

# **Human Resource Management in Construction of Sustainable Development Project: Towards Successful Completion**

I.Othman,A.Idrus,M.Napiah

*Department of Civil Engineering,Universiti Teknologi Petronas,  
Perak,Malaysia.*

## **Abstract**

Construction projects are facing many problems from day to day in its business. One of the problem that has been taken into consideration in this study is the human resource management in construction of sustainable development project. Even though construction uses more manpower in its business activities compares to the other fields, its human resource management is still inadequate and insufficient. The problem concerning human resource management in construction of sustainable development project need to be identified and methods for improvement need to be formulated for the success of the project. Combination of questionnaire survey and case study were being used as methodologies for this study. 150 questionnaires were distributed to contractors all over Malaysia and we received 25 feedbacks. Case study was done at construction site in Kuala Lumpur. The results of the study had shown that there were awareness among the contractors in Malaysia about the importance of human resource management on the success of construction the sustainable development project. The main problems of human resource management in construction of sustainable project had been identified. There were project managers' roles, communication between team members and insufficient team works. The main methods for the improvement also had been discovered. There were more communication among team members, appointment of more experiences project manager and assignment more skilled workers.

*Keywords: sustainable development, construction, human resource management, improvement, successfully completion*

## **1 Introduction**

Construction is a process that consists of the building or assembling of infrastructure. Large scale construction is a feat of multitasking. Normally the job is managed by the project manager and supervised by the construction manager, design engineer, construction engineer or project architect[1]. For the success of construction any of sustainable development project, many aspects must be taken into consideration inclusive of planning and management such as the human resource, safety and health, construction delays, designs of architecture and engineering, material availability and quality, the clients need, and financial or economic limitations. One of the aspect which is crucial in this study is the human resource management. The term 'human resource management'(HRM) and 'human resources' (HR) have largely replaced the term 'personnel management' as a description of the processes involved in managing people in organizations. In simple words, HRM means employing people, developing their capacities, utilizing, maintaining and compensating their services in tune with the job and organizational requirement[2]. This study will emphasize and discuss on the human resource management in construction of sustainable development project as the main factor to the success of construction project. Besides, it will also analyze the factors that influence the human resource performance and discover the methods or ways to enhance and improve the human resource management.

## **2 Human Resource Management in Construction of Sustainable Development Project**

Construction had been studied all over the world in term of human resource management in many countries such as in Europe, Australia and even Asia. A lot of journals, theses, case studies and even books have been produced regarding the human resource in construction of sustainable development project. The authors' analysis varies according to their experiences and researches but all had been done for one main goal which is the impact of human resource management in construction of sustainable development project. Previous researches were still unable to really prove the effectiveness of human resource management and techniques for improvement. The human resource management is defined as a field of organizational activity and professional practice which has a complex and unclear entity, variously interpreted by practitioners and researchers [1]. Slotte et al[2] defined human resource management as covering functions related primarily to training, career development, organizational development, and research development. In addition human resource functions is to foster learning capacity at all levels of the organization, promote learning culture into its overall business strategy and to enhance the organizations efforts to achieve high quality performance" [2]. The human resource management as an academic discipline includes the development of knowledge and expertise, and the enhancement of performance

[3]. A forceful human resource management system is also the most valuable asset of 21<sup>st</sup> century construction companies, as an enterprise's productivity is closely correlated with its strategies [4]. With rapid changes in technology, worker's needs, current market, and competitive environment, planning for human resources have become an important and challenging task for development. The human resource planning involves plans for future needs of employees, their required skills, acquisition of employees, and personnel development.

## **2.1 Project Success**

The human resource management had its own consequences towards the success of sustainable development project. The empirical study was done by Pinto and Prescott [Journal of Management 14 (1988) [5] indicated the positive impact of effective human resource management by concluding that it was a factor for project success [6]. According to Pinto and Prescott's studies, they have concluded that there were ten success factors for a project.

1. Project mission: Initial clarity of objectives and general directions.
2. Project Schedule: A detailed specification of the individual action steps required for project implementation.
3. Client Consultation: Communication and consultation listening to all parties involved.
4. Technical Tasks: Availability of the required technology and expertise to accomplish the specific technical action steps.
5. Client Acceptance: The act of "selling" the final projects to their ultimate intended users.
6. Monitoring and feed back: Timely provision of comprehensive control information at each stage in the implementation process.
7. Communication: The provision of an appropriate network and necessary data to all key actors.
8. Trouble-shooting: Ability to handle unexpected crises and deviations from plan.
9. Management Support: Willingness of top management to provide the necessary resources and authority/power for project success.
10. Personnel (recruitment, selection and training): Recruitment, selection and training of the necessary personnel for the team.

