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Malaysia Theme Paper

“Developing human capital in the Malaysian Construction Industry”



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EXECUTIVE SUMMARY

Strengths of Malaysian construction sector are attributed by capabilities of Malaysian construction companies to implement projects namely construction of buildings, roads and highways, railways, bridges and airports, water treatment and power plants; steel structure fabrication, installation and erection; mixed development projects including housing, hotels, leisure and luxury residences; and building maintenance, including for high-rise towers.

The steady growth of the Malaysian economy has provided a solid foundation for the expansion of the construction industry. Economic growth has driven demand for residential, commercial and industrial buildings as well as increased investment in infrastructure projects. The Malaysian government has played an important role in promoting the construction industry by stimulating the economy through the implementation of various construction projects and infrastructure programs such as the construction of roads, bridges and public transportation systems.

The implementation of the 12th Malaysia Plan, greater investment in developing better infrastructure and connectivity that will facilitate growing economic activities in the future. Projects such as Central Spine Road, the East Coast Highway (LPT) 3, Pan Borneo Highway, West Coast Expressway, Klang Valley Double Track, Gemas-Johor Bahru Electrified Double Track, and East Coast Railway Line (ECRL) will be the development that will improve transportation and connectivity between states through highways and railways. In sequence, with all these projects implemented, it will offer additional job opportunities and will have positive spillover effects to other economic sectors. This is where knowledgeable and innovative human capital is an important factor to support economic growth.

The NCP 2030 is one of the key initiatives by the government to modernise and transform the construction sector through digitalisation. The policy acts as a roadmap for inclusive and sustainable national development by 2030, serving as a reference guide for both the public and private construction sectors. The government's Technical and Vocational Education and Training (TVET) programme involved in construction personnel competency training is one of the topmost agenda in supporting economic growth in Malaysia.

Human capital development is a critical enabler for driving and sustaining Malaysia's economic growth. The availability of a skilled workforce is necessary. All in the effort of ensuring construction personnel's "competency" in an industry that is a major driver for Malaysia's continuous economic development and wellbeing.

This paper “Developing human capital in the Malaysian Construction Industry” aims to share with fellow delegates the proposed initiative by Construction Industry Development Board (CIDB) in collaboration with the respective professional boards, and training institutions to develop industry-relevant training modules, establishment of assessment centres; and supporting skilled trade apprenticeship programme for specific courses.

INTRODUCTION

National Construction Policy 2030

The National Construction Policy (NCP) 2030 is one of the key initiative by the Government in transforming the whole construction sector towards the digitalisation era. The focus will be on optimising productivity within the sector through the use of technology while encouraging digitalisation and innovation in general as well as empowering human resource management. There are 6 thrusts in NCP 2030 as below:

- Thrust 1 :Strengthen Quality and safety in Project Performance Across the Construction Sector
- Thrust 2 : Embrace Sustainable Built Environment
- Thrust 3 : Improve Construction Productivity
- Thrust 4 : Strengthen Infrastructure Maintenance
- Thrust 5 : Strengthening Internationalisation and Competitiveness
- Thrust 6 : Strengthening Good Governance and Adoption of Best Practices
- Thrust 3 :Improve Construction Productivity aims to create a supply of knowledgeable and highly skilled construction workers through the transformation of construction training institutions.

These initiatives derive through four strategies as below:

- i. To introduce and realign training modules according to technology for industrial needs;
- ii. To improve and digitise the processes in the construction sector along the value chain;
- iii. to upskill and reskill Malaysian construction sector workforce and increase accredited skilled workers; and
- iv. to embrace new technology in increasing construction productivity.

NCP recommended the construction sector to encourage strategic human resource development in an effort to increase productivity. Thus, this will indirectly reduce the dependency on unskilled foreign workers and offset the domestic labour supply while enabling construction workers to earn higher wages and decent standard of work.

INITIATIVES IN DEVELOPING HUMAN RESOURCES IN CONSTRUCTION

CIDB is the regulatory body for the construction industry in Malaysia. CIDB is responsible for the various developments and activities related to construction industry, including to promote and stimulate the development, improvement and expansion of the construction industry. CIDB function is also to provide, promote, review and coordinate training in the construction industry.

