



International Organization for Migration (IOM)

The UN Migration Agency



International
Labour
Organization

Mapping of the Skills Assessment Procedures, Certification Standards and Equivalencies

between Sri Lanka, UAE & Kuwait
in identified occupations of
the construction industry



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First published 2017

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ILO Cataloguing in Publication Data

Mapping of the skills assessment procedures, certification standards and equivalencies between Sri Lanka, UAE and Kuwait in identified occupations of the construction industry / International Labour Organization, ILO Country Office for Sri Lanka and the Maldives ; International Organization for Migration. - Colombo: ILO, 2017.

ISBN: 9789221291336; 9789221291343 (web pdf)

International Labour Organization; ILO Country Office for Sri Lanka and the Maldives; International Organization for Migration.

occupational qualification / construction industry / labour migration / skill certification / Kuwait / Sri Lanka / United Arab Emirates

13.02.2

ILO Cataloguing in Publication Data

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Printed in Sri Lanka

Foreword

The prevailing mismatch in skills assessment and recognition between Countries of Origin (COO) and Countries of Destination (COD) for migrant workers is an issue that affects the construction industry domestically as well as internationally. It has a direct impact on the labour market opportunities for construction workers and affects them negatively through setting of lower wages with poor working conditions, among others. This mismatch continues to act as a barrier to upgrade the profile of migrant workers from low skilled to skilled. The Annual Statistics Report of Foreign Employment Bureau, Sri Lanka, 2015 indicates that according to skill levels, 29.4% Sri Lankan migrant workers departed as low skilled and majority of them migrates to countries such as Saudi Arabia, Qatar, UAE and Kuwait.

At national level the labour migration policy in Sri Lanka highlights the way forward for the labour migration sector in Sri Lanka through the promotion of enhanced skills of migrant workers. Likewise, regional level dialogues such as the Colombo Process, recognize the need to study and discuss common procedures in recognizing the qualifications of workers from countries of origin in countries of destination, particularly in the GCC where there is a high demand for construction industry workers. Better and increased recognition of skills and qualifications of workers, has been identified as one of the five thematic areas under the Colombo Process. The CP Member States have endorsed “developing frameworks for skills training and recognition aligned with destination countries” as one of the recommendations specific to this thematic area in the Colombo Declaration 2016, which was adopted at the Fifth Ministerial Consultation of the CP in August 2016.

This report seeks to map the existing skills certification requirements and standards in Sri Lanka, against the skills required by countries of destination such as United Arab Emirates (UAE) and Kuwait. It further highlights the equivalencies and gaps in the construction sector in the identified occupations and recommends measures to improve the implementation of the skills qualification framework and quality of training services of prospective Sri Lankan construction workers who seek employment in UAE and Kuwait.

The study was commissioned by the International Labour Organization (ILO) project on “Enhanced recognition of skills and reduced vulnerability of Sri Lankan construction workers in selected GCC countries- UAE & Kuwait” which is a sub-component of the International Organization for Migration (IOM) regional project on “Strengthening Labour Migration Governance through Regional Cooperation in Colombo Process Countries” funded by the Swiss Agency for Development and Cooperation.

We hope this study will be useful in guiding government and other stakeholders in Sri Lanka to better align their qualification frameworks, standards and training programmes with the requirements of countries of destination, particularly in the construction sector. By doing so, it is hoped that skills recognized based on a mutually agreeable framework will reduce the vulnerability of migrant construction workers and promote decent and fair wages and working conditions. We also hope that the key findings and recommendations from the study will benefit other CP Member States by informing relevant programmes at their respective national levels as well as contributing to discussions at the regional level for the promotion of mutual recognition of skills and qualification frameworks between the CP Member States and destination countries.

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Acknowledgements

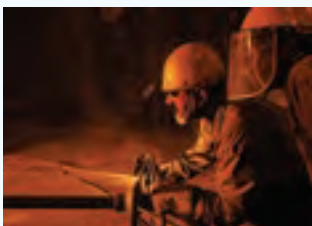
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The ILO-CO would like to thank all institutional representatives for their whole-hearted support and the members of the project working group for their high quality inputs all of which helped to successfully complete this study. The rich contribution of Dr. Partha S. Banerjee and his team of researchers from DEFT Advisory and Research in New Delhi, India at each stage of the study needs a special mention.

The ILO-CO also recognizes the efforts made by Ms. Thilini Fernando, Focal Person for the Migration Skills Project and valuable guidance given by Ms. Pramodini Weerasekera to complete this project on time. The ILO-CO would also like to sincerely thank Mr. Gabriel Bordado, Skills Specialist and Mr. Max Tunon, Migration Specialist from the ILO Decent Work Team for South Asia, for providing critical inputs and technical support to the project whenever required.

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List of Abbreviations

ADD	Abu Dhabi Dialogue
BCA	Building Construction Authority, Singapore
CCI	Chamber of Construction Industry
CIDA	Construction Industry Development Authority
CP	Colombo Process
COD	Country of Destination
COO	Country of Origin
DTET	Department of Technical Education and Training, Sri Lanka
EC	European Commission
GCC	Gulf Cooperation Council
GCE	General Certificate of Education
ICTAD	Institute for Construction Training and Development
ILO	International Labour Organization
IOM	International Organization for Migration
KOSAC	Kuwait Occupational Standards, Assessment and Certification Centre
NAITA	National Apprentice and Industrial Training Authority, Sri Lanka
NPD	National Planning Department
NQA	National Qualification Authority, Abu Dhabi
NQF	National Qualification Framework, United Kingdom
RCP	Regional Consultative Process
SLBFE	Sri Lanka Bureau of Foreign Employment
TVEC	Tertiary and Vocational Education Commission, Sri Lanka
TVET	Technical, Vocational Education and Training
UAE	United Arab Emirates
VTA	Vocational Training Authority, Sri Lanka



An aerial photograph of Dubai, United Arab Emirates, featuring the Burj Khalifa as the central focal point. The image shows a dense urban landscape with numerous skyscrapers, roads, and green spaces. The sky is clear and blue, and the overall scene is brightly lit, suggesting a sunny day.

Executive Summary

“Skills and Qualification Recognition” is one of the five thematic priorities of the Colombo Process (CP). In November 2015, at the Third Senior Officials Meeting (SOM) held in Colombo under the Chairmanship of Sri Lanka, it was reaffirmed that the CP Member States will continue focusing on this thematic area through a working group and collaborative actions. An important outcome of this SOM was a wider recognition that the Country of Origin (COO) TVET systems that have evolved with the inputs from the domestic industry are not comparable with the qualification frameworks of the Country of Destinations (COD).

At the same time, in the absence of adequate information on international qualification frameworks, comparing the COO occupational standards with those accepted in the CODs would remain a challenge. Sri Lanka, and some of the other CP Member States, would need to overcome this challenge to improve upon the vocational skills of its migrant labour force.

The present study was undertaken within the framework of the ILO project on “Enhanced Recognition of Skills and Reduced Vulnerability of Sri Lankan Construction Workers in Selected GCC Countries – U.A.E. and Kuwait”, a sub-component of the IOM’s regional project on “Strengthening Labour Migration Governance through Regional Cooperation in Colombo Process Countries”, funded by the Swiss Agency for Development and Cooperation (SDC). It is envisaged that the findings and recommendations from this study could help the regional project move the discourse towards reaching an agreement on minimum qualification standards in identified occupations and the implementation of jointly recognized assessment procedures for these occupational standards.

Accordingly, one of the objectives of this study was to undertake a mapping exercise between Sri Lankan standards and internationally accepted meta-frameworks generally applicable in the CODs using an established methodology. As a part of this exercise, the TVEC framework of Sri Lanka was compared with several international meta-frameworks well accepted in UAE and Kuwait. The comparison was undertaken by adopting widely accepted methods such as Benchmarking and Referencing between Qualification Frameworks.

Once the benchmarking was completed, the study team could then empirically identify the skill gaps of migrant Sri Lankan construction workers in the COD. This was done through a survey of 22 Foremen, Charge-hands, and Site Supervisors of migrant workers in the identified occupations. All interviewees had 15 – 25 years of experience with most of them having worked in 8-10 projects in the UAE and Kuwait. They were now back in India, mostly based in overseas testing centres (OTCs). The interview findings thus reflected the collective experience from about 200 project sites in the CODs which had workers from Sri Lanka and other South Asian countries.

A study mission was subsequently undertaken to meet multiple Government of Sri Lanka officials, institutional functionaries, construction industry representatives and vocational training providers. The inputs collected during the mission were synthesized with the findings from the survey of COD practitioners to develop recommendations which were then presented and discussed in a stakeholder workshop. A summary of the recommendations is presented below.

- (i) *Enhancing qualification framework implementation:* The benchmarking and referencing study showed Sri Lankan NVQF-TVEC qualification standards at the entry level are broadly comparable with some of the international meta-frameworks that are widely accepted in the CODs (UAE and Kuwait). At the same time, the study found that new migrant workers need 2 to 6 months of further On the Job Training (OJT) / site training to come up to the COD practitioners' skill level expectations. While further strengthening of qualification frameworks could be taken up in the identified occupations, a greater emphasis needs to be given on improved implementation of extant frameworks to enhance labour market outcomes. As an example, for the 'building painter' occupation, the study identified that the workers need to improve the theoretical knowledge of type of paints, their proportional and adequate mixing and practical skills on choice of quality and quantity of paints for the job, preparing surface for painting and taking adequate precautions while painting. A more elaborate discussion to improve theoretical knowledge as well as practical skills in each of the occupations identified in this study has been presented in para 81, Table 3.
- (ii) *Improving quality of teachers and teaching aids:* The construction TVET sector could benefit if the pool of existing instructors is augmented by experienced returnees, greater participation by the industry to allocate qualified trainers, and provide for greater OJT opportunities. Beside the trainers' quality and other pedagogical improvements, training centre equipment needs to be aligned to prevalent construction technologies in CODs. The duration of courses (and consequent credits) could also be appropriately spaced out to enable the trainee to acquire the optimum level of desired skills.

