement as the most significant motivational factor for motivating the engineers of construction projects in India. This finding indicates that satisfying the project team members need for achievement strongly motivates them and hence improves project performance.

Salary is surprisingly ranked as the third motivational factor preferred by the construction workforce in Yemen. This finding contradicts the findings of many previous studies conducted in different countries and found salary as the most important motivational factor favored by construction workers (Zakeri et al., 1997; Kazaz et al., 2008; Parkin et al., 2009; Kibuchi, 2012 & Orando, 2013). This finding may be because the project team members were identified as highly achievement motivated. According to Mullins (2007), achievement motivated employees consider money as a means of feedback to their performance. This finding may also be due to the possibility that the participating respondents were satisfied with their salaries.

Identifying the motivational factors that most significantly preferred by project people will help project managers to pay more attention to providing such factors to motivate project team members efficiently.

4.2 Regression analysis

Regression analysis was used to investigate the influence of motivation factors (independent variables) on project performance (dependent variable). As presented in Table (4) below, R square was found to be 81.8% which is considered high. It means that the motivational factors investigated in the study explain 81.8% of the project performance variance. The result of ANOVA Test also shows that F test = 81.776 at Sig. = 0.000, which indicate the model statistically significant.

Table (4): R Square of the Proposed Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
.910[a]	.828	**.818**	0.38	.910[a]
a. Predictors: (Constant), Motivation				

Among the investigated 10 motivational factors as presented in Table (5), six motivational factors (recognition, achievement, advancement, company policy, relationship with colleagues and work conditions) have a significant impact on project performance with ($P < 0.05$). Appreciation was identified to be the motivational factor that most significantly and positively influences the project performance with (P=.001) followed by Advancement with (P=.013), Relation with colleagues and achievement with (P=.016) and (P=.028) respectively. Two motivational factors have significant impact with (P=.045) which were company policy and work conditions.

Findings revealed that appreciation is the motivational factor that most significantly preferred by respondents to be motivated, followed by achievement. These two motivational factors were identified as extremely significant for motivating project people as while the other eight factors were identified as very significant for motivating project team.

Table (5): Regression Coefficient Motivation and Project Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.008	.267		-.029	.977
	Achievement	.207	.092	.257	2.239	**.028**
	Advancement	.182	.072	.193	2.528	**.013**
	Work itself	-.116	.088	-.114	-1.316	.192
	Appreciation	.286	.082	.368	3.486	**.001**
	Company Policy	-.155	.076	-.185	-2.040	**.045**
	Relation with colleagues	.209	.085	.189	2.452	**.016**
	Job Security	.050	.041	.071	1.229	.223
	Relationship with Direct Supervisor	.041	.064	.046	.640	.524
	Salary	.045	.058	.056	.777	.439
	Work Conditions	.140	.069	.162	2.034	**.045**
Dependent Variable: Project Performance						

4.3 Stepwise Regression analysis at the sub-factor level

Regression analysis using stepwise approach was conducted between the sub-factors of each main human factor and project performance. In stepwise regression analysis, all insignificant variables (sub-factors) are excluded and thus only variables that have a significant impact on project performance remain in the model.

Results presented in Table (6) revealed that out of the ten motivational factors investigated in this study, only three motivational factors- achievement, appreciation, and relationship with colleagues- significantly influence project performance. However, the other seven motivational factors (salary, relationship with direct supervisor, job security, work itself, work conditions, advancement and company policy) were excluded from the model indicating that they have no significant influence on project performance. Based on the beta values in model 3 of Table (6), achievement proved having the highest impact on project performance (Beta=.367, $p < .05$), followed by appreciation (Beta=0.360, $p < .05$) and relationship with colleagues (Beta=.233, $p < .05$). Achievement proved having the highest positive influence on project performance.

This finding indicates that satisfying the team members' need for achievement significantly positively contributes to achieving the timely completion of construction projects. This finding is attributed to the significant role of achievement in directing the behaviors of project team positively towards setting challenging goals, willingness to work hard, increased commitment to achieving goals, looking for efficient methods of work execution (Mullins, 2007).