The personnel which referred the human resource was placed at number 10 in the success factor of a project. This means that people have less contribution on the success of a project which is very surprising. The authors for this journal tried to argue by doing another study adapted from Pinto and Prescott[5], the Project Implementation Profile (PIP). By performing the PIP, it had been realized that project success depends on the life cycle stage of a project which is the conceptual stage, planning stage, execution stage and completion stage.

## **2.2 Policy and Practice**

Within the typical human resource management literature, there was a long tradition of research arguing that in order to make an optimal contribution to firm performance, human resource management policies and practices should be integrated both with firm strategy, so-called vertical strategic integration [7] and with each other, so-called horizontal integration [8]. The orientation of the human resource management function, its goals and aims, need to be aligned with the strategy of the organization. If “managing by projects” was considered as the strategy of the project-oriented company [9] which would imply that the human resource management policies, processes, and practices in the project-oriented company are in some way supportive of project-oriented working. Its differs from traditional human resource management processes and practices which are designed for the classically-managed organization. The emphasize is not on projects but instead on routine products and services. Also the job requirements are well defined and stable. There was a major difference between the typical human resource management and the management based on project-oriented company. The human resource management changes due to the people itself and the working environment. The management should apply their policy and strategy according to the needs of its employees. This is to ensure that they can respond positively and contribute to the company[10].

## **2.3 Training**

There was an argument whether the level of skill among the labors contributed to significance effect toward project success or vice versa. Training and development was defined as a process of developing work-related knowledge and skills of employees for the purpose of improving the projects performance systematically [11]. Managers, executives, and supervisors influenced on the transfer of knowledge and skills to their subordinates [12]. The training of extension personnel contributes directly to the development of human resources within extension organizations. Training has to start with the recognition of training needs through job analysis, performance assessment, and organizational analysis. Once the training needs have been identified, the next step is to organize training programs. Methods such as role-playing, simulation exercises, and case studies can be used in the training of human resources in construction of sustainable development project. One of the most important factors in implementing human resource management in construction industry is the need for effective training. Managers also need to develop ways to measure the performance of their workers. A system of performance measurement is needed in order to monitor improvements among construction teams inclusive of guiding managers to display quality indicators on-the-job site. This will create awareness and encourages the participants to achieve improvement” [13]. In fact, it is accepted that construction firms face a lot of difficulties in the training and

development of their labor and staff . There are two significant methods of training construction workers which are on-the-job and off-the-job training.

## 2.4 Skilled and Unskilled Labor

Tabassi (2008) in Mashhad, Iran [14] stated that lacking of skilled workers in construction of sustainable development project contributed to the damages caused by earthquakes in Iran.

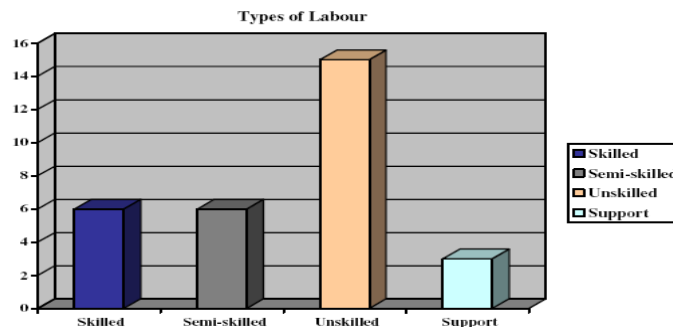


Fig. 1: Types of labor in Iran [14]

According to Tabassi, there were 4 types of laborers in construction projects. The results shown varies in term of percentage of different types of labor in construction projects. The skilled labor formed only 20% of Mashhad construction worker. In contrast, 50% of the labor forces were unskilled and 20% were semi-skilled. This meant that most of the workers involved in the construction projects of Mashhad were unskilled. The research was then further continued by listing the reasons of existence more unskilled labor in construction projects.

Construction is the industry that use men powers or labors in a large scale compares to other industry. Construction of sustainable development project involves a variety of people starting from the clients, administrators, managers, designers, contractors, consultants, supervisors, foremen, skilled laborers and unskilled laborers. These people all differ in terms of education, experience and views. Even though construction is viewed as an industry that uses the most of human resource due to its low technology and people reliant, the attention given to its human resource management issues are still inadequate and insufficient. According to the studies done on various construction projects all around the world, it shows that human resource management issues and problems regarding the personnel and labor in construction greatly influenced the success and performance of a project. This project will analyze the human resource management in construction of sustainable development projects, examining the strategic and operational aspects of managing people within the construction sector.