In developing construction workers, the accepted level of skill is determined by the ability of a construction personnel to perform successfully the construction tasks within a certain work-scope in accordance to the required competency standards as as recognised by CIDB.

The construction personnel who achieved the required level of competency will be recognised as a Construction Competent Person (CCP). The recognition process requires the certification and accreditation by CIDB. According to *Lembaga Pembangunan Industri Pembinaan Malaysia 1994 (Act 520)*, Section 2(1) the definitions certification and accreditation is stipulated as:

“certification” means a procedure by which the Lembaga (Board) or any person authorised by it gives written assurance that a process, practice or service conforms with specified requirements

“accreditation” means a procedure by which the Lembaga (Board) or any person authorized by it gives formal recognition that a body or person is competent to carry out a specific task relating to the construction industry

At the same time, no worker can be engaged in the construction without accreditation or registration as construction personnel. CIDB is responsible for the accreditation of construction personnel. Under the Act 520, Section 33A (1) specified that:

“No construction site supervisor or skilled construction worker shall be involved or engaged, or undertake to be involved or engaged as a construction site supervisor or skilled construction worker unless he is accredited and certified by the Lembaga

(Board) and holds a valid certificate issued by the Lembaga (Board) under this Act. ”

On the subject of competency development, CIDB is responsible for the regulation and monitoring of competency. This covers construction personnel, instructor, assessors, institutions, modules and standards. At the same time, CIDB also has the authority to suspend and revoke the accreditation of the parties involved. This is specified under Section 33B (1) of Act 520 as follows:

The Lembaga (Board), for the purpose of training, accreditation and certification of construction personnel may –

- a) establish, promote and accredit training institutions*
- b) establish a body to carry out evaluation or assessment or to conduct examination of the training institutions*
- c) establish a body to develop, monitor and modify the curriculum as to the courses of studies, standards and training programmes offered by the training institutions*
- d) give formal recognition and written assurances including awarding certificates and any other qualifications to the training institutions*
- e) suspend or revoke the accreditation of training institutions for contravening or failing to comply with the conditions of the accreditation and*
- f) do any other things which the Lembaga (Board) deems expedient or necessary for the purposes of this Part*

CIDB’s Role in Developing Construction Personnel Through Construction Skill Qualification Framework

Construction Skills Qualifications Framework (CSQF) are based on the Guidelines for the Quality Assurance of TVET Qualifications in the Asia-Pacific Region by UNESCO (2017). The establishment of the CSQF by CIDB signifies a significant milestone in Technical and Vocational Education and Training (TVET), offering a structured approach to skills development and training within Malaysia’s construction industry.

CSQF are not just setting standards; but shaping the future of construction expertise in Malaysia. This framework serves as a beacon of opportunity, guiding aspiring individuals toward acquiring the necessary skills and qualifications that the industry demands. Thus, ensuring that those entering the construction sector are equipped with the right knowledge and capabilities to excel in their roles.

The following general principles of the CSQF underpin the quality assurance of

TVET qualifications:

- a) **Qualifications must be fit for purpose.** That is, they should focus on the specific things that qualification holders know, understand and can do.
- b) At the national and institutional levels, the **quality assurance** process also includes **conducting reviews of the entire qualification** process to ensure continuous improvement. The process includes reviews of assessment methods, materials, tasks, consistency of results across time, location, institutions and assessors.
- c) The quality assurance approach should be underpinned by **internal evaluations of performance and by external evaluations** of how effectively an institution uses self-assessment information so as to understand performance and bring about improvements.