- (iii) *Outreach and mobilization:* Over the last few years, there is a declining interest to take up construction sector craftsmanship jobs when compared to jobs in some other service sectors. Narrowing wage differentials between domestic and overseas opportunities could be responsible for decreasing motivation levels to migrate. But even then, the benefits of fair migration for adequately compensating jobs remain an attractive option for the better skilled labour force. This scenario calls for a better outreach and awareness raising program among young job seekers on construction sector occupations. In the absence of any such structured intervention, the sector may not be able to engage a young workforce in any reasonable number resulting in labour market shortages in Sri Lanka; the signs of which are already emerging.
 - (iv) *Focus on few occupations and excel in them overseas:* Along with such efforts on reaching out to the youth and the experienced workers, there is a need to better target the skilling efforts in niche areas. The GCC and the UAE in particular is a globally competitive labour market. Sri Lanka has a comparatively smaller population and number of migrants than a number of other countries in South Asia, and the Sri Lankan migrants often work in construction sites dominated by the workforce from other COOs. The challenge thus emerges for the Sri Lankan workforce to carve out a differentiated niche for themselves. One of the ways it can be done is by specializing in a fewer number of occupations (e.g. in tiling or water-proofing) or in newly emerging skill areas (e.g. building automation systems), and not to be thinly spread with average competencies on a wide range of skills. Selecting some occupations for greater and additional focus would not imply that new entrants into the construction sector would be discouraged to take up other occupations in the sector; and interested migrants in all occupations would continue to be facilitated as before. If such strategic choices are consultatively made and backed up with appropriate COD outreach programs, the Sri Lankan workforce could deliver higher value to GCC employers and begin to gradually create a greater impact on the labour market.
 - (v) *Setting up a model Overseas Testing Centre (OTC) in Sri Lanka:* While there are affiliated / accredited OTCs in Sri Lanka, setting up and operationalizing a well-equipped construction sector OTC structured under the aegis of an ADD Government-to-Government or multilateral agreement (or any other suitable arrangement) could provide a win-win impetus to the migration process. The OTC would assess and certify skills in identified occupations benchmarked to widely-accepted international meta-frameworks and prevalent COD qualification standards. Further, being a Government recognized arrangement, migration based on OTC certification could be fair, removing some of the other challenges regarding labour welfare.
-



Introduction

1. In the context, of cross-country labour migration, the Country of Destination (COD) stands to derive significant economic benefits. It gets relatively cheaper labour from the Countries of Origin (COOs) to support its own growth, which otherwise may have faced challenges due to a shortage of domestic labour. The COOs, which are usually developing economies, have limitations in providing decent employment and livelihood opportunities in their own countries. By facilitating the deployment of their labour workforce to the relatively more developed CODs, the COOs reduce their burden of high unemployment and underemployment rate and also gain valuable foreign exchange from inward remittances made by the migrants.
2. The UAE and Kuwait, like other GCC member countries, witnessed an unprecedented construction boom during in the 2000s. This boom has driven the demand for migrant labour in the construction sector. A good proportion of these workers come from comparatively less developed South Asian countries. The lack of a regulatory framework and its effective implementation has rendered the South Asian construction sector migrant workforce vulnerable to human right violation and exploitation in the CODs. Though the COOs and CODs have made improvements to their regulatory environment in recent years, the effect on the living and working conditions of migrant workers has yet to be determined.
3. The lack of skills recognition through a mutually acceptable cross-country certification framework poses challenges for the effective matching of migrant workers¹ and employers. There is some debate on the extent to which skills recognition has an impact on wages and working conditions in the destination countries. Earlier empirical work based on the South Asian construction workers showed a strong positive correlation between skill development opportunities provided to the workers and prospective improvement in their wages.

Earlier empirical work based on the South Asian construction workers¹ showed a strong positive correlation between skill development opportunities provided to the workers and prospective improvement in their wages.

The opportunity for training was found to be the single most important factor for wage increase, improving awareness about Occupational Health and Safety (OHS), and ensuring overall betterment of labour welfare measures. More up to date studies are required in different corridors and sectors to determine whether this still holds true.

4. A Ministerial Consultation for Asian Labour Sending Countries was held in 2003 in Colombo, Sri Lanka. The ten initial participating states - Bangladesh, China, India, Indonesia, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand and Viet Nam - made recommendations for the effective management of overseas employment programmes and agreed to regular follow-up meetings. Since this first Regional Consultative Process (RCP) meeting, the Member States of the “Colombo Process” (CP) have met in Manila, Bali and Dhaka in 2004, 2005 and 2011 respectively to review and monitor the implementation of previous recommendations and identify areas of future action. As the CP evolved with each Ministerial Consultation, new members and partners have joined and the Consultations have expanded in scope.²
5. The UAE took the ground-breaking step of hosting the inaugural Ministerial Consultation between Asian destination countries and CP countries in Abu Dhabi on 21 and 22 January 2008. The Ministerial Consultation, referred to as the “Abu Dhabi Dialogue” (ADD), brought together for the first time the CP countries with the Gulf Cooperation Council (GCC) states, plus Yemen and two additional Asian COD, namely Malaysia and Singapore as observers. The ADD therefore constitutes a milestone in regional cooperation on contractual labour mobility.
6. ADD now has on board nine labour destination countries (COD) namely: Bahrain, Singapore, Yemen, Oman, Qatar, Saudi Arabia, UAE, Kuwait and Malaysia; and eleven labour origin countries (COO) namely: Afghanistan, Bangladesh, China, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam. In addition, France, Germany, Mauritius, the Republic of Korea, Japan, Poland and the United States have observer status while the European Commission (EC) are partners of the Dialogue.³
7. For low-skilled migrant labourers in GCC countries (a majority of them being from South Asia), the recruitment interview revolves around the wages on offer and is often dependent on the worker being able to leave at short notice. Potential candidates, who apply for work in the GCC countries, typically have little education but some amount of relevant work experience. Any previous work experience abroad is an advantage, with preference being given to experience in any of the GCC member countries. Employers in the GCC countries and their recruitment agents interviewed in an earlier study⁴, stated that potential hires are usually not comprehensively assessed and the final selection is commonly based on interviews conducted by local recruitment agents in the COO.

2 Colombo Process <http://www.colomboprocess.org> accessed on 22 April 2016

3 ibid

4 GlZ and ILO, Labour Market Trends Analysis and Labour Migration from South Asia to Gulf Cooperation Council Countries, India and Malaysia, 2015

8. Over the last 12-15 months, structural shifts have begun to happen in the oil-reliant economies of the GCC countries. The extent of public funding for infrastructure development and associated social sector programs are beginning to undergo changes which are likely to further accelerate in the future. These developments are also happening at a time of increasing youth unemployment in the COD workforce, overall geo-political security concerns, and an emerging concern about the large number of migrant workers relative to the COD national populations. All these factors could create an environment of tighter COD regulation of labour demand thereby adversely impacting and shrinking labour market opportunities in these countries. At the same time, the demographic and economic considerations would continue to exist in the foreseeable future for migrant workers in the construction sector from South Asia to the GCC countries.
9. The quantitative impact of the above projections for the GCC labour market demand would need further theorizing, analysis, modelling and is beyond the scope of this study. However, the qualitative impact of the above structural factors has already encouraged the COD employers to institute better labour productivity measures and hence, this was an area of interest for the present study. Discussions with some recruiting agencies in the construction sector undertaken as a part of this study show signs that this is an emerging issue. Up-skilling and improved hands-on training programmes in welding, masonry, form-work as well as assessment and certification by COD assessors before recruitment, are becoming increasingly prevalent. Such programmes are carried out through collaboration with COO training institutions either in the private or public sectors.
10. At the same time, the demand for certifying workers according to COD standards is increasing within the South Asian countries and such demand is driving:
 - (a) competency assessment of the workers (construction as well as in other trades) for improved quality assurance of their work products thereby increasing productivity, reducing rework and improving occupational safety and health at the CODs;
 - (b) benchmarking of national qualification frameworks and their occupational standards between COOs and CODs for increasing acceptability of migrant workers whose competencies have been recognized and assured under equivalent frameworks.
11. Though the CP Member States send out a large number of workers to the international labour market, the share of highly skilled migrant workers is relatively small. The majority of the migrants from countries like Bangladesh, Sri Lanka, Nepal and Pakistan are semi-skilled or low skilled workers. Nearly 30 per cent of the migrants from Sri Lanka are domestic workers and an additional 25 per cent are identified as low-skilled labourers, many working in construction sites⁵.

5 International Organisation for Migration, *Labour Migration from Colombo Process Countries: Good Practices, Challenges and Ways Forward*, 2012

12. The priority of CP countries is to identify the role and responsibilities of both the government and the private sector at every stage of the contractual work cycle. It focuses on the implementation of projects with tangible outcomes so that all partners benefit. Another priority is strengthening the regional framework on temporary contractual labour mobility.
13. “Skills and Qualification Recognition” is one of the five thematic priorities of the CP under the Sri Lanka’s Chairmanship. At the 3rd Senior Officials Meeting (SOM) held in Colombo, it was reaffirmed that the CP countries will continue focusing on this thematic area through a working group and collaborative actions. An important outcome of this SOM was a wider recognition that the COO TVET system which has evolved with the inputs from the domestic industry is not comparable with the qualification frameworks of the CODs. At the same time, in the absence of adequate information on international qualification frameworks, comparing the COO occupational standards with those accepted in the CODs remains a challenge. Sri Lanka, and some of the other CP Member States, would need to overcome this challenge to improve upon the vocational skills of its migrant labour force.

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14. The present study was undertaken within the framework of the ILO project on “Enhanced Recognition of Skills and Reduced Vulnerability of Sri Lankan Construction Workers in Selected GCC Countries – U.A.E. and Kuwait”, a sub-component of the IOM’s regional project on “Strengthening Labour Migration Governance through Regional Cooperation in Colombo Process Countries”, funded by the Swiss Agency for Development and Cooperation (SDC). One of the objectives of this study is to undertake a mapping exercise between Sri Lankan standards and internationally accepted meta-frameworks generally applicable in the CODs using an established methodology. The study team could then empirically identify the skill gaps of Sri Lankan construction workers in the CODs and propose recommendations which could help bridge skill deficits. It was envisaged that the findings and recommendations from the study could help the Member States of the CP and ADD, with support from ILO, move the discourse towards reaching an agreement on minimum qualification standards in identified occupations and the implementation of jointly recognized assessment procedures for these occupational standards.



