International Journal of Economics, Business and Management Research

Vol. 2, No. 01; 2018

ISSN: 2456-7760

A REVIEW OF THE SKILL SHORTAGE CHALLENGE IN CONSTRUCTION INDUSTRY IN SRI LANKA

Silva G A S K (PhD Candidate)

Corresponding Author

Faculty of Management Studies and Commerce, University of Sri Jayewardenepura,

Sri Soratha Mawatha, Nugegoda 10250, Sri Lanka.

Permanent address: No. 7/11, Sagara Mawatha, Panadura,

Sri Lanka.

Prof. Warnakulasuriya B N F

Faculty of Management Studies and Commerce, University of Sri Jayewardenepura,

Sri Soratha Mawatha, Nugegoda 10250, Sri Lanka.Sri Lanka

Dr. Arachchige B J H

Faculty of Management Studies and Commerce, University of Sri Jayewardenepura,

Sri Soratha Mawatha, Nugegoda 10250, Sri Lanka.

Abstract

Construction companies of Sri Lanka voice on a prevailing skill shortage of the country. Therefore, the purpose of this review is to investigate the concept of skill shortage, causal factors, and mitigation measures relevant to Sri Lanka construction context using already available secondary data. Recommended steps for a Systematic Literature Review have been followed. Findings show that there are three issues in the industry: shortage of people, skill mismatch and skill deficiency. Mainly there are shortages of people in construction industry of Sri Lanka in the categories of unskilled workers (laborers), craftsmen and construction machine operators and experienced construction professionals. This review identifies sixteen possible causal factors for skill shortage and sixteen mitigation measures. Skill shortages are often seen as a problem of the education system of the country. But this review suggest to have a much broader perspective on the issue of skill shortage and emphasize that there is a serious problem of attracting, training and retaining of people in the construction industry of Sri Lanka. Findings will be instrumental for policy makers, practitioners and also future researchers can use this as a good base for further studies.

Vol. 2, No. 01; 2018

ISSN: 2456-7760

Keywords: Construction industry, Human Capital Shortage, Skill shortage, Skill gap, Skill mismatch,

1. Introduction

Skill shortage is not a new phenomenon within the construction industry and has been a recurrent problem over the past 30 years in UK (DfEE, 2000 as cited in Andrew et al., 2004). In Britain, labor shortages have often been much higher than in other countries (Healy et al., 2011). Despite a number of education reforms, like changes to the school curricula, South Africa still faces considerable skills shortages (Rasool and Botha, 2011). On average, two third of its members across Australia were either delaying projects, or even declining them altogether, because of the lack of workers (Deegan, 2008 as cited in Healy et al., 2011). The construction industry lacks sufficient plumbers and construction machine operators, resulting in a slowing of construction activity and increasing the overall cost of projects, posing a major challenge to India's infrastructure development plans (Heikkila, 2012). Heikkila cites statement of then Minister, Manmohan Singh - 'As our economy booms and as our industry grows, I hear a pressing complaint about an imminent shortage of skilled employees. As a country endowed with huge human resources, we cannot let this be a constraint' (Government of India, 2011).

In Sri Lanka, the post-war-era has increasingly stimulated and attracted the government's attention as well as private (both local and foreign) sectors to invest heavily on large scale capital projects such as high-rise buildings, renovation of airports, ports, roads, highways, land reclamation, water and sanitation (Silva et al., 2016a) The construction subsector has recorded an impressive growth of 21.6 percent compared to 14.2 percent in 2011(CBSL, 2012). The construction subsector grew significantly by 20.2 percent during 2014, in comparison to 14.4 percent growth during 2013 (CBSL, 2014). It is obvious that this industry will continue to grow as the present government of Sri Lanka has already set up infrastructure development plans for the future. This industry expansion creates great opportunities as well as great challenges. One such challenge of the industry is the shortage of human capital (shortage of skilled and professional workforce). The survey of Training Need Assessment and Skills Gap Analysis highlights the problem of skill shortage in Sri Lanka. The survey further highlights that a total increase in employment of 800,583 is projected in construction sector during the period 2016-2020 (TVEC of Sri Lanka, 2016). Dr. Surath Wickramasinghe, president, Chamber of Construction Industry of Sri Lanka, mentions that "due to the prevailing acute labor shortage, building contractors dig into labor pools of other contractors by offering more pay to workers, luring them to switch construction sites. If permission could be granted to allow employment of foreign workers on conditions, this practice could be avoided, (The Island, May 25th 2016). Further, media briefing of the Camber of Construction Industry of Sri Lanka highlights that the local construction industry cannot cater to Government projected investments boost if Chinese and Indian laborers are not allowed. (Weekend FT, 23ed May, 2016).Locally, human capital shortage is becoming not only a serious management issue but also a national issue which is discussed at various industry forums more than ever. However, there is a lack of understanding and analysis of the concept of skill shortage in Sri Lankan construction context. Therefore, with

Vol. 2, No. 01; 2018

ISSN: 2456-7760

this background, the objective of this review is to investigate the concept of shortage of human capital (skill shortage), causal factors, and mitigation measures in Sri Lanka construction context using already available secondary data in the form of survey, administrative data and published reports, papers and articles.