To ensure the **continuance improvement of the quality assurance** involves adherence to the **code of practice** for:

- a) **training programme accreditation;**
- b) **institutional compliance audit;** and
- c) **individual accreditation.**

CSQF serves as a **guidance for the purpose of training, accreditation and certification personnel** through the following:

- a) **Training programme accreditation;**
An assessment exercise to determine whether a programme has met the quality standards and is in compliance with CSQF.
- b) **Assessment;**
Assessment is the process of judging the knowledge, skills and wider competencies of an individual against criteria such as learning outcomes or standard of competencies.
- c) **Validation;**
Validation is the confirmation that the assessment outcomes (of an individual's learning) meet the predetermined criteria (ie standards) and that valid assessment procedure was followed.
- d) **Certification;**
Certification is a record of learning of an individual that has been validated. A certification is issued by CIDB or approved training providers, showing official

recognition of the competence of an individual in the labour market and in further education and training.

- e) **Institutional compliance audit:** and
Institutional Compliance Audit is an external evaluation of an institution to determine whether it is achieving its mission and goals, to identify its strengths and areas of concern, as well as to enhance quality.

f) **Individual accreditation.**

Is the process in which certification of competency is presented.

The accreditation of the construction personnel can be categorised to:

1. Mode I(a) – Training & Assessment,
2. Mode I(b) – Assessment only, and
3. Mode II Recognition of Prior Learning and Experience (RPLE) – Accreditation via Level of Education and Experience.

The training offered would allow construction personnel to retain their competitive edge and employability. Trainees/personnel who successfully complete the training and pass the assessment will be awarded **Construction Skills Competency Certificate (SKKP)** by CIDB who recognize them as skilled/competent workers according to the standard required.

Employment Challenges in The Construction Malaysian Market

The Malaysian labour market is facing a range of challenges that are affecting the country's ability to grow and capitalise on global trends such as the introduction of automation technologies. In particular, the COVID-19 pandemic and global economic downturn has had a profound impact on the local labour market, as employers are finding it increasingly difficult to hire suitable and competent personnel.

The employment challenges faced by the construction industry sector in Malaysia can be summarised as follows:

1. Skills Shortage and Underemployment

There is a growing concern on the skills mismatch among the local workers. The skills and competencies of the workforce, in particular the fresh graduates do not meet the requirements of industry employers. The lack of skilled professionals with expertise in areas such as machine learning, automation, and data analysis were among the key reasons for the slow technological adoption in construction. While existing workers struggle to keep up with the latest industry and technological

advancements, new entrants often lack essential practical industrial experience, technical and soft skills required by the industry. Graduates are unable to secure suitable jobs based on their qualifications and skills, or jobs with remuneration that commensurate to their qualifications.

To overcome this, effective planning in education and skills-based training based on latest industry developments and trends in order to ensure the knowledge and skills they gained at universities and learning institutions are still relevant and updated to the industry needs. This will give impact on the productivity and efficiency levels of the companies they worked for and ultimately the economic competitiveness of Malaysia in the long run.

2. Difficulties in Talent Retention

Widespread reduction in economic activities and job losses due to the COVID-19 pandemic has led to many workers seeking alternative employment opportunities such as providing ride-hailing and food delivery services in the gig economy.

In addition, many skilled and semi-skilled foreign workers previously working in Malaysia permanently returned to their respective countries during the COVID-19 pandemic, leading to a shortage of competent skilled and semi-skilled workers in the local labour market.

However, the industry is struggling to cope with the demand given the shortage of workers. Technical roles in particular are not easily replaceable given the high level of technical expertise and industry experience required.

3. Lack of interest in the sector among students/graduates

There is a general perception of the construction work nature and environment as 3D (dirty, dangerous, and difficult) among Malaysians, especially among the younger generation of students and graduates. This issue has been plaguing the Malaysian construction industry for years and has exacerbated in recent times with the emergence of new sectors and technological advancements.

At school, students are not given sufficient exposure or groomed to pursue a career in the construction sector and are therefore not attracted to join the industry when they leave school. Further, industry stakeholders have also suggested work safety concerns and a lack of work-life balance as key reasons for the lack of interests among students and graduates, as the nature of the industry requires working at potentially dangerous construction sites and at irregular working hours.

4. Skill Levels and Productivity

Three key construction productivity drivers are ‘workforce’, ‘technology’ and ‘processes’. The workforce driver relates to human capital improvements which increase output per worker. The technology driver relates to plant on site and software, which can provide more ‘muscle’ and indeed more ‘intelligent muscle’. The processes driver leads to faster design and efficient and accurate construction planning and management.