Perspectives on the Sri Lanka labour market

15. Sri Lanka's construction industry employs about 8 per cent of the country's participating labour force. The public expenditure in the infrastructure sector has witnessed an increase since the end of conflict in 2009. Consequently, employment in the construction industry grew at a rate of 7 per cent in 2015. The Sri Lankan construction industry encompasses a number of segments such as building construction, developing fixed links (roads-highways, bridges, and railways), land resources (irrigation and land drainage), urban infrastructure (water supply and sewerage), gateways (ports and airports)⁶, with the building construction segment contributing a dominant 60 per cent in value and 65 per cent in terms of employment. The highway construction segment was the second highest contributor: 20 per cent by value and 21 per cent by employment, respectively.⁷ In the post-conflict years, the Sri Lankan construction sector has witnessed a growth of about 20.2 per cent in 2014.⁸ However, it is generally believed the country's construction industry can achieve more which, in turn, can provide a further boost to the national economy.
16. There is strong gender inequality in labour force participation in construction sector. Males account for 97 per cent of the construction sector workforce and about 75 per cent of this workforce is in the age group of 25-35 years. About 52 per cent of all employees in construction have less than 5 years of work experience. These relatively young males need to be trained to improve productivity and efficiency levels in the sector.⁹

6 Govt. of Sri Lanka, Department of Census & Statistics, *Survey of Construction Industries*, 2011

7 Govt. of Sri Lanka, Department of Census & Statistics, *Survey of Construction Industries*, 2013 accessed at http://www.statistics.gov.lk/industry/SCI_Final_Report_2013.pdf

8 The Sunday Times Sri Lanka, 15th June 2015 accessed at <http://www.sundaytimes.lk/150614/business-times/sri-lankas-construction-industry-growth-at-20-annually-152961.html>

9 ILO, *The Skills Mix of Sri Lankan Construction Worker in UAE: Literature and Data Review*, Unpublished.

17. Sri Lanka sent out 282,000 migrant workers in 2012, of whom 88 per cent go to a GCC country.¹⁰ Earlier studies have shown Sri Lankan construction workers falling short in the COD employers' expectations on technical skills, soft skills and cognitive skills.¹¹ Though several initiatives have been taken to address these issues, the skill gaps between Sri Lankan migrant labour and COD expectations have persisted. These mismatches may have affected (and continue to affect) their opportunities, wages and workplace conditions.
18. Even though Sri Lankan workers lack expected skills, the same can be said of other COOs, and there is a continued demand for construction craftsmen in the overseas market. The number of opportunities available and departures of craftsmen for foreign employment between the years 2010 to 2012 is provided in Table 1.

Table 1: Demand and supply of Sri Lankan workers in the international labour market¹²

Occupation	2010		2011		2012	
	Demand	Supply	Demand	Supply	Demand	Supply
Bar Bender	197	124	108	10	217	95
Building Carpenter	626	166	1,690	344	740	227
Carpenter- Joiner	4,896	1,349	1,688	373	69	13
Carpenter Shuttering	1,570	362	1,447	171	701	75
Building Electrician	221	39	452	208	270	65
Plumber	-	-	621	70	-	-
Mason-General	7,564	2,333	5,211	1,013	3,173	602
Mason-Tile	1,625	683	835	328	419	73
Scaffolder	231	18	487	16	200	61
Painter-Building	238	42	145	51	187	101
Total	17,168	5,116	12,599	2,585	5,976	1,312

19. Within the domestic labour market of Sri Lanka (across trades), about 60 per cent of the employers expect that the candidates for high-skilled occupations should have completed Technical, Vocational Education and Training (TVET). In practice, however, only 16 per cent of the population have undergone such courses. In the construction sector, craftsmen speak in Sinhalese, Tamil and sometimes a little bit of English. The training courses in the construction sector are also offered in these languages. On the other hand, the language requirement at UAE and Kuwait construction sites is mainly English and, to an extent, Hindi or Urdu. Lack of fluency in English is one of the biggest hindrances for the skilled construction workers of Sri Lanka who wish to migrate to UAE and Kuwait; with only 20 per cent of the workforce able to have a basic conversation and understanding in English.¹³

10 GIZ and ILO, *Labour Market Trends Analysis and Labour Migration from South Asia to Gulf Cooperation Council Countries, India and Malaysia*, 2015

11 ILO, *The skill gaps in four industrial sectors in Sri Lanka*, 2015

12 Sri Lanka Bureau of Foreign Employment, 2013

13 ILO, *The skill gaps in four industrial sectors in Sri Lanka*, 2015

20. According to the investment plans of the National Planning Department (NPD), the Government of Sri Lanka aims to increase the annual Gross Domestic Product (GDP) by 8 per cent by increasing per capita income to USD 4,000 by the end of 2016. Higher per capita income is assumed to create higher demand for construction services. The Government plans to channel more than 55 per cent of the total investment to urbanisation and infrastructure development.¹⁴ The increased demand for construction services caused by the higher per capita income can be expected to increase the incentive to undergo technical education or skill development trainings among the labours in the sector.
21. Another set of estimates from the NPD show around 152,000 women and men are joining the labour market every year without any training.¹⁵ About 51 per cent of these individuals are without General Certificate of Education O-Level (GCE O/L) qualifications. Specifically, for the construction sector, the NPD estimates showed an annual skill training gap of about 4,000 craftsmen. Their study, inter-alia, found that the causal factors for skill mismatch include quality and relevance of training; demand for soft skills and job specific technical skills; and high rates of labour turnover. Such high rates of labour turnover, especially amongst low skilled construction workers, was cited as an important reason for skill gaps.
22. The new Construction Industry Development Act, approved in 2014 is expected to make a significant impact on the development of the construction sector workforce. The Act has introduced new regulations to formalise and standardise most of the construction sector activities. It provides for the establishment of the National Advisory Council on construction; the establishment of the Construction Industry Development Authority (CIDA) which is now operational; and the establishment of the Construction Industry Development Fund. Aspects of workforce welfare and wellbeing of the industry related professionals, settlement of disputes related to construction activities, and ensuring public safety in the construction industry of Sri Lanka find adequate provision under the Act.
23. The Construction Industry Development Authority (CIDA), under the Ministry of Housing and Construction has made it mandatory for all registered construction companies to have Quality Management Systems. The norm was established in order to have an improved quality and higher productivity of the workers in the construction sector and made effective since January 2011 under CIDA's predecessor entity, the Institute for Construction Training and Development (ICTAD).

14 Sri Lanka Country Report, *The 20th Asia Construct Conference, 2014*

15 *ibid*

24. The majority of the construction workers are engaged with micro and small establishments, and do not have their own resources to pursue skill acquisition programs.¹⁶ The workforce is idle between successive projects and the nature of employment varies across projects (Table 2).

Table 2: Categorization of the construction sector nature of employment¹⁷

Nature of employment	Number	Percentage
Permanent	52,529	11.5%
Temporary	148,707	32.5%
Casual ¹	35,153	7.6%
Without permanent employer	221,688	48.4%
Total	458,077	100.0%

25. As the construction sector is largely unorganized, poor management of the workers, lack or delay of payments, resulting in disruption of payments occur frequently in Sri Lanka. As a result, this, along with limited opportunities for permanent jobs, does not encourage construction firms or employers to invest in training and skill development of their predominantly temporary and casual workforce. Thus, at an overall level, training initiatives to enhance skills of the workforce remains either elusive or ineffective.
26. In this situation, better and structured interventions are needed by the Sri Lankan Government. These could be through apprenticeships, internships or other measures to develop pre-employment training and post-employment (in between projects, idling periods) skill development models that can be delivered more effectively with greater involvement by the ultimate employers (could be domestic or international) to such a fragmented and non-formal labour market. As the demand for manual and routine skills continue to decline¹⁸, the absence of such collective and participative interventions will render it difficult for the Sri Lankan construction sector workforce to acquire the market-oriented skills required to enhance their productivity and competitiveness, especially in international markets.
27. CIDA is also working towards reviving and sustaining the awards for achievement and skills certification schemes to give a boost to craftsmen who take up NVQ certification. Such a scheme was initiated in early 1980s by ICTAD and thereafter in 2000 by the TVEC. This provides a mechanism that recognizes skills attained, providing them mobility in employment prospects. It also enables upward career progress up to sub-technical and technical levels facilitated by the TVEC-NVQ.

¹⁶ Sri Lanka Country Report, *The 20th Asia Construct Conference, 2014*

¹⁷ ICRA Lanka, 2011 accessed at <http://www.icralanka.com>

¹⁸ ILO, *The skill gaps in four industrial sectors in Sri Lanka*, 2015

28. Recently CIDA has started a Government funded programme to skill 16,600 new craftsmen annually, and induct them into the industry.¹⁹ A specialist public-private team representing CIDA, TVEC, VTA, NAITA, Chamber of Construction Industry (CCI) and National Construction Association of Sri Lanka (NCCASL) is developing the curriculum, identifying training centre facilities that need upgrading, and the training needs of trainers. The annual output will be phased in four batches conforming to available training centre capacity and OJT placement. The institutional training component will be for two months and OJT for another four months. On completion, the trainee will be able to choose to continue with the contractor providing OJT training or move out to find better prospects. The trainees will be provided with a daily stipend to defray their travelling and meal costs. A toolkit will also be provided to each trainee and the training materials to each training centre. A toolkit relevant to the trade will also be provided so that a youth trained to a limited but employable skill level will be available to the contractor during the OJT phase as a productive worker. The contractor is likely to be motivated to pick up the daily stipend during the OJT phase and provide any other incentives to keep the trainee in employment as required thereafter.