2. Method

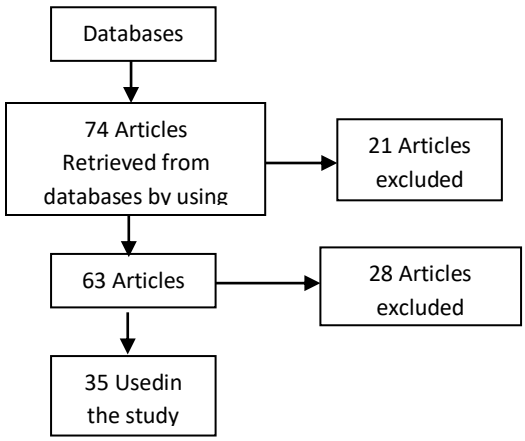
Recommended procedure for a Systematic Literature Review by Tranfield et al. (2003) and Ng and Peh (2010) have been followed in order to increase methodological rigor and the process helps developing a reliable knowledge of studies.

Research Questions:(a) How is the concept of skill shortage defined?, (b) What are the causes for skill shortages in construction industry in Sri Lanka?, (c) What course of actions could be recommended to overcome such shortages?

Identification of Studies: Related papers were selected using key wards and snowballing technique. Key words include Construction Industry, Skill Shortage, Labour Shortage, Skill Gap and Skill Mismatch. Search engines include Emerald Insight, Google Scholar, Taylor and Francis, and Science Direct.

Inclusion and Exclusion Criteria: The criteria that were used to include and exclude papers are, availability of further information required to make the assessment, relevance to the research questions and objectives of the study.

Figure 01: Flow chart for identifying eligible articles adopted from Ng and Peh (2010)



Quality Assurance: considered citations, methodology, authors' backgrounds and recognition of the journals.

Data Extraction and Analysis: Relevant data were extracted and analyzed qualitatively using a summary table. In the process, similar ideas/criteria were combined and some were modified in order to increase the level of clarity.

3. Literature

Arrow and Capron (1959, p. 307) as cited in Rasool and Botha (2011) define skill shortage as a

Vol. 2, No. 01; 2018

ISSN: 2456-7760

situation in which there are unfilled vacancies in positions where salaries are the same as those currently being paid to others of same type and quality. However, Rasool and Botha (2011) adopt the definition followed by researchers such as Shah and Burke (2005) and Trendle (2008). Accordingly, a skill shortage means shortage of workers in a particular occupation, labor demand exceeds availability of skills, or workers lack appropriate qualifications. According to Healy et al. (2011), a shortage implies a disequilibrium situation in which the demand for labor by an employer or group of employers is in excess of the supply of available workers at the ruling market wage. Further, they mention that a situation in which a (low-wage) employer is not willing to pay the wage required to eliminate the shortage of workers should not be regarded as a true labor shortage. Healy et al. (2011) further explain that employers may also view labor shortages as internal skill deficiencies (where the skills of their existing workers are below some optimal level), or skill gaps (where firms' existing workers lack sufficient skills to do their jobs effectively). The British Government's Training Agency defined a 'skills shortage' as existing 'when there are not enough people available with the skills needed to do the jobs which need to be done' (Training Agency, 1990, page 29 as cited in Green et al., 1998). And further Green et al. (1998) explained that there may be a difficulty in recruiting workers with the right skills and also there may be a 'skills gap' when 'firms' existing staffs do not have the skills they need to do their job effectively. ILO (2015) uses the term 'skill mismatch' instead of 'skill shortage'. Accordingly, skill mismatch refers to both matching the numbers and quality of graduates with the industry demand. Numbers refer to the number of persons coming out from the universities and TEVT (Technical Education and Vocational Training) sector and quality refers to the lack of skills or irrelevance of skills of people/youth that are coming out from Universities and TEVT sector. Shah and Burke (2005) outline different perspectives of skills shortages held by economists, employers and unions. It then discusses the measurement and identification issues and provides an example illustrating the practical difficulties of assessing skill shortages.

In Sri Lankan economy, construction is the fourth highest sector after services, manufacturing and agriculture (De Silva et al., 2008). According to CBSL (2014), contribution of construction industry to the national economy of Sri Lanka was USD 6882 million in 2013 and USD 8846 million in 2014 (USD 1 @ Rs. 130). However, the construction industry has been accused of being, at its worst, wasteful, inefficient and ineffective (Beatham et al., 2004). Construction project failures are increasingly reported around the globe and achieving success of construction projects is becoming extremely difficult in today's turbulent environment. Construction industry has heavy use of machineries, equipment and technology but it is yet a people intensive industry. People related managerial issues are widespread and it is a chronic problem that unfavorably affecting the achievement of project success and the development of the construction industry (Silva et al., 2016a).