In fact, the industry has a less than adequately trained workforce, with an over-reliance on low-skilled foreign labour, ultimately resulting in expensive and extensive rework. There is a continuing CIDB drive towards greater adoption of modern mechanised practices, Industrialised Building Systems (IBS) and information technology including Building Information Modelling (BIM) moving towards an industry increasingly utilising information driven decision-making processes.

These shortcomings are all being addressed. Besides cost efficiency improvements, technological progress can boost growth and create new jobs. Novel methods of construction are strongly encouraged where they reduce site labour and enhance built quality.

KEY STRATEGIES ON SECURING AND DEVELOPING HUMAN RESOURCES IN THE CONSTRUCTION INDUSTRY IN MALAYSIA.

1. Skill Development Initiatives

Skill development initiatives in the construction industry in Malaysia are crucial for improving productivity, quality, and safety standards. The training carried out by CIDB is in line with the government’s initiative to empower Technical Education and Vocational Training (TVET). CIDB has trained and accredited 388,188 skilled construction workers since the beginning of the year of establishment in 1997.

Under CIDB function and roles the key strategies for fostering skill development involves:

a) Technical Training Programs:

Skills Competency Training Program (LKK) aimed at producing construction workers who are competent to carry out construction works. Among the training programs offered are:

- i) **Youth Skills Competency Training Program** (open to young Malaysian citizens between 17 and 35 years old); and
- ii) **Construction Personnel Skills Competency Training Program** (open to all local and foreign construction workers who are working or have experience and are between 18 and 55 years old).
- iii) **The Skills Competency Assessment Program (PKK)** is implemented in accordance with the requirements of Section 33A, Act 520 (Amended 2011). Through this program, the competence of construction workers will be assessed and accredited to certify them as competent construction workers. Competent construction workers will qualify them to perform skilled work in the construction industry based on their area of expertise.
- iv) **Apprenticeship Programme** is implemented in collaboration with industry partners. These programs provide hands-on training under the guidance of experienced mentors, helping individuals gain practical skills and experience.

More than RM 51 million was spent in 2023 on construction skills training, sufficient for more than 100 skill areas been offered nationwide. The areas of trades include Gas Pipe Fitter, Wireman Single Phase, Air-Conditioning & Mechanical Ventilation, Scaffold Erection, and Plant Operation.

b) High Impact Work Specialisation Training

Implement structured training programs focused on technical skills relevant to various construction trades, such as carpentry, electrical work, plumbing, masonry especially on high impact work specialisation such as:

- i) Scaffolding
- ii) Wireman
- iii) Chargeman
- iv) Gas Pipe Fitting (Fitting/Insulation)
- v) Crane Operation
- vi) Plant Operation
- vii) Plumbing
- viii) Welding
- ix) Blasting & Painting
- x) Non Destructive Testing (NDT)

High-impact trades are among the areas with the highest labour demand in the construction sector. These programs should cover both basic and advanced skills based on industry requirements and demand.

2. Safety Training

The lack of available domestic pools of construction personnel has long led developers in Malaysia into resorting to the employment of foreign workers. Most

of these workers are unskilled and need consistent supervision to ensure they perform in compliance to construction industry requirements. Ensuing problems from the engagement of these unskilled and to some extent, semi-skilled, workers does not only involve work quality issues but also costly work site accidents. Thus, labelling the construction industry as 3D (dirty, dangerous, and difficult).

On this observation, CIDB took an initiative to monitor the employment of foreign and local workers and formulate ways of reducing unforeseeable work site incidences. Hence the Personnel Registration whereby these workers are obliged to undergo safety at work training programmes prior to being allowed access to a project work site. This means only Personnel Registration Card holders may be engaged in construction projects in Malaysia.

However, this does not vastly improve the situation for work quality. As the numbers of construction personnel grew invariably to 1.4 million in 2023, CIDB took a further initiative in its proposal to define “skills competency” as an effort to enhance quality of work and relabel the construction work as decent work.