Table (6): Multiple Stepwise regression between motivational factors and project performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.768	.167		4.589	.000
	Achievement	.679	.046	.843	14.770	.000
2	(Constant)	.712	.153		4.637	.000
	Achievement	.399	.077	.495	5.167	.000
	Appreciation	.321	.074	.414	4.315	.000
3	(Constant)	.206	.221		.931	.354
	Achievement	.295	.081	**.367**	3.635	**.000**
	Appreciation	.279	.072	**.360**	3.854	**.000**
	Relationship with colleagues	.257	.084	**.233**	3.053	**.003**
Dependent Variable: Project Performance						

Previous studies support this finding. Orando (2013) identified appreciation as the third motivational factor influencing the productivity of construction projects in South Africa. Kibuchi (2012) also concluded that appreciation by direct supervisor significantly contributes to the performance of construction projects in Kenya. This finding can be accepted because appreciation forces the behaviors of team members to work harder and repeat the acknowledged achievement (Gido & Clement, 2011).

In spite of the significant impact of appreciation on project performance proved by this study, respondents perceived that their achievements are moderately appreciated. This finding indicates that their achievements are not appreciated as highly as required to be well motivated towards working harder to improve project performance. Therefore, project managers should appreciate the achievements of each project team member to achieve better project performance.

Study findings reveal that relationship with colleagues is the third influential motivational factor. This finding indicates that good relationships between project people should be established to improve project performance. For example, Orando (2013) identified relationship with colleagues as the third motivational factor influencing productivity in construction projects in South Africa. Orando also emphasized that good relationship with colleagues help in improving the effectiveness of project team. This finding seems to be accepted due to the role of good relationship among project people in improving communication and exchange of information, promotion of the discussion of ideas (Orando, 2013), and helping the team members who have difficulties in performing their tasks that leads to develop their skills (Gido & Clement, 2011). Furthermore, the collaborative team members are highly likely to work with minimum team conflict. Therefore, project managers should establish a collaborative project environment in order to improve project performance.

Salary unexpectedly shows no significant influence on the time performance of construction projects in Yemen. This finding contradicts the findings of the previous studies conducted in different countries such as; (Zakeri et al., 1997; Kazaz et al., 2008; Parkin et al., 2009; Kibuchi, 2012 & Orando, 2013). This finding can be attributed to the finding which showed that the project people in Yemen are highly achievement-motivated.

Findings reveal that work conditions have no significant impact on project performance. This finding is in line with the results of Kibuchi (2012) who found that work conditions do not influence the performance of construction projects in Kenya. This finding may be attributed to the difficult nature of working on construction project sites. The offices of the project team are often located near the project site. Also, their work requires their availability on site in all conditions of weather.
Job security and advancement show no significant impact on construction project performance. The researcher attributes this finding to the temporary nature of recruitment of project teams in the construction industry in which project team members are often hired for executing only one project.

To summarize, motivation significantly influences construction project performance. The study findings provide project practitioners with understanding of the significant impact of motivation on project performance. The study will encourage the construction practitioners to focus on providing the motivational factors that are most preferred by project people and have significant influence on project performance. This will help project managers to motivate their team members efficiently.

RECOMMENDATIONS

Based on the study findings, project managers are recommended to improve the performance of project teams towards achieving the timely completion of construction projects by;

- Motivate project team members by identifying the needs of each project individual.
- Appreciate the achievement of each individual immediately after the achievement takes place.
- Pay more attention to motivating project people through assigning challenging tasks to project team members and establishing collaborative project environment.

REFERENCES

Aiyetan, A. O., & Olotuah, A. O. (2006). Impact of motivation on workers' productivity in the Nigerian construction industry. In D. Boyd (Ed.), *Procs 22nd Annual ARCOM Conference, 4-6 September 2006) , Birmingham, UK, Association of Researchers in Construction M*, (pp. 239-248).