The construction industry is heavily dependent on the adequate supply of a skilled labor force (MacKenzie et al., 2000). De Silva et al. (2008), Mitra and Tan (2012) and Gudienea et al. (2013) identify, among other factors, the availability of professional and skilled workforce as a factor critical for the achievement of construction project success. It has a great effect on quality, time, cost and productivity (Basnayake and Premathilaka, 2015; Praveen et al., 2013). According to Muya et al. (2006) as cited in Ayegba and Agbo (2014), the availability of craftsmen is

Vol. 2, No. 01; 2018

ISSN: 2456-7760

considered as one of the most critical factors for the effectiveness of the construction industry and construction output productivity depends significantly on craftsmen. Skill shortages have implications not only to industry but also economic and social stability of the country. Healy et al. (2011) explain that skill shortages are a complex labor market phenomenon and the most businesses address skill shortages through better utilization of their core workforce (e.g. longer hours, better pay and conditions, and internal training), while some employ peripheral strategies (e.g. outsourcing and short-term contracts). These steps often taken as short term arrangements and some steps may adversely affect in the long run. For an example, burnout affect (Xiaoming et al., 2014) could occur due to work of longer hours and also this could be a compliance issue as well.

Praveen et al. (2013) reveal that the most significant causal factor for skill shortage is "inadequate number of trained personnel coming out from training institutions and joining with the labor market" and resulting effect is "time over-run" of construction project. This study also revealed that "increasing the wages to minimize migration of skilled labor seeking foreign employment" as the most important mitigation measure. Basnayake and Premathilaka (2015) survey demonstrates seven critical issues for the skill shortage and made some recommendations. Jayawardane and Gunawardena (1998) found that approximately 80% of the workforce is casually employed, only 40% is fully utilized and 86% of the skilled workforce have received informal training only. More than 20% of the workforce is dissatisfied due to low income, lack of job security and difficulty in finding regular work. Comparing HRD practices to those in the USA and the UK indicates that Sri Lanka needs to adopt a more structured approach, including a more formal training system and proper grading of the skilled workforce.

Rasool and Botha (2011) shows that several factors cause serious skills shortages in South Africa. Heikkila (2012) argues that India lacks sufficient skilled workers as its existing vocational training system does not target the casual or informal workforce, which constitutes over 90 per cent of India's working population. Healy et al. (2011) show that complex skill shortages are more likely than simpler (single cause) skill shortages to persist and to trigger defensive responses from businesses. They reject the conception of skill shortages as a homogenous phenomenon, and demonstrate the importance of distinguishing skill shortages according to whether they have simple or complex causes. Andrew et al. (2004) show that employers' forums were attempting to address the skills crisis through localized initiatives. They stress that the construction sector must work together in order to influence future policy decisions, which have a bearing on the labor market. Dainty et al. (2005) present under three thematic headings derived from the analysis: namely skills requirements and impacts, recruitment and retention and training and qualifications. This, in turn, can only be achieved through the development and implementation of measures that bring together the industry's employers, training providers and regulatory bodies to address skills needs and lobby for change to policy initiatives. Fielden et al. (2000) present a review of the literature relating to the current position of women in the construction industry in Britain. It is highlighted that women employed in the construction industry constitute 13 percent of the industry. The barriers to entry for women include the construction industry's image, career knowledge amongst children and adults, selection criteria and male dominated courses, recruitment practices and procedures, sexist

Vol. 2, No. 01; 2018

ISSN: 2456-7760

attitudes, male dominated culture, and the work environment. MacKenzie et al. (2000) analyses the views of construction employers in relation to the response strategies promoted by industry and government, which tackle elements of the skills shortage problem within the UK construction industry. The paper describes seven existing industry and government schemes, and a further nine alternative response strategies to the construction skills shortage. Bartlett (2007) evaluates the current state of the workforce focusing on South Florida contractors and specialty contractors to identify efforts in recruitment and retention. Surveys were used to evaluate how construction companies obtained their labor force and what activities are in place for recruitment. Thomas (2013) studies the causes and effects of employee turnover in construction industry. Evidence shows that employees in construction industry of Sri Lanka are highly dissatisfied. The construction industry faces major challenge within the higher turnover rate, which might cause severe result within the overall work progress and also the price (Thomas, 2013). Higher labor turnover is an indicator of employees' dissatisfaction and frustration. Sigma (2005), explained that employee turnover is the most difficult challenge faced by an organization. Thomas (2013) stresses that employee turnover effects the organization as well as the other employees who were part of it. It increases the workload of the other employees. The company may face challenges due to decreased productivity and lack of the skilled employees which also leads to problem in team work and can cause problems in managing the work. Dissatisfied and frustrated employees not only leave their organization but often move completely out from the industry. The dissatisfied employees will have a negative impact on the perception of potential new entrants to the particular firm and to the industry. Thus, this contributes to skill shortage of the industry.