### **3 Objective**

There are two objectives in this study. Firstly, to identify the human resource management as one of the key aspect in the success of construction the sustainable development project. It also addressing second objective to identify the problems/issues of human resource in construction of sustainable development project and find the methods to improve it.

### **4 Methodology**

This research was carried out by literature review. Then, it was followed by data collection using questionnaires and interviews. The observation and monitoring on HRM approaches were conducted among contractors. The pilot survey had been conducted to identify and making sure the effectiveness of the questionnaire survey. For the purpose of strengthening and further elaborate the survey, a case study had been carried out on one of the construction site located in Kuala Lumpur.

In the literature review, the research was focused on the:

- Problems regarding the human resource management in construction of sustainable development project, and
- Methods that had been done to improve the human resource management in construction of sustainable development project in the past.

Pilot survey or exploratory survey was a small scale methodological test intended to ensure that proposed methods and procedures will work in practice before being applied in a large and expensive investigation. The pilot survey had been conducted among the students and staffs of Universiti Teknologi PETRONAS and contractors company in Malaysia.

The aim of the data collection is to gather information regarding the human resource management and the human resource itself in construction site. The data collection will be conducted using Qualitative research which is concerned with testing the theory presented in the objective. The data collections were done in two ways:

- Questionnaire

This was the main alternative to gather information. People are more truthful while responding to the questionnaires regarding controversial issues in particular due to the fact that their responses are anonymous. The questionnaire survey was distributed to the contractor's company all over Malaysia and it has

been conducted online. The author had distributed the questionnaires to contractor's companies all around Malaysia and had received the feedbacks from 25 companies all together. The questionnaire consists of three sections; General Information, Problems/Issues of Human Resource Management in Construction of Sustainable Development Project and Methods to Improve Human Resource Management in Construction of Sustainable Development Project. For this section, the respondents had been asked about their background. The questions that had been asked were:

- Years of experience in construction project
- No. of projects had been involved
- The importance of human resource management in construction of sustainable development project
  
- Case Study / Interview

Case study/interview was a second alternative to gather information. The research will be carried out by asking question regarding human resource management in construction of sustainable development project. This type of data collection has a distinct advantage of enabling the researcher to establish understanding with potential participants. The interview also allowed the researcher to clarify ambiguous answers and to seek clarification. The case study was carried out at the project site of the Home Ministry of Malaysia Complex in Kuala Lumpur. This project contains 1 block of administration building (7 storey) and 1 block of community building (3 storey) and it is located on Lot 53782, Sri Hartamas, Kuala Lumpur. This project commenced on April 2009 and being scheduled for completion in December 2011. The client is Home Ministry of Malaysia and the Project Director, Public Work Department had assigned Asas Meranti – Tidalmarine JV (AMTMJV) as the main contractor for this project. Since the project is “design and build” type, AMTMJV had assigned Mega Consult Sdn. Bhd and Dr. Nik & Associates Sdn. Bhd as civil and structure consultant and Conlay Construction Sdn. Bhd as sub-contractor. The construction of the project had achieved 95% completion. The remaining works that need to be done for completion before handover are the landscaping, road and clearance of site.

## **5 Results and Discussion**

### **5.1 General Information**

The years of experience of the contractors in construction of sustainable development projects are reflected the reliability and the accuracy of the responses received. The author had divided the respondents into two groups according to their experience, which were the group that had less than 5 years of experience and the group which had more than 5 years of experience in construction project. 44% was the group which had less than 5 years of experience and can be considered as young contractor or young engineer while

the other group which was 56% can be considered more senior in construction project.

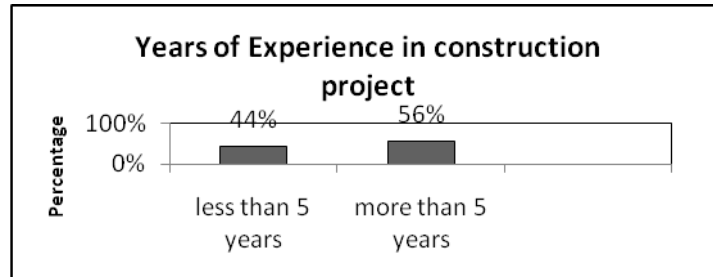


Figure 2: Years of Experience in Construction Project

The number of projects that the contractors had been involved can also be taken into consideration to add the validity to the response. There was no contractor involved in only one project. The percentage for the contractors that had involved in more than 5 projects was 20%, the same percentage as the contractors involved in two projects. This can be considered as a good combination with regards to the questionnaire to see the difference in opinion between the contractors.