Methodology and Engagement Approach

29. Qualification frameworks have increasingly been developed in various parts of the world over the last two decades since first introduced in countries like Scotland, New Zealand, Australia and other countries. The methodologies for comparing qualification frameworks have evolved over time. Some of the more widely and internationally accepted methods have been enlisted below.²⁰
30. **Credential evaluation:** This is the simplest yet an effective way for a country needing to integrate a significant number of persons, either migrant workers or students, in a short span of time. This comparative method relies on in-house expertise and international references (generally for formal education and institutional training) to offer a professional opinion. However, this method based solely on the study of a credential, cannot always ascertain the actual skills or knowledge of specific applicants.
31. **Recognition by prior agreement:** This evaluation method is generally adopted for recognizing skills within bilateral, multilateral and trade / regional agreement frameworks. Usually the main purpose is to enable bilateral and multilateral movement of skilled workers between countries and/or regions, such as the Lisbon Convention in Europe.
32. **Recognition of qualifications for social issues:** It is based on the recognition factors through which qualifications function as effective discriminators of who is eligible for employment, and also for prescribed employment benefits. It is used to recognize the qualifications tool for social uses. Possibly, this is more of an implicit way of analysis and is the least developed among the methods.

33. Benchmarking: This is a popular method wherein the level of any given qualification framework is compared with an identified benchmarked qualification framework. A benchmarking exercise is then used to determine the level of a qualification and mapping involves the analysis of qualification content to identify subject knowledge, skills and competencies. ‘**Referencing**’ is another methodology which is closely related to benchmarking for the recognition of qualifications and which is generally accepted internationally. As discussed earlier, one of the major challenges for skills recognition for the Sri Lankan construction workers in UAE and Kuwait would involve achieving common skills assessment and certification systems. A comparative exercise using the Benchmarking method, including Referencing, was adopted in this study.

- 34.** The Qualifications Framework for the UAE (Emirates) has been developed by the Board of National Qualifications Authority (NQA) Abu Dhabi, with the active participation of the industry. It is comparable and aligned with the standards with other international meta-frameworks, especially the European Qualification Framework (EQF) and the framework for Qualification of the European Higher Education Area (the Bologna Framework). It covers the entire range of education - general, vocational, professional, higher education and training, including Recognition of Prior Learning (RPL). It consists of 10 levels and 5 strands (Knowledge, Skill, Autonomy and Responsibility, Role in Context and Self-development). The entry qualification varies from industry to industry.
- 35.** Some Personnel Conformity Services standards have been developed by the Abu Dhabi Quality and Conformity Council (QCC), which cover construction, electro-mechanical works, installation and maintenance of air conditioning units and elevators, as well as moulding, paving and flooring, painting, roofing. However, adoption of these standards is a voluntary initiative.²¹ As the standards are yet to be adopted, published and made mandatory, it was not considered as an internationally accepted and bench-marked standard for the purpose of this study.
- 36.** Kuwait Occupational Standards, Assessment and Certification Centre (KOSAC), is under the Ministry for Social Affairs and Labour, which has prepared occupational standards for all professions and businesses in the labour market of Kuwait. KOSAC is involved in the development of occupational licensing control of the labour market and related mechanisms to bring in foreign labour through the issuing of legislations which requires professional competence examinations in accordance with the Kuwaiti and international standards.

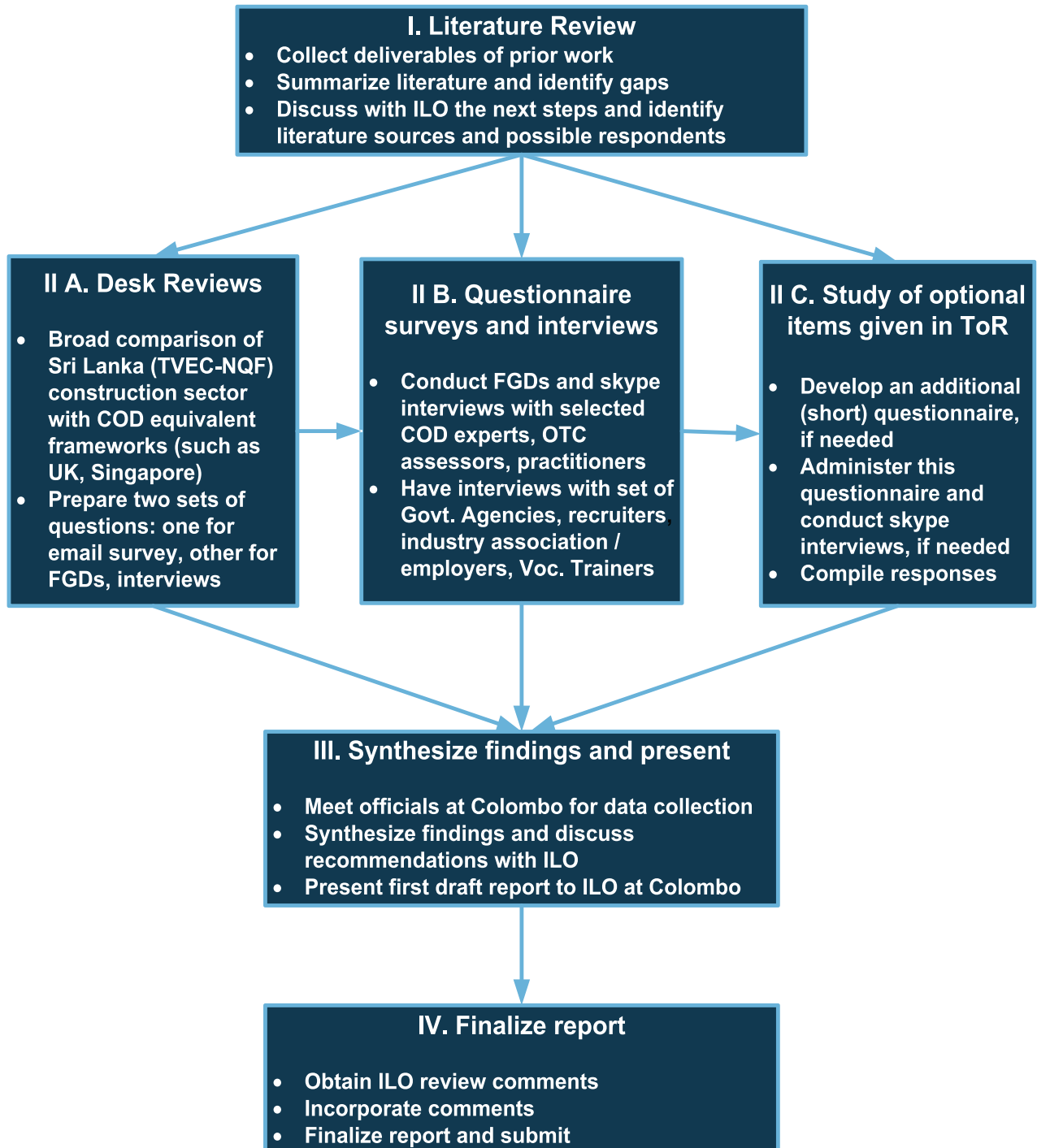
37. The Government of Sri Lanka embarked upon TVET reformation in 1997 to bring uniformity and align it with the need of the industries. The National Vocational Qualification Framework (NVQF) of Sri Lanka, as it stands today, has been developed with contribution from several networks of training institutions and individual training centers. It consists of seven levels of qualification: levels 1 - 4 covering increasing competencies at the craft level and awarding certificates; level 5 and 6 for middle - level technical qualifications and awarding diplomas; and level 7 at the bachelor's degree level. The NVQF system has courses on around 96 occupations at the crafts level, 14 at the middle technician level and 4 courses at an advanced level.
38. The UAE NQA ²² and Kuwait KOSAC ²³ are both in the process of developing their respective National Occupational Standards but yet to publish them for the construction sector jobs. The list of performance criteria for each identified occupation to be benchmarked in this study were thus prepared in consultation with the panel of technical experts and assessors associated with Overseas Testing Centres (OTC) catering to GCC countries. This was further detailed after Referencing the Register of Regulated Qualifications in the UK (as applicable for Building Construction), and the assessment criteria set out by Building Construction Authority (BCA) Singapore and CIDB Malaysia. The overall engagement, thus, adopted a multi-staged approach given below and has been further elucidated in Figure 1:
- (i) literature review;
 - (ii) desk review of secondary data;
 - (iii) collection of limited amount of primary data of COD practitioners (through offshore process using email questionnaires and conference calls) to support the analysis;
 - (iv) collection of inputs from Sri Lankan practitioners and stakeholders; and a
 - (v) synthesis of findings to develop conclusions.



²² <https://www.nqa.gov.ae/en/VET/VETAC/Pages/qualificationsaccredited.aspx> accessed on 30 April 2016

²³ <http://kosac.gov.kw/future.html> accessed on 30 April 2016

Figure 1: Overall approach to this study





Study of the Qualification Frameworks

39. The NVQF Sri Lanka has not been formally mapped against the NVQFs of other countries. The framework and competency standards have evolved to suit the Sri Lankan educational system, industry practices and administrative systems. The globalizing world has led to an opening up of a number of labour market opportunities for Sri Lankan workers in other countries (especially in the GCC for construction trades). The country is now facing the need of comparability and perhaps benchmarking of its so far well-developed system of NVQF with the occupational standards of the CODs.
40. Given the time, access and resource limitations of this exercise, only a broad comparison was attempted between TVEC and the well accepted international meta-frameworks for referencing: NQF-UK and BCA-Singapore. Illustrative comparisons between NQF-UK and NVQF-TVEC for the plastering and flooring courses, and similar comparisons between BCA-Singapore and NVQF-TVEC on plastering and electrical wiring courses showed the NVQF-TVEC to be broadly comparable. However, the TVEC framework could be made further detailed and its coverage could be widened to include courses that can cater to demand from specialized sub-sectors (such as stonemasonry within the overall masonry occupation).
41. Analysis of detailed information regarding the entry level courses being offered in electrical wiring, telecommunication, painting (Construction) and masonry (prima-facie) showed adequacies of the entry level TVEC framework. However, findings from past studies showed that some of craftsmen in these occupations had gaps in both theoretical knowledge and practical skills. In order to assess the effectiveness of the COO TVET delivery systems, the primary survey on COD practitioners was conducted on a pilot basis. The survey included questions regarding the extent of OJT at COO to improve the preparedness of the newly recruited migrants. The approach to this survey and key findings are discussed in subsequent sections of this report.
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- 42.** Available information regarding the equipment needed to impart training on electrical wiring, telecommunication (closest to electronics), painting and masonry was analysed. This aspect was further discussed with Sri Lankan practitioners and further inputs collected from them revealed that more advanced equipment were being used in the COD project sites than those available to Sri Lankan training providers. Upgrading the centres also needs further capital infusion which is often difficult to be arranged by the training providers because of their business models, and pricing training courses to include capital expenditure recovery were difficult to sustain. Their perspectives on possible solutions for State support to bridge training equipment financing needs thereby improving construction TVET delivery were also discussed.
- 43.** The importance and criticality of OJT in any construction skill development program cannot be overstated. The time the trainees get to spend and practice on construction sites enriches their learning experiences. An illustration of credits and duration requirement in some of the UK construction skill training programs were carried out and shared with the project working group. Valuable skills can be picked up by getting access to modern hand tools and operating equipment; getting to use multiplicity of construction materials, additives and consumables; and exposure to actual working conditions. Literature review suggested the usual duration of OJT in Sri Lanka is lesser when compared with other internationally accepted meta-frameworks. Greater OJT duration enhances the effectiveness of construction skill development programs.
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Findings from a pilot survey of COD practitioners