4. Results

Terms such as skill shortage, labor shortage, skill gap, skill mismatch and skill deficiency are frequently conflated and confusingly used in practice. Due to overlapping nature of those terms that have been used in practice, faulty interpretations and predictions could occur. Decisions and actions that are based on such wrong interpretation would not be effective. Therefore, it is worth first to distinguish these terms clearly in management point of view. It is observed that the term 'skill shortage' is a broader and sort of an umbrella term. This notion of a skills shortage can be useful because of its broad perspective, but it may well not correspond to employers' own interpretations (Green et al., 1998).Generally, skilled workforce is well corresponding to the concept of 'human capital'- a term that is extensively used today in management discussions particularly in human resource management. According to Wright et al. (2001), human capital means skillful employees in the organization. This is a broad notion that covers skilled and professional workforce that is required for survival and achievements of goals of any organization. Further, they explain that 'human capital pool' has greater potential to constitute a source of sustainable competitive advantage. Construction companies suffer due to lack of skilled and professional people for construction activates. This leads mainly to cost and time overrun finally project failures. Employers often refer this problem to 'skill shortage'. Most of the definitions for skill shortage are appealing to economists and variance of terms are frequently used in discussions on this critical people related management challenge in the industry.

Vol. 2, No. 01; 2018

ISSN: 2456-7760

Generally, employers/managers refer to skill shortages when they are not in a position to fill existing vacancies for a long period of time (hard to fill vacancies). They experience skill shortages mainly in two forms: 1st is about skill miss match - there are enough applicants but they do not have required level of skills or their skills are irrelevant when comparing to what the job demands. 2nd form is about shortage of people - there are no enough applicants at all even with less or no skills. Skill gap occurs when there is a difference between expected level of skills and actual skills possessed by the employees.

In line with above distinctions, it could be observed that mainly there are shortages of people in construction industry of Sri Lanka in the categories of unskilled workers (laborers), skilled workers (craftsmen such as Masons, Carpenters, Plumbers, Welders and Fitters etc.) and Construction Machine Operators. For an example, According to TVEC (2016) report skill demand is about 118,251 per year whereas the intake capacity is 37, 830 (24 occupations – Craftsmen, Machine Operators and allied supporting categories). Industry demand for Masons is about 46, 676 whereas intake capacity is about 2,758. It is said that about 75% of the capacity is not utilized due to lack of interest for trainings of Masonry jobs. Some of the training programs are about to close without sufficient applicants. And also there is a skill mismatch issue as well because quality (do not have required level of skills or skills are irrelevant when compare to what the job demands) of trained people coming out from training institutions are not up to the expectation of the industry. Often, skill mismatch issue is highlighted with regard to Graduates and Diploma Holders who are applying for executive and managerial jobs/professional jobs.

According to literature, possible causes for human capital shortage include but not limited to: (1) demographic changes, (2) changing nature of career expectation of the youth and parents (3) problem in the education system of the country, (4) changing nature of construction markets resulting fluctuation of demand for skills, (5) rapid changes of technology requiring new skills, (6) the growth of self-employment, (7) the use of specialist/labor-only subcontractors, (8) the fragmentation of the industry, (9) decline in construction training and training resources/inadequacy of resources, (10) skill drain/emigration, (11) negative social attitude towards the industry and on some occupations, (12) less wage relative to the other countries, (13) wastage of female skills without contributing to the industry, (14) shifting of the career for another profession due to dissatisfaction, (15) less work experience and inadequate training provided by companies and (16) the inadequate number of trained personnel coming out from training institutions and joining with the labor market.

Possible mitigation measures include but not limited to: (1) increasing public investment on education and training, (2) changing education and training system of the country, (3) allowing foreign labor into the country, (4) introducing skills certification scheme, (5) introducing the investing in people standard at company level, (6) establishing economic stability within the industry, (7) introducing long term industry-wide training plans, (8) returning to direct employment, (10) developing new technologies and construction techniques, (11) introducing formal training system and development system at organizational level , (12) introducing a proper grading system for the skilled workforce, (13) establishing appropriate salary scale across

Vol. 2, No. 01; 2018

ISSN: 2456-7760

industry, (14) introducing a strategy to address employee motivation and satisfaction issues at organizational level, (15) having a strategy to increase the brand image of the industry and some occupations which have less social recognition (16) adopting a multi skilled workforce.

5. Discussions

For the skill mismatch issue, it is often required further training of applicants, updates to curriculum, training systems, methods and resources. Training providers often should collaborate with industry to modify and update their training programs to minimize skill mismatch issue. However, for the issue of shortage of people (for an example, there are no craftsmen for Masonry Jobs or no applicants to be trained as Masons, Carpenters and Plumbers) construction companies should adopt a broader coherence strategy. Training and retraining are the definite solution for the former case because there are enough applicants who are willing to enroll for such jobs. But in the second case there are no people or people are not interested for employment in such jobs. Therefore, second case training itself may not resolve the problem and it may need a holistic approach to attract and retain people.