Alaghbari, W., Al-Sakkaf, A., & Sultan, B., (2018). Factors affecting construction labour productivity in Yemen, *International Journal of Construction Management*, 19(1): 79–91. doi: 10.1080/15623599.2017.1382091.

Alaghbari, W., Saadan, R.S., Alaswadi, W. and Sultan, B. (2018). "Delay Factors Impacting Construction Projects in Sana'a - Yemen", *PM World Journal*, (Dec. 2018). https://pmworldlibrary.net/wp-content/uploads/2018/12/pmwj77-Dec2018-delay-factors-impacting-construction-projects-in-yemen4.pdf

Alaghbari, W., & Sultan, B. (2015). The most significant factors influencing productivity during execution of construction projects in Yemen. *Engineering Sciences Journal*, *1*(4), 41-57.

Al Seraji, A. (2010). Construction management in yemen: Evaluation and improve efficiency. *Master Thesis*. Faculty of Engineering, Sana'a: Sana'a University.

Ankrah, N. A. (2007). Factors influencing the culture of constrution project organization. *PhD Thesis. University of Wolverhampton, Wolverhampton.*

Ashraf, H., & Rowlinson, S. (2015). Conflict management climate in contractor's project team: Conceptualizing its relatinship with interface management and project management. *Engineering Project Organization Conference. The University of Edinburgh, Scotland, UK June 24-26,2015.*

Azmy, N. (2012). The role of team effectiveness in construction project teams and project performance. *PhD Thesis. Construction Engineering & Management, Iowa State University, Ann Arbor, Iowa, USA.*

Cheng, E. W., Ryan, N., & Kelly, S. (2012). Exploring the perceived influence of safety management practices on project performance in the construction industry. *Safety Science, 50*(2), 363-369.

Dwivedula, R. and Bredillet, C. (2009). The relation between work motivation and project management success : an empirical investigation. *In International Research Network for Organizing by Projects-IRNOP 9, Berlin. http://eprints.qut.edu.au/49*, 1-33.

Gamil, Y. & Rahman, I. A. (2020). Assessment of critical factors contributing to construction failure in Yemen, *International Journal of Construction Management*, 20(5): 429-436, DOI: 10.1080/15623599.2018.1484866

Gido, J., & Clement, J. P. (2011). *Successful project management* (5 ed.). Cengage Learning. New York.

Hackman, J. E., & Oldham, F. R. (1980). *Work redesign.* Reading, Mass: Addison-Wesley.

Jarkas, A. M., Al Balushi, R. A., & Raveendranath, P. (2015). Determinants of construction labour productivity in Oman. *International Journal of Construction Management,, 15*(4), 332-344. doi:10.1080/15623599.2015.1094849

Kassem, M., Khoiry, M.A. and Hamzah, N. (2020). "Assessment of the effect of external risk factors on the success of an oil and gas construction project", Engineering, Construction

and Architectural Management, 27(9), 2767-2793. https://doi.org/10.1108/ECAM-10-2019-0573

Kazaz, A., Manisali, E., & Ulubeyli, S. (2008). Effect of basic motivational factors on construction workforce productivity in Turkey. *Journal of Civil Engineering & Management, 14*(2), pp. 95-106.

Kibuchi, P. (2012). *The contribution of human factors in the performance of construction projects in Kenya: a case study of construction project team participants in Nairobi.* PhD. University of Nayrobi.

Lawal, ,. A., & Okhankhuele, O. T. (2014). The effet of motivation on project execution in Nigeria: A case study of Bayelsa plastic industry. *British Journal of Applied Sciences & Technology*, *4*, pp. 2985-3002.

Maritz, M. J., & Ogwueleka, A. C. (2013). Construction employees' perspective on workforce motivational drivers in Akwa Ibom State of Nigeria. *Journal of Construction 5(2)*, 2-6.

Monese, L. N., & Thawal, W. D. (2008). Motivation of construction workers in South Africa sites. *CIBD PAPER 24*.