44. A pilot survey was conducted on twenty-two supervisors (Foremen, Charge-hands, and Site Supervisors) of migrant workers from COOs in the identified occupations. All interviewees had 15 – 25 years of experience with most of them having worked in 8-10 projects in UAE and Kuwait. The interview findings thus reflected the collective experience from about 200 COD project sites that engaged workers from Sri Lanka and other South Asian countries.
 45. All respondents were requested to give adequate time to this exercise and were personally interviewed by two senior researchers. While one of the experts conducted the interview, cross-questions were asked by the other expert during the response summarization process to identify the key issues and quantify the skill gaps to the extent possible. The responses in these interactive sessions were analysed by a panel of technical experts to understand the skill gap (and expectations) between COD and COO.
 46. The analysis of responses on safety, both awareness and technical knowledge, came out low for all identified occupations except for the electrical wiring technician. About 30 per cent of carpenters, steel fixers and masons were knowledgeable on Safety Equipment but lagged in their use. Awareness of environment control measures such as dust, noise, sparks, falling objects from height, avoidance of formwork collapse (for carpenters), was low. Most of the interviewees reported new migrant workers were not conscious about these issues and less than 25 per cent of first time migrants from COO took adequate safety precautions against such hazards. Protocols for electrical works were more strictly complied with and the findings on safety knowledge showed a higher empirical value of 80 per cent. Specific observations on each of the identified occupations from the COD practitioner pilot survey are reported below.
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Masons

47. Sri Lankan masonry helpers, who have worked in Kuwait and UAE (as reported in the survey), were required to prepare cement and concrete mix and carry out curing of masonry structures along with identifying and maintaining masonry equipment. Assistant masons were needed to help in tiling, stone laying, brick work including fixing of doors and windows. They also knew how to operate power tools.
48. Masons dealing with form finished and special concrete were required to place, level and finish concrete for form finished concrete structures and work with self-compacting concrete, carry out concreting on complex structures including slip form concreting. Most of them could carry out concreting in their work environments.
49. Tiling masons were required to know how to apply grouts and sealants for flooring and cladding works, lay and fix tiles both horizontally and vertically on wall and floor and place, level and finish concrete in various structural elements including repair works. They were also needed to carry out IPS / TREMIX flooring, which technically is a tri-mix in the ratio of 1 part cement, 1.5 parts sand and 3 parts stone aggregate. This vacuum dewatered concrete flooring technique gives better tensile strength, better abrasion resistance and reduces cement usage.
50. Masons who had worked with granite, marble and stone knew how to apply grouts and sealants for flooring and cladding works. They could also, cut, lay and fix natural stones for flooring works as per design pattern and could carry out cladding works with natural stones. Masons engaged in special finishing were required to carry out:
 - Surface finish like grit-wash / exposed aggregate plastering, stone-crete, cement-wash, dry and wet cladding of stones on masonry surfaces.
 - POP punning, POP plastering, decorative floor finishes and other special finishing on finished masonry surfaces using moulds
 - Mosaic, terrazzo, linoleum, vinyl, PVC and laminate wood floor finishes.
51. General masons could build structures using random rubble; execute plaster on internal, external surfaces of masonry and RCC structures. A few of them could also carry out water proofing works and Tremix flooring. Generally these craftsmen were of lower educational qualification level, mostly completing five to eight years of schooling. Their formal knowledge and cognitive skills to read drawings, undertake calculations and conduct quality checks are also quite low.

Generally these craftsmen were of lower educational qualification level, mostly completing five to eight years of schooling. Their formal knowledge and cognitive skills to read drawings, undertake calculations and conduct quality checks are also quite low.

The first or second time migrants generally acquire basic knowledge of brick-work and block-work, plastering, material mixing proportions, tiling, and wooden / marble flooring. Some knowledge existed on the materials used for plastering, thickness and coats, common types of substrates and their preparation, curing process and time, identification of plastering defects and remedies. However, their competency is still at entry level as these workers do not undergo any structured OJT to build their psychomotor skills.

common types of substrates and their preparation, curing process and time, identification of plastering defects and remedies. However, their competency is still at entry level as these workers do not undergo any structured OJT to build their psychomotor skills.

52. Behavioural skill gaps were found with respect to innovativeness, time management, teamwork and leadership skills, problem solving skills, creative thinking, independent working ability, and (to an extent) attitude towards work ethics. Safety, environment and health were also a concern for this category of workers. Compliance levels tended to be low unless strictly supervised. Their safety competency levels also improved through experiential learning and stricter compliance requirements. The comprehensive knowledge on actions to be taken in case of any accident at work site is practically missing for a first time migrant. Upon induction, the employers put in place rigorous safety training sessions. Otherwise most of the workmen on their own knowledge would not be able to handle any eventuality, if it were to come.

Carpentry

53. The Sri Lankan shuttering carpenters, whom the survey respondents supervised, were required to erect and dismantle conventional formwork for heavy civil construction works. They could assemble and dismantle system formwork for pre-cast segments and form finished RCC structures. Most of them could also erect and dismantle jump form system. In summary, the shuttering carpenters were required to:

- Make wooden shutters used in shuttering carpentry
- Assemble and dismantle conventional shuttering / formwork for RCC structures
- Carry out quality checks for shuttering works.

54. The assistant to carpenters were required to help in assembling and dismantling conventional as well as system formworks for RCC structures. They assisted in making wooden shutters and knew how to maintain / upkeep relevant tools and equipment.

55. The knowledge on timber, board, ply, wood joints, nails, formwork, column clamps, form-ties is lower than expected skill levels. However, the knowledge on props and bracings, shoring, concrete pressure on formwork, tolerances for RC structures; components of different formwork for beam/wall/slab; surveying, and calculation of areas, volumes, and weights are poor due to weak cognitive skills and low levels of general education. The acquired knowledge levels were often not very deep and void of background data, calculation concepts, information and logic. Hence, on these aspects, mistakes were often encountered resulting in rework.

56. From the employers' point of view, skill gaps exist in the areas like improving productivity, using operative manuals, ability to use and adopt modern technology and equipment, information

and communication, familiarity with calculations, different units and numbers. Behavioural skill gaps on emotional stability, critical thinking, problem solving skills, teamwork skills are often on-site challenges. The lack of communication ability in English, and (to an extent) Hindi / Urdu was a limitation to pick up cognitive knowledge on use of tools and absorption ability of equipment operations, safety training and following supervisor instructions who could be from India, Bangladesh or Pakistan. The acquisition of requisite cognitive skills usually does not happen through logical analysis of the processes, but through “learning-by-doing” and repeatedly practicing. This eventually takes a longer time and was cited as a constraint for new migrants to achieve higher levels of productivity at site.

57. Following safety rules, regulations and its practices, appreciating professional health hazards, following work ethics, application of first-aid knowledge at the time of accidents, are almost a common issue across sites. Though the safety compliance levels of new migrants have been improving over the years, it can be further improved through more intensive training at the COO over a period of time (say 2-3 months).

Steel Fixer / Bar Bender

58. In general, new (first or second time) migrants get engaged as helper bar benders. Their job roles include understanding and following personal health, safety, and environment protocol at construction site, identification of tools and equipment relevant to reinforcement works, ability to mark and cut bar to required length and carry out manual earthwork at the construction site. A few helpers also knew how to tie reinforcement bars using different types of ties and could also erect and dismantle temporary scaffolds.

59. At a next higher level of skill, Assistant Bar Benders / Steel Fixers are expected to:

- Read and understand reinforcement bar detail from hand sketches
- Use and maintain materials, tools, and equipment relevant to reinforcement works
- Perform cutting and manual bending of rebar for simple shapes
- Assist in fabrication, placing and fixing of rebar for pre-fabricated and in-situ RCC Structures

60. A Steel Fixer is most experienced and skilled within this category. He can:

- Read and understand routine drawings /sketches and Bar Bending Schedule
 - Use hand and power tools for cutting and bending of reinforcement
 - Prepare, fabricate, place and fix reinforcement for RCC structures
 - Work effectively in a team to deliver desired results at the workplace
 - Plan and organize work to meet expected outcomes
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61. While the Steel Fixer / Bar Bender are conversant with the terminologies, generally the craftsmen have lower levels of theoretical knowledge in most aspects (except the basics) when compared to their peers from other countries. Higher skill levels needed to demonstrate problem solving abilities, creative thinking, usage of machines and modern tools become a challenge for many workmen. This could be due to lower level of general education (five to eight years of schooling) and weak cognitive skills. The ability to reading drawings / sketches, types of ties, tools, bar bending for cast-in-situ and pre-cast are at lower level than COD site managers' expectations.
62. Experience of using bar bending machines is quite low among new migrants; maybe only 5 per cent of the workforce knew how to use it. They do not get an opportunity to work with such machines in COO training institutes. Familiarization with the names of various tool and tackles is also quite important and inspecting the conditions to determine the fitness of the same plays important role for accuracy. Lower skill levels usually do not permit most workmen to plan the work properly, read and interpret the Bar Bending Schedule (BBS), demonstrate knowledge on the requirements of different grades of steels and their use with specific properties, calculations of lap length, selection of different length of bars for different usage at different locations. Such workmen were also not competent to calculate requirements of steel for a particular structure with certain load calculations.
63. Safety awareness of new migrants is usually poor. Housekeeping, carrying tools at work place, use of safety gear at heights, safekeeping of tools while working, use of preventive device for noise pollution may be known to the craftsmen but the compliance awareness is not up to expectation. However, after working in COD for about 3-4 months coupled with some classroom and practical training (and in some cases with punishments as deterrents) these workmen achieve the desired levels of compliance.