The skill gap is often referred to the skill deficiency of existing workforce by employers/managers. Employees are recruited and maintained by companies to perform certain tasks in order to achieve company objectives. But often employees lack certain skills (skill deficit) to perform to the level of expectations of employers. The skill deficiencies/skill gaps may occur at multiple levels due to various reasons. For an example, with the new technology arrival, skill gaps/deficiencies may arise within the organization. Training and retraining would be the definite solution for the issue of skill deficiency. Identifying skill gaps is essential for the companies to ensure that the workforce is well trained, knowledgeable and better equipped to perform the assigned tasks. Skill Gap Analysis presents an opportunity for the company and the employees to identify the deficiency and missing skills and try to gain them. In the same way, Skill Gap Analysis would be useful for an industry and to the county as whole because that will provide detailed information and insights for policy decision and workforce planning for future. However, labor shortage should not be mixed with skill shortage and it is a straightforward and it refers to shortage of people for unskilled/labor jobs. Unskilled labortoo plays an important role in the context of construction industry.

Various researchers have found numerous causal factors for skill shortage in construction industry in various country contexts. This review identified 16 causal factors as presented in pervious section that could be related to Sri Lankan context. These factors could be categorized as national level, industry and firm level causes. These causal factors could be the results of another sub set of causes and also these factors are often intertwined. For an example, people would migrate for high expectation/living standards. Government policies such as encouraging people for foreign job opportunities (as it fuels economy with foreign money inflow) may further contributory sub factors for higher skill migration. Causal factors such as changing/ cyclical nature of construction markets and the fragmentation of the industry are unique characteristics of the industry which have a great impact on the fluctuation of the demand for skills at the industry and firm levels. Due to the temporary nature of construction projects, employers are reluctant to

Vol. 2, No. 01; 2018

ISSN: 2456-7760

carry a permanent staff and also reluctant to invest on training and training resources. As a result of these industry characteristics, major contracting companies resort to practices such as use of labor-only subcontractors and more and more use of small subcontractors for work. The temporary nature of work has been the greatest contributory factor to the negative perception on construction industry as preferred choice for jobseekers.

This review finds possible 16 mitigation measures. However, Rasool and Botha (2011) stress that there is a tendency to perceive the problem of skills shortages only from the perspective of a weak education and training system. Therefore, some argue that the only way to address skill shortages is through an increase in public investment on education and training and changing the education system. Changes are necessary, but it is an inadequate response to alleviating skills shortages. South Africa provides a good case on that matter. On the other hand, some argue that it is necessary to import foreign labor. Some foreign workers have already been imported from India, Bangladesh and China to Sri Lanka. This option often is seen as an easy and speedy solution. However, allowing foreign workers into the country may create many other social, political and economic issues unless managed it properly. For an example, Malaysia provides a good case from Asian context. Abdul-Rahman et al. (2012) paper discusses that though foreign workers served to overcome the labor shortage in the Malaysian construction market, over-dependence on foreign workers and the negative impacts induced have become a serious social problem and therefore, they are now promoting strategies such as "attracting local workers into the construction industry", "industrialized building systems", "eliminate illegal migration" and "improve governance structure" to minimize negative impacts induced by foreign workers.

In Sri Lanka, approximately 332,000 of youth are dropped out annually from school system, about 62% is without O/L qualification (DoE, 2015). Female participation of construction industry in Sri Lanka is only 1% (TVEC of Sri Lanka, 2016). Still, unemployment rate is comparatively higher and there is a large untapped idling workforce. World Bank (2012) report explains this situation as "a large informal sector, high unemployment and low female employment rates are key labor market challenges - at present, Sri Lanka is enjoying a demographic bonus with the share of the working age (15-64) population at 67%. However, a number of impediments prevent Sri Lanka from taking full advantage of this dividend. The report highlights three important policy challenges: a large informal sector, high unemployment, and low levels of female employment. Only 56% of the working age population is employed – driven by low labor force participation and high unemployment rates among women and youth".

On the other hand, Three-wheeler population exceeds 1 million and over 500, 000 engage in passenger transport by 2015(Sunday Times, 2016). Accordingly, Three-wheeler population increased in 162% from 2008 to 2015. It is believed that most of the Three-wheeler drivers are in the age range of 18 – 35. This seems that youth who can contribute to industries are preferred to be Trishaw-drivers instead of becoming a craftsman or a technician of this industry. The danger is that once youth become more and more mature, they may not be trainable for skill jobs in industries due to psychological and physical conditions. Further, the rate of employee turnover is very high in construction industry of Sri Lanka (ILO, 2015).Higher employee turnover is an

Vol. 2, No. 01; 2018

ISSN: 2456-7760

indicator of dissatisfied and frustration of employees. Industry nature and organizational level factors cause for people to leave that organization and industry. This has an impact on potential candidates. However, often, firms disregard the fact that firms also contribute to the acute labor shortage of their own organization and the industry.

It is recommended that the government authorities and construction companies should have a much broader understanding on the problem of 'skill shortage' instead of seeing this issue as a problem of the education system of the country. This industry has serious problems in the areas of attracting, training and retiming of people. Therefore, this review suggests that traditional and fragmented approaches may not be result oriented. Construction industry needs to adopt a coherent conceptual framework that rests on three strategic pillars. They are strategy on enhancing brand image of the industry, strategy on systematic training and development and strategy on retaining employees. These strategies should be implemented at individual contracting company level and industry level. The government can play a big role as a facilitator as the government has already got a large network of training colleges and other resources. And Construction Industry Associations need to have collaborative and consistent strategy with all the stakeholders of the industry in order to have a sustainable solution for the problem of skill shortage in construction industry of Sri Lanka.