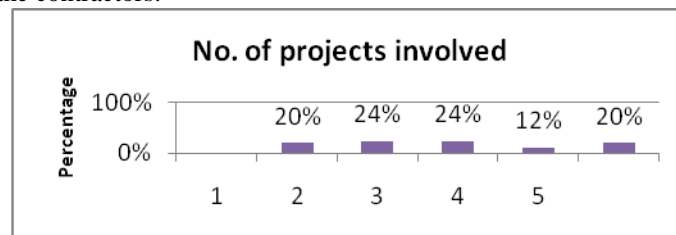


Figure 3: No. of Projects Involved

In the General Information section, the author had asked the respondents regarding the importance of human resource management for the success of construction the sustainable development project among them. All the respondents had given positive responds toward this question. All the respondents had agreed that human resource management was important for the success of construction the sustainable development project.

## 5.2 Problems of Human Resource Management in Construction of Sustainable Development Project

Most of the respondents agreed that project manager should play their role in implementing human resource management to their subordinates . Insufficient duration of project for the implementation of human resource got the lowest average index. He/she who has the power to give order at the construction site can execute the plan for human resource management to engineers, consultants, supervisors, foremen and even laborers. Lack of communication ranks second according to the survey. This problem was quite crucial in the construction project as for example if the communication between the staff and workers was not well implemented, the flow of information from the top management to the



subordinates would not done smoothly. The third ranking was the insufficient teamwork in the construction of sustainable development project . The lacks of teamwork can lead to disagreement between the personnel and even worse can affect the performance of project. The respondents had ranked the problem of insufficient duration of project for HRM implementation as the lowest. This problem may be insignificant due to the mindset that the human resource management only can be executed in a long period of time instead of short period of time.

Table 1: Problems of human resource management in construction of sustainable development projects.

Rank	Problems/issues	Average Index
1	Project managers plays an important role	4.68
2	Lack of communication between personnel and laborers	4.64
3	Teamwork in the construction team is insufficient	4.56
4	Lack of skilled laborers	4.52
5	Training provided is not enough and inadequate	4.32
6	No or lack of evaluation for the personnel and laborers performance	3.20
7	No or insufficient reward for personnel and laborers with good performance	2.92
8	Duration of projects too short for HRM implementation (1 year, 2 years, and so on)	2.20

### 5.3 Methods To Improve Human Resource Management in Construction of Sustainable Development Project

Many respondents agreed that frequent communication between personnel and laborers would improved the human resource management and thus, making the performance of project to be better. With good communication between the managers, engineers, consultants, contractors, supervisors, foremen and laborers, any arising matter regarding progress and problems at the construction site can be handled effectively and systematically. The second rank was appointing experienced or well-trained project manager. By doing this, the particular project manager can organize and handle his/her construction team more effectively. Assigning skilled workers was also considered important in projects. The works on-site would definitely progress better if a lot of skilled workers were being assigned. This will certainly improve the overall performance of projects. As for the lowest rank, reward to personnel and laborer with good performance seems to be less effective to the people involved in construction of sustainable development project.

Table 2: Methods to improve human resource management

Rank	Methods	Average Index
1	Ensure frequent communication between personnel and laborers	4.64
2	Appoint experienced or well trained project managers to handle project	4.56
3	Assign more skilled workers in project	4.48
4	Ensure participation and team belonging is developed in the construction team	4.48
5	Evaluation of personnel and workers conducted regularly	4.16
6	Provide sufficient and effective training	3.52
7	Start the team building even before the project started (during conceptual stage)	2.72
8	Provide reward for personnel and labourers with good performance	2.04

#### 5.4 Case Study

The Project Manager for this project, Mr. Abang Abdul Halil Abang Naili which was the main contractor said that the human resource management should be more focused on the communication and the spirit of teamwork in the construction team. The key to success in the construction of sustainable development project was team work, with an in-built mechanism for communication from everyone in the construction site. The channel of communication should flow freely from top to bottom and also from the bottom to the top. This will strengthen the teamwork in the construction team and hence increase the performance of that particular project. As for the sub-contractors, their view towards the human resource management were more towards the laborers and supervisors on-site. According to Mr. Wan Mohd Nazim Wan Muhammad, one of the sub-contractor in this project, the problem at construction project was to get the skilled workers particularly in the specialized field such as the post tensioning works. By assigning more skilled workers, the project's performance and workflow will undoubtedly increased by a large margin. They had a case in this site where the progress on this site had been delayed due to the problem regarding the post tensioning works. The slab concreting process had been put on hold for about 2-3 weeks because of this problem. The reason for the delay was due to the slow installation of the post tensioning works that had been caused by lack of skilled workers for the respective task. The problem had been solved by bringing the skilled workers and the progress for the project had increased significantly.