Upon the establishment of a definition for “competency”, regulations for the engagement of construction personnel at work sites are made more stringent as stipulated in the Act 520 CIDB. Prioritize safety training to ensure that construction workers are well-versed in occupational safety and health regulations (OSH), hazard identification, emergency response procedures, and the proper use of personal protective equipment (PPE) and promotes decent work in a whole.

3. Accreditation and Certification

Encourage and support workers to obtain relevant certifications and licenses required by Malaysian authorities for specific construction roles. This includes certifications in scaffolding, crane operation, heavy machinery operation, and other specialized skills. It is compulsory workers employed at construction site in Malaysia to be registered, assessed, accredited and certified as per Act 520 Schedule 3.

Each of these regulatory authorities has their own competency standards. The anomaly in TVET programmes create confusion among construction personnel. Among the proposed solutions to resolve the issues are:

- a. CIDB will initiate discussions with other governing bodies, namely, Department of Occupational Safety & Health (DOSH) and the Energy Commission Malaysia (EC); for the purpose of streamlining the competency requirement.

b. The competency standards, such as Construction Occupational Construction Standard (COCS) by CIDB, NOSS or other equivalent competency standards will be constantly reviewed. To ensure that the competency standards are truly in line with the expectations of employers, this must be done with the participation of subject-matter experts from the construction industry. The reviews will ensure that the competency standards remain relevant and up-to-date with the changing times.

The solution is to have a single qualification system and CIDB will lead and manage the construction industry competency accreditation system, which includes consistent formats on all competency standards, as stipulated in the Act 520.

4. Technology Integration

Incorporate training on modern construction technologies such as Building Information Modelling (BIM), GPS-based equipment, construction management software, and automated systems. This prepares workers to leverage technology for improved efficiency and accuracy on construction sites.

CIDB commitment to promote awareness and facilitating the development of BIM expertise has encouraged widespread implementation in projects nationwide. These activities include initiatives in education and formulating training syllabuses, roadshows, mandating industry requirements for BIM adoption and the provision of BIM facilities and platforms, which include myBIM Centre and BIM satellites.

There are six BIM satellites under CIDB's purview across the nation and six other BIM satellites managed by CIDB's partners. All of them are equipped to conduct training, awareness programmes as well as offer BIM adoption consultancy and advisory services.

MyBIM Centre also offers the National BIM Library (NBL) service which helps BIM practitioners right from drawing the BIM model to downloading it from the NBL platforms. The Library is structured and interactive to allow architects, consultants, engineers and designers familiar with the layout of the object library and online portals to quickly find, download and use the objects for their 3D construction design.

BIM represents a significant leap forward, offering an all-encompassing view of a project even before ground-breaking. This pre-emptive visualisation allows meticulous planning, precise execution, and efficient management. Through a cohesive digital platform, architects, engineers, and contractors are united in their efforts, streamlining workflows and enhancing communication.

Other than BIM, CIDB's also put an effort in integrating the latest technology in the implementation of training in Akademi Binaan Malaysia (ABM) including the

concept of Construction 4.0, which refers to the use of advanced technology such as Building Information Modeling (BIM), Automation, Virtual Reality (VR) and Augmented Reality (AR) in the construction sector. The use of this technology not only increases efficiency and productivity but also ensures quality and safety in every construction project”.

5. Sponsorship Programme and Support

The Construction Industry Development Board (CIDB) Malaysia offers various sponsorship programs aimed at enhancing the skills and capabilities of individuals and organisations within the construction industry. These programs are designed to support training and development, ensuring that industry professionals are equipped with the knowledge and skills required to meet the evolving demands of the sector. Types of support can be classified as below:

Youth Skills Competency Training Program

Youth Skills Training Program trainees are sponsored once in individual trades or clustered trades or level combined trades. Trainees who have followed the youth skills training program are allowed to follow various training trades through the construction personnel skills training program provided they have 6 months of experience in the construction industry sector.