Construction industry is a project oriented business. This industry creates a unique environment in which managing people issues become really challenging than traditional manufacturing and service industries. In most of the extant literature on HRM is framed primarily in terms of large, stable organizations, while other organizational types, such as, those relying on projects as the principal form of work design, are marginalized in discussions about what HRM is and how it should be practiced (Huemann et al., 2006). Further, HRM is underdeveloped in Project Management context (Silva et al., 2016a; Belout and Gauvreau, 2004; Wilkinson et al., 2012), Huemann et al., 2006; Dainty and Loose more, 2012; Yong and Musttaffa, 2012).Yong and Musttaffa (2012) recommend to give more emphasis on improving the human related factors in order to ensure successful implementation of a construction project in future. Wilkinson et al. (2012) stress the importance of investigating HRM issues in the construction industry from both organizational performance and employee wellbeing perspectives. It is believed that construction companies could find solutions to the problem of skill shortage through adopting Strategic Human Resources Management practices. Bartlett (2007) highlights that the industry needs to focus on three main aspects (recruitment, training, and retention) of the construction workforce to devise solutions for the shortage. Employer brand theories such as 'Social Identity, Signaling and Expectancy theories' provide a sound explanation about firm's attractiveness as good employer and why potential recruits should choose particular employer. Social identity theory and signaling theory offer rationales for why applicants should be interested in organizational reputation, and be more attracted to firms with positive versus negative reputation (Turban and Cable, 2003). Expectancy theory predicts that applicants are more likely to pursue job alternatives when the job is perceived positively (high valence) and when the job is seen as attainable (expectancy) (Rynes, 1989 as cited in Turban and Cable, 2003).Employer branding has been identified as one of the most significant factor in recent past in the discussion on

Vol. 2, No. 01; 2018

ISSN: 2456-7760

attracting and retaining of talent. Increasingly, firms are using employer branding to attract recruits and assure that current employees are engaged in the culture and the strategy of the firm. The employer brand puts forth an image showing the organization as a "good place to work." (Tüzüner and Yüksel, 2009). Conference Board, 2001) study of employer branding practices, proposed that "the employer brand establishes the identity of firm as a good employer. It encompasses the firms' values, system, policies and behaviors toward the objectives of attracting, motivating, and retaining the firms' current and potential employees" (Conference Board, 2001; Backhaus, K.B., and Tikoo, S., 2004 as cited in Tüzüner and Yüksel, 2009), Employer branding focuses on how the company is seen by current and potential employees with the aim of "winning the war on talent" (Ulrich D., 1997). On the other hand, Human capital theory explains the gains of education and training and stress the need for investment in human resources (Aliaga 2001), and therefore, people are considered as a form of capital for development. According to this perspective learning' is seen as deliberate attempt to prepare the labor force and increase effectiveness of individuals and organizations. Therefore, this theory stress the need for continues learning and development in order to be effective and competitive for an organization. A large body of empirical findings suggest that employer banding and organizational learning and development initiatives have a great influence on employee attraction and retaining of skilled and professional workforce.

However, steps such as National Vocational Qualification Program (NVQ) and Skill Sector Councils (ILO, 2015, TVEC, 2016), changes to Education System and control over Three-wheelers etc have been taken at the national level by the Government of Sri Lanka to find solutions to skill shortage issues. But there is a question of effectiveness of the implementation of such programs. Further empirical studies in Sri Lankan context are required in this area of knowledge to find out sustainable solutions.

6. Conclusion

Human capital is a critical factor that is decisive for the success of any organization particularly in this era of complex, highly competitive and ever-changing business environment. Human capital has been identified as a key source of sustainable competitive advantage of an organization as well as one of the key enablers of economic development of a county. Shortages of human capital have been a serious problem for decades in many countries. Some of the industry sectors in Sri Lanka have already begun to feel the pain more than ever due to the growing nature of competition for talent among business firms. Construction firms in Sri Lanka feel this pressure more than other industries due to the rapid expansion of the industry with the dawn of peace aftera three decades long war. On the other hand, this industry is perceived less attractive as the preferred choice for employment among potential job seekers mainly due to the fragmented and temporary the nature of work assignments. Today, the issue of human capital shortage has become the key people related management challenge in the construction industry and it hasbeen predicted that this situation will continue to grow in future.

The human capital shortage refers to the skill shortage in general. Employers/managers voice about skill shortages when they are not in a position to fill existing vacancies for a long period of

Vol. 2, No. 01; 2018

ISSN: 2456-7760

time. They experience skill shortages mainly in two forms: skill mismatch and shortage of people. Skill gap(skill deficiency) occurs when there is a difference between expected level of skills and actual skills possessed by the employees. The skill deficiencies/skill gaps may occur at multiple levels due to various reasons. Skill Gap Analysis presents an opportunity for the company and the employees to identify the deficiency and missing skills. In the same way, Skill Gap Analysis would be useful for an industry and to the county as whole because that will provide detailed information and insights for policy decision and workforce planning for future. Labour shortage refers to shortage of people for unskilled/labour jobs. It could be observed that mainly there are shortages of people in construction industry of Sri Lanka in the categories of unskilled workers (laborers) and skilled workers. And also there is a skill mismatch issue as well because quality of trained people coming out from training institutions/universities are not up to the expectations of the industry. We use the term human capital shortage as an umbrella term to represent all three different forms of skill shortages of the industry. This review has identified 16 possible causal factors and 16 possible mitigation measures but not limited only to those. These factors take place at different levels and often interrelated and intertwined. Further, these problems have deep rooted in the cultural, social, economic and political environment of the country.