Building Painter

64. Painting is one of the finishing activities and required to be carried out with best of the skills as it gives the final impression of the building. It has a few components of activities such as planning, selection of paints, collection of all necessary materials in right quantity, selection of tools, surface preparation, application of paints and finishing.
 65. Survey respondents, who have supervised migrant painters engaged in the building construction works, reported the following job roles:
 - Helper Construction Painter
 - Assistant Construction Painter and Decorator
 - Charge-hand Painting and Decorating
 - Construction Painter and Decorator
 - Foreman Painting and Decorating
-

- 66.** Helper construction painters were required to carry out the preparation of all type of basic surfaces and handle painting equipment following safety protocol. Assistant construction painters and decorators need to apply paints to masonry, metal and wood surfaces for obtaining plain finishes. They also carry out varnishing and polishing of doors, windows partitions and other wooden surfaces. The charge-hands undertake painting and decorative paint finishes using faux painting. Preparatory works prior to painting and decorating on finished masonry surface are done by them.
- 67.** Construction painters are required to apply OBD, acrylic and emulsion paints on various finished masonry surfaces. They apply paint on metallic / structural steel fabricated assemblies. They also carry out repair of minor painting faults. The job of a decorative painting Foreman requires a higher level of skill which includes reading and interpreting drawings, specification and standards, for painting and decorating works. These Foreman direct and monitor the execution of painting and decorating works as per the specification/ requirements. Planning and management of resources are also done by them.
- 68.** This occupation requires adequacy of theoretical knowledge combined with practical skills. The construction painter has to plan the total work with a correct estimate of materials required for the specific type of paint application. The craftsman should have knowledge to calculate the surface area to be painted and what preparation of the surface is required for what type of paints. Therefore, a thorough knowledge of various types of paints, base materials, surfaces, and types of required tools is a critical need.
- 69.** The pilot survey respondent data analysis showed skill gaps between COD requirements and COO availability for most of the entry level migrants in each of the on-site activities. The awareness about different paints and painting technology of the craftsmen matched with COD practitioners' expectation of knowledge levels. The use of brush, roller, and paint gun are well known to most painters. The tasks performed with these tools showed little or almost no skill gaps. However, the skill gaps in other areas such as, understanding of the curing methods for a finished paint surface, was wider. For preparing a list of required painting materials with



its quantities or preparation of the surface for painting, the awareness was poor among the new (first or second time) migrants. The reason for such wide gaps could be traced back to educational qualification and lack of cognitive skills. The experiential learning at the site, though effective, takes its own course. Usually it is dependent on the specific construction site conditions and supervisory encouragement (which can be subjective) both of which are not within the control of the craftsmen. In general, a painter who has had the opportunity to work with different types of paints on various surfaces will have better knowledge when compared to another painter who could work on a site which used only limited types of paints.

70. Substantial numbers of migrants were aware of occupational health, safety and environment and used protective devices. However, there was reluctance (at times complacency) on the part of the craftsmen to follow safety measures in practice resulting in poor ratings on safe working standards. With limited general education of these craftsmen, behavioural skill challenges exist in time management, teamwork, leadership, critical thinking, positive work habits, and problem solving. However, under strict surveillance and with deterrent measures, compliances are achieved at site but it does not bring down the behavioural skill gap between COD expectations and attitudinal aspects of new migrant workers.

General Construction Worker

71. The empirical assessment for this multi-skill occupation was undertaken in two parts: 'Extent of Knowledge' of the underlying specific occupations (mainly general carpentry, shuttering formwork, masonry, bar bending / steel fixing, and to an extent painting) and the competency achieved in them. Between these, the Extent of Knowledge the entry-level migrant workers possess in the occupations holds the key to his on-the-job performance and continued productive deployment by the site supervisor. In this pilot survey, efforts were made to assess the levels of their basic theoretical knowledge which were found to be low compared to COD expectations.
72. This category of workers migrate with some experience in a specific trade (say a returnee helper in one occupation having 2-3 years of experience) migrating as an assistant craftsmen in another occupation after some basic / informal training. At the same time they can still do the work which they have been doing in their earlier stints and are likely to have improved their behavioural skills. Hence, strictly speaking, they are not entry level migrant workers. Their competency and performance in any specific trade may not be very high (ranging somewhere around 50-60 per cent). As only a few responses were obtained for this occupation, a separate critique for all performance criteria has not been attempted.



Electrical Wiring Technician

73. The electrical wiring technician can:

- Identify and handle different tools, LV electrical works measuring devices and materials
- Carry out wall-chasing and external threading on MS conduits
- Carry out manual earthwork at construction sites
- Erect and dismantle temporary scaffold of 3.6 m height
- Work according to personal health, safety and environment protocol at construction site

Survey respondents, who have supervised migrant electrical wiring technicians engaged in building construction works, reported the helper electrician to be the least skilled among the electrical wiring technicians.

74. At a higher level, the construction electricians were required to lay (single/ three phase) cables and install equipment at construction sites, carry out LV electrical wiring and assist in building electrification works and maintain construction equipment. The foremen interviewed were required to establish electrical connections during erection of plant and heavy construction machineries, conduct permanent wiring, maintenance work in buildings. Management skills such as monitoring, supervising and evaluating work of subordinates and planning work schedule were also required for their job role. The supervisors were required to plan and provide work information to subordinates. They deployed resources as per the requirements of the site's electrical works and managed workplace safety.

75. Gaining theoretical knowledge plays a critical role in acquiring skills. Within all the occupations studied in this engagement, the theoretical knowledge of most of the migrants in this occupation were found meeting COD expectations in many aspects. The terminology, types of supply current, units of measurements, basic knowledge of electrical system, components of electric lighting circuits and overcurrent protection devices were known to almost all migrants. However, some gaps existed in knowledge of circuit breakers and Earth Fault Protection Devices; cable specifications and selection; identification of conduits and conductors; and revision of cable cores.

76. At the same time, the practical skills of first time migrants was reasonably good as well when compared to other occupations. The entry-level skill of using testing and measuring instruments for Continuity tests, Insulation tests, Polarity tests and Earth fault tests were found to be adequate. Alteration or additions to existing installations are well executed by all craftsmen.

77. The nature of the occupation drives electrical wiring technicians to be especially attentive towards safety aspects. Safety rules and regulations are well known to all craftsmen and most of them follow it strictly. There is an inherent urge on the part of the technicians to cover any knowledge or skill gaps related to personal safety at the earliest should they come to realize

that. However, the knowledge on first aid and its practice were found somewhat inadequate. In case of any accident, it has been seen that only small percentage of the workforce were aware of first aid administration procedures.

Building Automation / Electronics

78. The Building Automation / Electronics occupation is more specialized than that of an electrical wiring technician. The equipment is high-tech and their installation and maintenance need vendor specific knowledge and training. In absence of structured training, this category of workers are usually developed by spotting and drawing talent from a general pool of electrical technicians and subjecting them to intensive training by the equipment manufacturers, suppliers and integrators in building complexes and environment friendly buildings (green buildings).
79. As the skill pool is small, only a few responses were obtained for this occupation and hence a separate critique of this occupation has not been attempted. However, it is important to note that this is an emerging area which is niche and requires relatively higher skill within the building construction and subsequent facilities management occupations and the demand for such workers could grow over the next few years. With appropriately structured new skilling interventions, as well as up-skilling initiatives, the Sri Lankan workforce could create a niche positioning for them in this area.

Summary of empirical skill gap assessment of migrant workers

80. Some illustrative empirical skill gap findings of Sri Lankan migrant workers from the COD practitioners' survey are tabulated below (Table 3). Though this is not an exhaustive list, it could give an understanding of the nature of skill gaps for structuring any policy intervention.

Table 3: Illustrative empirical skill gap assessment of Sri Lankan migrant workers at the COD ²⁴

Occupation	Areas for Practical Skill Improvement	Areas for Theoretical Knowledge Improvement
Formwork Carpenter	Pressure of concrete on formwork, Tolerances for bare structures, Safety measures and practices, Collapse of forms, Recommended control measures	Tolerance of bare RC structures, components of formwork, house keeping
Steel Fixer / Bar Bender	Fixing up of rebars in-situ, RCC building components	General knowledge on steel rebars and spacers, effect of reheating and re-bending

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Occupation	Areas for Practical Skill Improvement	Areas for Theoretical Knowledge Improvement
Mason	Quality of material used, ratio of cement, sand and water, maintaining uniform gap between bricks/blocks, Common types of substrates and their preparation	Working on different types of flooring, types of tiles, Grid plaster, Drawing interpretation and estimations
Painter	Preparation of paints, quality and quantity of materials to be used, Precautions to be taken while painting different surfaces, selection of right tools, cleaning of tools.	Types of paints, mixing of different paints, curing on finished products
Electrical Wiring Technician	Identification of Conductor and Conduit, Revised cable colour coding, Insulation and Earth Fault Impedance Test	Being conversant with electrical wiring diagrams, generating and transmitting systems, Earth Fault Protective Devices, knowledge of cables and conduits, measurement instruments and safety tests





Findings from interviews with Sri Lanka Practitioners

81. A study mission was undertaken to Colombo between 27 and 30 April 2016. The study team met multiple Government of Sri Lanka officials, institutional functionaries, construction industry representatives and vocational training providers to collect data and also participate in a workshop to present initial findings and discuss the proposed set of recommendations. The inputs from these meetings and workshop are summarized below.
82. There is a disinclination among youth to take up construction sector occupations and thus the workforce shortages in this sector are becoming more acute. Such shortages are affecting both domestic construction industries as well as resulting in a decline of Sri Lankan migrant workers from this sector. There is an urgent need to reverse this trend to attract young workforce and improve mobilization. A proposal from CIDA under consideration by the Government of Sri Lanka is to provide a long term insurance scheme with pension benefits to CIDA registered craftsmen who are not entitled to any form of retirement benefits under any other scheme.²⁵ Such labour welfare measures, if implemented, could be one of the motivators for attracting youth to these occupations.
83. There is a predominance of school leavers, drop-outs and academically challenged persons with weak cognitive skills in the job roles considered. The present TVET system is comparatively better implemented at Level 3 and onward, than at the foundational / formative courses (Level 1 and Level 2). There is a need to strengthen the outcome based TVET delivery process during initial years of induction into the construction trade.