Mullins, L. J. (2007). *Management and organizational behaviour.* Pretice Hall.

Najib, A. F., Soon, N. K., Zainal, R., Ahmad, A. R., & Hasaballah, A. H. A. (2018). Influential factors in construction industry of Yemen. *In Proceedings of the 21st international symposium on advancement of construction management and real estate*, pp. 927–943. Singapore: Springer.

Omran, A., Abdalrahman, S., & Pakir, A. H. (2012). Project performance in Sudan construction industry: A case study. *Academic Research Journal (India), 1*(1), 55-78.

Orando, M. (2013). The influence of human behavior factors on construction productivity. *PhD Thesis. University of Free State*. Bloemfontein.

Parkin, A. B., Tutesigensi, A., & Buyualp, A. I. (2009). Motivation among construction workers in Turkey. *Proceedings, 25th Annual ARCOM conference, Nottingham, UK: Associatio of Researchers in Construction Management*, pp. 105-114.

Sekhar, C., Patwardhan, M., & Singh, R. R. (2013). A literature review on motivation. *International Network of Business and Management*, 471-487.

Sultan, B. and Alaghbari, W. (2018). "Political Instability and the Informal Construction Sector in Yemen", *International Journal of Civil Engineering and Technology (IJCIET)- Scopus Indexed*, 9 (11): pp. 1228–1235 (Nov. 2018). http://www.iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_9_ISSUE_11/IJCIET_09_11_119.pdf

Sultan, B., and Alaghbari. W., (2017). Priorities for sustainable construction industry development in Yemen, *International Journal of Applied Engineering Research*, 12(6): 886-893. https://www.ripublication.com/ijaer17/ijaerv12n6_13.pdf

Sultan, B. and Alaghbari, W. (2020). "Investigating the Cost of Modern Construction in Yemen". *International Journal of Civil Engineering and Technology*, 11 (3): pp. 97-104. (March 2020). http://iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_11_ISSUE_3/IJCIET_11_03_010.pdf

Tatar, H., Altinoz, M., & Cakiroglu, D. (2011). The effects of employee empowerment on achievement motivation and the contextual performance of employees. *African Journal of*

Business Management, 15(5), 6318-6329 http://www.academicjournals.org/AJBM ISSN 1993-8233 @2011 Academic Journals.

Tech-Hong, T., & Waheed, A. (2011). Herzberg's motivation-hygiene theory and job satisfaction in the Malaysian retail sector: The mediating effect of love of money. *Asian Academy of Management Journal*, *16*(1), 73-94.

Venkatesan, R., Varghese, K., & Ananthanarayanan, R. (2009). Motivatin among construction operative motivation on selected sites in Nigeria.

Verma, V. K. (1996). *The human aspects of project management: Human resource skills for the project manager.* (2 ed., Vol. 2). USA: PMI.

Verma, V. K. (1998). *Conflict Managment. Project management handbook.* Ed Jeffery Pinto.

Yisa, S. B., Holt, G. D., & Zakeri, M. ((2000)). Factors affecting management motivation in the Iranian construction industry: a survey of site managers. In A. Akintoye (Ed.), *16th Annual ARCOM Conference, 6-8 September 2000, Glasgow Caledonian University. Asso*, *2*, pp. 465-472.

Yusoff, W. F., Kian, T. S., & Idris, M. T. (2013). Herzberg's two factor theory on work motivation: Does it work for today's environment? *Global Journal of Commerce and Management Perspective*, *2*(5), 18-22.

Zakeri, M., Olomolaiye, P., Holt, G., & Harris, F. C. (1997). Factors affecting the motivation of Ianian construction operatives. *Building and Environment, 32*(2), 161-166.

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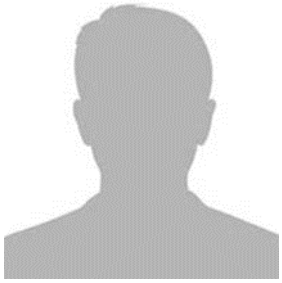

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