There is a tendency to perceive the problem of human capital shortage only from the perspective of a weak education and training system. Some advocate for changing education system and importing foreign laboras the only solutions. It is recommended that the government authorities and construction companies should have a much broader understanding on the problem of human capital shortage. This industry has serious problems in the areas of attracting, training and retiming of people. There is a large untapped workforce still in Sri Lanka. Comparatively, a large quantity of youth are dropping out annually from school system. There is a large pool of male youth performing less productive jobs. Unemployment rate is still very high. Alarge female workforce is idling. Employee turnover ratio is very high in this industry. Therefore, this review suggests that traditional and fragmented approaches may not be result oriented. Bartlett (2007) highlights that the industry needs to focus on three main aspects (recruitment, training, and retention) of the construction workforce to devise solutions for the shortage. Human capital theory and employer brand theories such as social identity, signaling and expectancy theories' provide a sound basis for construction companies to device their strategies to face this challenge. These strategies should be implemented at individual contracting company level and industry level. The government can play a big role as a facilitator as the government has already got a large network of training colleges and other resources. And Construction Industry Associations need to have collaborative and consistent strategy with all the stakeholders of the industry in order to have a sustainable solution for the problem of skill shortage in construction industry of Sri Lanka.

This review will fill existing research void to a great extent as there is a lack of studies in this area in Sri Lankan construction context. The paper has clearly articulated the different terms used in practice in order to avoid misinterpretations and confusions. Future researchers will be able to use this as a good base for their studies. This review will have implications mainly to three areas: Human Resource Management, Project Management and Construction Industry Development.

Vol. 2, No. 01; 2018

ISSN: 2456-7760

Further, this will contribute to policymaking at national and industry level as construction industry has a direct implication to employment generation and GDP of the country.

7. References

1. Abdul-Rahman, H., Wang, C., Wood, L. C., & Low, S. F. (2012). Negative impact induced by foreign workers: Evidence in Malaysian construction sector. *Habitat International*, *36*(4), 433-443.
2. Aliaga A. O., (2001). "Human capital, HRD and the knowledge organization," Academy of Human Resource Development: Conference Proceedings, Baton Rouge, LA: AHRD. 427–34.
3. Ayegba, C., &Agbo, A. E. (2015). Assessment of craftsmen turnover in the construction industry. *Built Environment Journal*, *12*(1), 1-10.
4. Bartlett, S. F. (2007). *Recruitment and Retention in Construction* (Doctoral dissertation, University of Florida).
5. Basnayake L.K. & Prematthilaka R.P.M.M. (2015). Shortage of skilled labour in construction industry of Sri Lanka. http://www.bing.com. Accessed 10.11.2016.
6. Beatham, S., Anumba, C., Thorpe, T., & Hedges, I. (2004). KPIs: a critical appraisal of their use in construction. *Benchmarking: an international journal*, *11*(1), 93-117.
7. Belout, A., &Gauvreau, C. (2004). Factors influencing project success: the impact of human resource management. *International journal of project management*, *22*(1), 1-11.
8. Central Bank of Sri Lanka (2014). *Annual Report*., 51.
9. Chamber of Construction Industry of Sri Lanka (2016). Skill Shortage in Sri Lanka. *Weekend FT*. 23rd May.
10. Chandrasiri, S., &Gunatilaka, R. (2015). *The Skills Gap in Four Industrial Sectors in Sri Lanka*. ILO.
11. Cheong Yong, Y., & Emma Mustaffa, N. (2012). Analysis of factors critical to construction project success in Malaysia. *Engineering, Construction and Architectural Management*, *19*(5), 543-556.
12. Dainty, A. &Loosemore, M. (2013). Human resource management in construction: critical perspectives.https://books.google.lk. Accessed 5.20.2016.
13. Dainty, A. R., Ison, S. G., & Briscoe, G. H. (2005). The construction labour market skills crisis: the perspective of small–medium-sized firms. *Construction management and economics*, *23*(4), 387-398.
14. Dainty, A. R., Ison, S. G., & Root, D. S. (2004). Bridging the skills gap: a regionally driven strategy for resolving the construction labour market crisis. *Engineering, construction and architectural management*, *11*(4), 275-283.
15. De Silva, N., Rajakaruna, R.W.D.W.C.A.B. &Bandara, K.A.T.N. (2008). Challenges faced by the construction industry in Sri Lanka: perspective of clients and contractors. http://usir.salford.ac.uk Accessed 10/01/2015.
16. Department of Examinations report on performance of candidates; national evaluation and testing service (2015).http://www.doenets.lk/exam/docs/comm/OL15GEN.pdf. Accessed 05.01.2017.