84. The use of construction technology and site equipment in the GCC is more advanced than that in Sri Lanka. More technologically advanced and well-equipped training centres need to be made available at Sri Lanka. An even better industry-institution partnership can lead towards improved OJT systems at construction sites with an increase in the practice hours for the trainees. These are critical for improved learning outcomes and increasing the overall effectiveness of the construction sector skill development programmes.
85. Simultaneously, there is a need to better develop the behavioural / soft skills of trainees. While this is a part of the Qualification Frameworks and is being done now, it needs to be made more effective and be demonstrated by the workers on site. Some aspects of English language skills need to improve; especially those pertaining to work-readiness, use of appropriate technical terminology, equipment nomenclature in English, common work practices / configurations (and not only colloquial names), and overall conversational skills at work sites.
86. Over the last few years, the Sri Lankan construction industry as well as the Government institutions have been focused on domestic requirements. Of late, there is an increasing interest to explore if fair migration in the construction sector can become a win-win source for employment, better livelihoods and incomes, and increased remittances into the country. Herein, there is a scope to improve inter-ministerial collaboration (between Labour, Skills Development, Housing and Construction, Foreign Employment, among others) to enable taking coordinated and necessary actions which can help both the domestic and international construction labour markets. Skilling and skill recognition of migrant workers should feature more prominently in the National Labour Migration Policy (under review in 2017) and could be advanced through the existing implementation bodies.
87. Migrants face different climatic conditions at GCC than that of Sri Lanka. Acclimatization becomes an issue for migrants affecting workplace productivity. Further, the decreased wage differential between the domestic and the GCC labour market discourages construction workers from migrating. This lower wage differential (when compared to other South Asian COOs) are a combined result of relatively higher wages that skilled workers in identified occupations command in the domestic market (driven to an extent by supply shortages) and the labour market wage rigidities in the GCC for available skills that becomes applicable to almost all of the South Asian migrant workforce.

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- 88.** The quality of instructors and pedagogy needs to improve. Inducting suitable returnees into the pool of instructors can help. However, the returnees earmarked for induction may need some orientation towards training as all returnees may not have trainer's skills and experience. Also, a minimum level of educational background is essential for a successful trainer both on theoretical and practical knowledge.
- 89.** The labour market endowment of Sri Lanka is smaller than some of the neighbouring and South East Asian countries. The number of construction sector migrant workers from Sri Lanka to GCC is comparatively lower than some of the other CP Member States. Also, within the construction sector, there are a number of occupations. To create a niche and thereafter maybe a brand for itself in a globally competitive GCC construction labour market, Sri Lanka could strategically identify a few occupations and choose to excel in them rather than attempting to do well in all. However, this view needs to be deliberated in a larger industry-policy-civil society forum, including possibly the National Labour Migration Policy.
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Recommendations

The four key recommendations emerging from this study are summarized below.

Enhancing Qualification Framework Implementation

90. This benchmarking and referencing study showed Sri Lanka's NVQF-TVEC qualification standards at the entry level were broadly comparable with some of the international meta-frameworks that are widely accepted in the CODs (UAE and Kuwait). On the COD side, the study found that new migrant workers need 2 to 6 months of further On-Job-Training (OJT) / site training to come up to the expectant level of skills by employers. At the same time, on the COO side, the study showed that labour market outcomes could be improved by emphasizing better implementation of the existing TVEC framework and further improving the quality of training being imparted. Strengthening of TVEC qualification frameworks, especially at the higher levels (Level 3 and 4), could be taken up to supplement the increased focus on implementation. For example, at higher levels the NVQF-UK provides a number of selective optional subjects to enhance specialization that could be introduced in the TVEC system as well.
91. One of the crucial aspects to improving the quality of training being imparted is to improve the capacity and knowledge base of the instructors. The links between teacher's quality and students' achievement is well-researched.^{26 27} The findings of this research is all the more relevant for the construction TVET which requires active engagement of teacher at all levels.

²⁶ RAND Education, *Evaluating Value-Added Models for Teacher's Accountability*,

²⁷ Consortium for Policy Research in Education, University of Pennsylvania, *What Large Scale, Survey Research Tells Us about Teacher Effects on Student Achievement*, 2002.

The skill gaps of Sri Lankan migrant workers calls for improving the quality of training and the study findings show that industry acknowledges the need to improve the quality of teachers. The sector could benefit if the pool of instructors is augmented by experienced returnees from the GCC countries. There could be greater participation by the industry to allocate qualified trainers and providing OJT opportunities to the trainees.

92. Besides trainers' quality and other pedagogical improvements, the training centre equipment needs to be aligned to prevalent construction technologies in COD. Further, the duration of courses (and consequent credits) could be extended appropriately to enable the trainee to acquire the optimum level of desired skills.

Outreach and mobilization

93. Over the last few years, there is a declining interest to take up construction sector craftsmanship jobs as the new labour market entrants perceive such jobs to have "higher inherent occupational risks" requiring "greater personal hardships" when compared to jobs in some other service sectors. At the same time, increasing infrastructure development activities are opening up more construction sector job opportunities for the prospective migrants at home. Narrowing wage differentials that existed earlier has also been a cause for declining motivation levels to migrate.

94. Yet, the benefits of fair migration for the right job with appropriate skills and getting adequately compensated remains attractive and, in all likelihood, would continue to remain so for some years to come. This scenario calls for a better outreach and awareness raising program among young job seekers and in society on construction sector occupations. In the absence of any structured intervention to attract youth and dispel inhibiting notions, the sector may not be able to engage a young workforce in any reasonable number resulting in labour market shortages; signs of which are already emerging.

95. In addition, there is a need to reach out to the pool of experienced craftsmen in the 25-34 years of age cohort that have been engaged for about 5-10 years in the domestic construction industry. Awareness about career opportunities for such craftsmen in CODs can increase possibilities of their vertical mobility. While workers with less than 5 years of experience in domestic industry may expect wage differentials and learning of international industry practices, for craftsmen with 5-10 years of experience a migration opportunity could be a stepping stone to higher trajectory of career growth. Exposure to advanced construction technologies and being a part of the labour supply chain of multi-geography international construction firms could be even more beneficial.

Focus on few occupations and excel in them overseas

96. Along with such outreach efforts to the youth and the experienced workers, there is need to better target the skilling efforts in niche areas. The GCC countries and the UAE in particular, is a globally competitive labour market. The UAE Migrant Stock by Origin (2013) show India, Bangladesh, Pakistan, Egypt and Philippines to be the top five countries in that order.²⁸ Even within these five countries, Indian, Bangladeshi and Pakistani workers constitute a significantly larger proportion of the migrant stock. Significant parts of this community work in the construction sector and are either low or semi-skilled. Higher skilled workforces in the construction sector come from other Asian and European countries and, to some extent, from India. In comparison, Sri Lanka has a smaller population, and perhaps because of less pressure to migrate abroad, has a limited number of construction worker migrants in the GCC – so they often work in construction sites dominated by a workforce from other COOs.
97. The challenge thus emerges for the Sri Lankan workforce to carve out a differentiated niche for themselves and create a COO specialization, if possible, within the trade. One of the ways it can be done is by building deeper skills in the COO on a fewer number of specialized areas (e.g. in tiling or water-proofing) or in emerging skill areas (e.g. building automation systems), and not to be thinly spread with average competencies on a wide range of skills. It should be clarified that by picking up some occupations for greater and additional focus would not imply that new entrants into the construction sector would be discouraged to take up other occupations in the sector; and interested migrants in all occupations could continue to migrate as before.
98. If such strategic choices are consultatively made and backed up appropriate COD outreach programs; they can be structured into interventions with an emphasis on benchmarking, quality assurance, and time-bound implementation. The Sri Lankan workforce could then deliver higher value to GCC employers and begin to gradually create a greater impact on the GCC labour market and gain a competitive edge over the workforce from other COOs. It is also expected that such an edge, once gained, will translate into better outcomes in terms of wages, contractual terms and living conditions.

Setting up a model Overseas Testing Centre in Sri Lanka

99. While there are affiliated / accredited Overseas Testing Centres (OTC) in Sri Lanka, setting up and operationalizing a well-equipped construction sector OTC structured under the aegis of an ADD Government-to-Government or multilateral agreement (or any other suitable arrangement) could provide a win-win impetus to the migration process. The OTC would assess and certify skills in identified occupations benchmarked to widely-accepted international meta-frameworks and prevalent COD qualification standards.

28 <http://esa.un.org/migmgmprofiles/indicators/files/UAE.pdf>

100. Further, being a Government-to-Government recognized arrangement, successful operations of the OTC could also ensure some of the other labour and welfare challenges and issues related to fair migration are addressed appropriately. The roles and responsibilities regarding capital expenditure funding, operationalization mechanism, recurrent expenditure and management of the OTC could be discussed and agreed as a part of the ADD consultative process. Such an arrangement could be for an initial period of (maybe) 5-7 years and, thereafter could be reviewed or renewed.

(Footnotes)

- 1 Casual work is engagement of workers on an occasional and intermittent basis, for a specific number of hours, days or weeks, in return for a wage dictated by the terms of daily or periodic work agreement.