Table 3: Project's Progress for Three Consecutive Months

	Scheduled Progress	On-site Progress	Fast (+) / Late (-)	Number of days Fast (+) / Late (-)
Feb. 2010	60%	57%	-3%	-30 days
Mar. 2010	65%	61%	-4%	-40 days
April 2010	70%	69%	-1%	-10 days

Table 3 shows that the progress of the site was very slow from February 2010 to March 2010 but had increased significantly from March 2010 to April 2010. According to Mr. Nazim, this was the time where the skilled workers for the post tensioning works had been brought in. He also added that starting on April 2010 and the remaining months the site had been able to cast four slabs in a month.

## 6 Conclusion and Recommendation

Based on the research done, it can be concluded that human resource management in construction of sustainable development project need to be further improved from time to time for its effectiveness. From the survey and the case study, the author believed that the contractors in Malaysia had the awareness about the human resource management in construction of sustainable development project. However, improvements in many aspects need to be considered in order to ensure the effectiveness of human resource management. The first objective of this study which was to determine the human resource management as one of the key aspect for the success of construction the sustainable development project had been achieved. All the respondents in the survey and the case study had agreed that human resource management was important for the success of construction the sustainable development project. The second objective to identify the problems/issues of human resource in construction of sustainable development project also been achieved. The respondents had given their various opinions and views towards the subject matter. Even though the responses given were varied from one person to another, the author believed that the feedbacks obtained were reliable and accurate considering the respondents were from the contractor's company. The author suggested that for further research, the survey need to be carried out in a larger scope. Instead of involvement only from contractors opinion, the author believed that by involving other parties inclusive of the consultants, suppliers and even the clients in the survey, the results will much more reliable, adequate and applicable towards the construction of sustainable development project in Malaysia. The author also suggested that the methods to improve the human resource management that had been discussed in the survey can be put into practice by the contractor's company. As the feedbacks of the survey came from the contractors themselves, the author strongly believed that the methods were effective to improve the human resource management in construction of

sustainable development project for the betterment of not just the contractors but also for consultants, clients and even the country.

## References

- [1] Sharon M, Philip W, Brenda S, David S, Chris R, Francine W. Developing “new commons” between HRD research and practice Case studies of UK universities. *J Eur Indust Training* 2007; 31(1): 4–18.
- [2] Slotte V, Tynjala P, Hytonen T. How do HRD practitioners describe learning at work? *Human Resour Dev Int* 2004; 7(4):541–4.
- [3] Garavan TN, Morley MJ. Re-dimensionalising boundaries in the theory and practice of Human Resource Development. *Learn Intellect Capital* 2006; 3(1):3–13.
- [4] Liang-Hsuan C, Shu-Yi L, Tzai-Zang L. Using an HRM pattern approach to examine the productivity of manufacturing firms – an empirical study. *Int J Manpower* 2003; 24(3):299–318.
- [5] Pinto JK, Holt GD,(1988). Variations in critical success factors over the stages in the project life cycle. *Journal of Management* 14(1),5-18
- [6] Belout, A., Gauvreau, C., (2004). Factors influencing project success: the impact of human resource management. *International Journal of Project Management* 22 (1), 1–11.
- [7] Lengnick-Hall CA, Lengnick-Hall ML. Strategic human resources management: a review of the literature and a proposed typology. *Acad Manage Rev* 1998; 13(3):454–70.
- [8] Wright PW, Boswell WR. Desegregating HRM: a review and synthesis of micro and macro human resource management research. *J Manage* 2002; 28(3):247–76.
- [9] Gareis R, editor. *Management by projects*. Vienna: Manz; 1990.
- [10] Keegan AE, Turner JR. Managing human resources in the project based organization. In: Turner JR, editor. *People in project management*. Aldershot: Gower; 2003. p. 1–12.
- [11] Wright P, McMahan G. Theoretical perspectives for strategic human resource management. *J Manage* 1992; 18(2):295–320.
- [12] Jong Jan A de, Leenders Frieda J, Thijssen Jo GL. HRD tasks of first-level managers. *J Workplace Learning* 1999;11(5):176–83.
- [13] Nesan LJ, Holt GD. *Empowerment in construction: the way forward for performance improvement*. England: Baldock, Hertfordshire, Research Studies Ltd; 1999.
- [14] Tabassi,AA, Abu Bakar AH,(2008). Training, motivation and performance : the case of human resource management in construction projects in Mashdad, Iran, *International Journal of Project Management* 27 (2009) 471-480:3-8