Vol. 2, No. 01; 2018

ISSN: 2456-7760

17. Dr. SurathWickramasinghe (2016). Construction Industry Challenges. *The Island. 25th May.*
18. Fielden, S. L., Davidson, M. J., Gale, A. W., & Davey, C. L. (2000). Women in construction: the untapped resource. *Construction Management & Economics*, *18*(1), 113-121.
19. Green, F., Machin, S. and Wilkinson, D., (1998). The meaning and determinants of skills shortages. *Oxford Bulletin of Economics and Statistics*. 60(2), 165-187.
20. Gudienė, N., Banaitis, A., Banaitienė, N., & Lopes, J. (2013). Development of a conceptual critical success factors model for construction projects: a case of Lithuania. *Procedia Engineering*, *57*, 392-397.
21. Healy, J., Mavromaras, K.G. & Sloane, P.J. (2011). Adjusting to skill shortages: complexity and consequences. https://papers.ssrn.com. Accessed 04.10.2016.
22. Heikkila R. (2012). Shortage of Skilled Workers: A Paradox of the Indian Economy. *SKOPE Research Paper* No. 111.
23. Huemann, M., Keegan, A., & Turner, J. R. (2007). Human resource management in the project-oriented company: A review. *International Journal of Project Management*, *25*(3), 315-323.
24. Jayawardane, A. K. W., &Gunawardena, N. D. (1998). Construction workers in developing countries: a case study of Sri Lanka. *Construction Management & Economics*, *16*(5), 521-530.
25. Mackenzie, S., Kilpatrick, A. R., &Akintoye, A. (2000). UK construction skills shortage response strategies and an analysis of industry perceptions. *Construction Management & Economics*, *18*(7), 853-862.
26. Mitra, S., & Wee Kwan Tan, A. (2012). Lessons learned from large construction project in Saudi Arabia. *Benchmarking: An International Journal*, *19*(3), 308-324.
27. Ng, K.H. &Peh, W.C.G. (2010). Effective medical writing. *Singapore Med J*. 51(5), 362-366.
28. Praveen, R., Niththiyananthan, T., Kanarajan, S. &Dissanayake, P.B.G. (2013). Understanding and mitigating the effects of shortage of skilled labour in the construction industry of Sri Lanka. http://dl.lib.mrt.ac.lk. Accessed 03.10.2016.
29. Rasool, F., & Botha, C. J. (2011). The nature, extent and effect of skills shortages on skills migration in South Africa. *SA Journal of Human Resource Management*, *9*(1), 1-12.
30. Shah, C., & Burke, G. (2005). Skills Shortages: Concepts, Measurement and Policy Responses1. *Australian Bulletin of Labour*, *31*(1), 44.
31. Sigma Assessment System (2005). *Overview of Employee Turnover Research. Sigma Assessment System.* Port Huron, Michigan, U.S.A., 1-2.
32. Silva, G. A., Warnakulasooriya, B. N. F., &Arachchige, B. J. (2015). Critical Success Factors for Construction Projects: A Literature Review. International Journal of Business and Social Science. 7(3), 27-37.
33. Sunday Times report on three-wheeler population of Sri Lanka. (2016). http://www.sundaytimes.lk/infographics/97591/97591. Accessed 10.01.2017.

Vol. 2, No. 01; 2018

ISSN: 2456-7760

34. Technical & Vocational Education Commission (2016). The Survey of Skills Gap Analysis and Training Need Assessment Report of Sri Lanka.

35. Thomas, J. (2013). Study on causes and effects of employee turnover in construction industry. International Journal of Science and Research (IJSR), 2319-7064.

36. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. British journal of management, 14(3), 207-222.

37. Trendle, B. (2008). Skill and labour shortages-definition, cause and implications. Department of Education, Training, and the Arts.http://www.voced.edu.au. Accessed 03.10.2016.

38. Turban, D. B., & Cable, D. M. (2003). Firm reputation and applicant pool characteristics. Journal of Organizational Behavior, 24(6), 733-751.

39. Tüzüner, V. L., &Yüksel, C. A. (2009). Segmenting potential employees according to firms' employer attractiveness dimensions in the employer branding concept. Journal of Academic Research in Economics, 1(1), 46-61.

40. Ulrich, D. (1997). Human Resource Champions: The next agenda for adding value Boston, MA: Harvard Business School Press.

41. Wilkinson, A., Johnstone, S., & Townsend, K. (2012). Changing patterns of human resource management in construction. Construction Management and economics, 30(7), 507-512.

42. World Bank report on Sri Lanka demographic transition (2012). http://www.worldbank.org/en/news/feature/2012/09/29/sri-lanka-demographic-transition. Accessed 05.01.2016.

43. Xiaoming, Y., Ma, B. J., Chang, C., & Shieh, C. (2014). Effects of workload on burnout and turnover intention of medical staff: A study. Ethno Med Journal, 8(3), 229-237