Akademi Binaan Malaysia is an assessment and training centre under CIDB Malaysia that provides youth and construction personnel opportunities to undergo skills training in the construction industry. ABM in the Eastern, Northern, Central, Southern, Sabah and Sarawak Regions offers more than 100 construction skills training trades sponsored by CIDB Malaysia.

6. Industry Collaboration

Other than CIDB roles in regulating and developing the construction industry and improving standards, in order to drive its capacity building initiatives is driven through fostering industry collaboration.

One of the initiatives is by collaborating with major industry players and participating Oil and Gas Services Equipment (OGSE) contractors through an apprenticeship programme. This is aimed to build a sustainable pipeline of local semiskilled oil and gas employees to propel the industry further.

Participants of the apprenticeship programme were trained at CIDB’s training institution—Akademi Binaan Malaysia (ABM) and the apprenticeship will take place at contractors’ facilities located in various locations in Malaysia. The apprenticeship

programme is part of CIDB's ongoing effort to shape the sector by developing the human resource capacity and partnering with several ecosystem-builders.

CIDB also collaborates with various industry players to provide targeted training and development programs for construction workers and professionals. One of many examples, CIDB works with contractor associations to offer specialized training and workshops. The customized training is tailored to the specific requirements of different sectors within the construction industry, leading to more effective skill development, hence foster the industry professionals receive up-to-date training, enhancing their expertise and career growth opportunities.

By implementing comprehensive skill development initiatives, Malaysia's construction industry can enhance the capabilities of its workforce, improve project outcomes, and contribute to sustainable growth in the sector.

7. Promotion of Industry Careers in Construction in Malaysia

Promoting careers in the construction industry in Malaysia involves raising awareness, enhancing perception, and highlighting opportunities within the sector. Awareness to the industry is vital to increase recognition of CIDB's role and services within the construction industry. CIDB's new initiatives, achievements, and industry contributions press releases regularly distribute in targeted industry publications other than maintaining an active presence on social media platforms like Facebook, Twitter, and Instagram on CIDB's activities, industry news, and interactive content.

CIDB also organised annual International Construction Week (ICW) with the theme regarding on the development of human resources in construction industry. The event also include conference, dialogue that brings together policymakers, leaders in education, business, government, and experienced and young professionals to gives them the opportunity to address major global issues surrounding TVET, and reflect on the latest innovations, ideas, and trends of an ever-changing world.

CIDB has been involved in WorldSkills Competition since 1993. It is the world's largest skills Competition, is a true opportunity for youth trainees trained in the Akademi Binaan Malaysia (ABM) to participate in an international competition.

Through these strategies, CIDB can effectively promote its role in the construction industry, driving engagement and showcasing its contributions to industry development and excellence especially in developing human capital in construction.

CONCLUSION

The development of human capital in the Malaysian construction industry is pivotal for the sector's sustained growth and competitive advantage. As the industry evolves with technological advancements, regulatory changes, and increasing demands for higher quality and efficiency, enhancing the skills and capabilities of the workforce becomes crucial.

Other than support on training needs, the role of technology in terms of the integration of advanced technologies such as Building Information Modeling (BIM), Internet of Things (IoT), and robotics is transforming construction practices. Developing human capital to effectively utilize these technologies is essential for improving productivity, safety, and project outcomes.

The successful development of human capital will lead to a more competent and adaptable workforce, capable of meeting the challenges and opportunities presented by the modern construction landscape. This, in turn, will contribute to the overall efficiency, safety, and competitiveness of the Malaysian construction industry, driving economic growth and enhancing industry standards.

In the future way forward, future research and efforts should focus on evaluating the effectiveness of existing training programs, exploring innovative methods for skill development, and assessing the long-term impact of human capital development on industry performance. Collaboration among stakeholders, including government agencies, industry players, and educational institutions, will be key to achieving sustainable progress in human capital development.

In conclusion, prioritizing human capital development is not merely an operational necessity but a strategic imperative for the Malaysian construction industry. By investing in the skills and capabilities of its workforce, the industry can secure a competitive edge and drive continued success in an increasingly complex and dynamic environment.