Appendix: Tabulation of skill gap assessments from COD practitioner pilot survey

SI No	Timber Formwork Carpenter Performance Criterion	International Standards (UK and Singapore) / GCC benchmarked expectations		Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)		
		Theoretical Knowledge COD Expectations	Practical Skills COD Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Knowledge
1.1	Reinforced Concrete Building Elements	100%	100%	40%	100%	1 month
1.2	Types of formwork	100%	100%			
1.3	Timber formwork materials and accessories	-	-			
1.3.1	Plywood	100%	100%			
1.3.2	Timber	100%	100%			
1.3.3	Nails	100%	100%	40%	90%	1 month
1.3.4	Form release agents	100%	100%			
1.3.5	Column clamps	100%	100%	30%	80%	2 months
1.3.6	Form ties	100%	100%			
1.4	Types of Shoring	100%	100%	30%	60%	2 months
1.5	Bracing to shores	100%	100%			
1.6	The pressure of concrete on formwork	100%	100%	20%	40%	3 months
1.7	Stripping of forms	100%	100%	30%	60%	
1.8	Tolerances for bare RC structures	100%	100%	20%	50%	4-5 months
1.9	Condition of formwork, props and bracing	100%	100%	20%	50%	3-4 months
2.1	Components of a typical wall timber formwork	100%	100%			
2.2	Components of a typical beam timber formwork	100%	100%	30%	60%	2 months
2.3	Components of a typical slab timber formwork	100%	100%			
3.1	Surveying	100%	100%	10%	NA	6-7 months
3.2	Calculation of Areas	100%	100%			
4.1	Safety - Introduction	100%	100%	60%	70%	1 month
4.2	Tripping and falling/falling from heights	-	-			
4.2.1	Type of common injuries	100%	100%	50%	70%	1 month
4.2.2	Recommended Control Measures	100%	100%	30%	50%	2-3 months
4.3	Falling Objects	-	-			
4.3.1	Types of Common Injuries	100%	100%	30%	40%	3 months
4.3.2	Recommended Control Measures	100%	100%	10%	NA	5-6 months
4.4	Hand held Tools and equipments	100%	100%	50%	60%	2 months
4.5	Collapse of Formwork - Recommended Control Measures	100%	100%	10%	NA	4-5 months
4.6	Noise - Recommended Control Measures	100%	100%			
4.7	Dust - Recommended Control Measures	100%	100%	70%	70%	1 month
4.8	Electric Shocks - Recommended Control Measures	100%	100%			

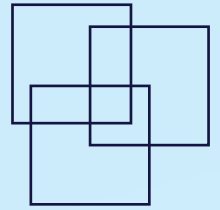
SI No	Mason (Plastering) Performance Criterion	International Standards (UK and Singapore) / GCC benchmarked expectations			Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)			
		Theoretical Knowledge COD Expectations	Practical Skills Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Skills		
1	General Knowledge of Plastering	100%	100%	30%	70%	2 months		
1.2	Materials for Plastering	100%	100%	40%	60%	2 months		
1.3.1	Hydration	100%	100%	20%	50%	3-4 months		
1.3.2	Factors affecting the strength of cement mortar plaster	100%	100%	20%	50%	3-4 months		
2	Application of Plaster	-	-	-	-			
2.1	Common types of substrates and their preparation	100%	100%	40%	70%	2 months		
2.2	Number and thickness of plaster coats	100%	100%	60%	80%	1 month		
2.3	Curing	100%	100%	70%	80%			
2.4	Groove lines	100%	100%	40%	60%	2 months		
2.5	Plastering accessories	100%	100%	70%	70%			
2.6.1	Plastering defects and their remedies - Bond failures	100%	100%	30%	60%	4 months		
2.6.2	Plastering defects and their remedies - Cracking	100%	100%					
3	Drawing interpretation and material estimation	100%	100%	20%	40%	4-5 months		
4	Safety	100%	100%	60%	70%	2 months		

SI No	Mason Brickwork / Blockwork and Tiling Performance Criteria	International Standards (UK and Singapore) / GCC benchmarked expectations			Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)		
		Theoretical Knowledge COD Expectations	Practical Skills Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Skills	
1	Basic knowledge of Brickwork and Blockwork	100%	100%	50%	70%	1 month	
2	What is the Gap between two bricks in a Wall and how it is kept uniform during erection	100%	100%	30%	70%	2 months	
3	What is the gap between two Blocks in Blockwork	100%	100%	30%	70%	2 months	
4	Preparatory work for Brickwork and Blockwork	100%	100%	60%	70%	1 month	
5	What are the considerations of Flooring work	100%	100%	40%	70%	1 month	
6	Ratios of material Mixing Cement:Sand:Water	100%	100%	20%	40%	3 months	
7	How to differentiate between good and bad Cement	100%	100%	20%	50%	3-4 months	
8	Types of Floorings: Mosaic, Tiling, Marble, Wooden	100%	100%	20%	40%	3-4 months	
9	What is Grid Plaster and why it is done	100%	100%	30%	40%	3 months	
10	Types of Tiles: Glazed/ Unglazed Ceramic, Homogeneous, Quarry, Abrasion and Slip resistant	100%	100%	20%	40%	3 months	
11	Adhesives for Tiles	100%	100%	60%	70%	1-2 months	
12	Gaps to be maintained when laying Tiles	100%	100%			1 month	

SI No	Steel Fixer / Bar Bender Performance Criterion	International Standards (UK and Singapore) / GCC benchmarked expectations		Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)		
		Theoretical Knowledge COD Expectations	Practical Skills COD Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Skills
1	General Knowledge on RCC building components such as beams, columns, slabs, walls, footings, pilecaps	100%	100%	20%	40 - 50%	3 months
2	Overall knowledge on steel reinforcement work	100%	100%	30%	50%	2-3 months
3	Purpose of Tying and methods of Tying	100%	100%	40%	60%	
4	Lapping, Couplers, anchorage (hook) length for Links and stirrups	100%	100%	30%	50%	
5	General knowledge on steel rebars and spacers: sizes, mild steel and high yield steel, fabric mesh	100%	100%	10%	25%	4-5 months
6	Read Bar bending Schedule for column, beam and slab	100%	100%	20%	30%	4-5 months
7	Fixing up of rebars in situ: Pilecaps, Columns, wall, Beams & Slabs	100%	100%	20%	40%	3 months
8	Effect of reheating and rebending rebars	100%	100%	10%	NA	6-7 months
9	Hand held Tools and Equipments	100%	100%	40%	60%	2 months

Building Painter Performance Criterion	International Standards (UK and Singapore) / GCC benchmarked expectations		Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)		
	Theoretical Knowledge COD Expectations	Practical Skills COD Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Skills
Selection of right Tools	100%	100%	40%	60%	2 months
Prepare required List of Materials with quantities	100%	100%	40%	70%	1 months
Preparation of the work Area/surface including masking	100%	100%	50%	50%	4 months
What are the various types of paints	100%	100%	30%	40%	2 months
How the paints are mixed, stirred and prepared for work	100%	100%	20%	40%	6 months
What is the curing method for finished paint surface	100%	100%	25%	40%	4-5 months
What precautions to be taken to paint: Ceiling, Wall Surface, a timber panel door, flush door	100%	100%	30%	50%	4 months
How tools are cleaned after painting	100%	100%	40%	70%	2 months

SI No	Electrical Wiring Technician Performance Criterion	International Standards (UK and Singapore) / GCC benchmarked expectations		Empirical assessment of Indian and Sri Lankan workforce (based on mainly UAE and some Kuwait respondents in the category of Foreman, Chargehands and Site supervisors)		
		Theoretical Knowledge COD Expectations	Practical Skills COD Expectations	Extant COO Theoretical Knowledge	Extant COO Practical Skills	Time required to achieve 70% proficiency in Practical Skills
1.1	Electrical Terms and Units	100%	100%	30%	90%	2 months
1.2	Resistance	100%	100%	30%		
1.3	Voltage and Current Distribution	100%	100%	30%		
2.1	Generating and Transmission Systems	100%	100%	20%	80%	3-4 months
2.2	Types of Supply Currents	100%	100%	100%	100%	
3.1	Components of an electric circuit	100%	100%	100%	100%	
3.2	Lighting Circuit	100%	100%	100%	100%	
3.3	Power Circuits	100%	100%	40%	100%	1 month
4.1	Overcurrent Protective Devices - Fuses	100%	100%	50%	100%	1 month
4.2	Overcurrent Protective Devices - Circuit Breakers	100%	100%	50%	100%	1 month
4.3	Earth Fault Protective Devices - RCCB	100%	100%	10%	NA	6 months
5.1	Cable Constriction	100%	100%	30%	60%	2 months
5.2	Cable Selection	100%	100%	40%	70%	2 months
5.3	Flexible Cords and Flexible Cables	100%	100%	100%	100%	
5.4	Identification of Conduit	100%	100%	30%	75%	2 months
5.5	Identification of Conductors	100%	100%	30%	100%	1 month
5.6	Revision of Cable Core Colours	100%	100%	40%	40%	4-5 months
5.7	Alteration or addition to an existing installation	100%	100%	90%	90%	
6.1	Measurement Instruments - Multimeter	100%	100%	30-35%	80%	2 - 3 months
6.2	Measurement Instruments - Clamp-on ammeter	100%	100%			
6.3	Measurement Instruments - Megohmmeter	100%	100%			
6.4	Measurement Instruments - Wattmeter	100%	100%			
6.5	Measurement Instruments - Phase Sequence Tester	100%	100%			
6.6	Measurement Instruments - Multi-function tester	100%	100%			
6.7	Measurement Instruments - Polarity checker	100%	100%			
6.8	Measurement Instruments - Test lamp	100%	100%			
7.1	continuity Test	100%	100%	30-35%	80%	2 - 3 months
7.2	Insulation Test	100%	100%			
7.3	Polarity Test	100%	100%			
7.4	Earth Fault Loop impedance test	100%	100%			
8.1	Electricity safety	100%	100%	70%	100%	
8.2	Good Practices	100%	100%			
9.0	Safety	-	-			
9.1	Electric Shocks	100%	100%	100%	80%	1 month
9.2	Tripping and Falling/Falling from Heights	100%	100%			
9.3	Falling Objects	100%	100%			
9.5	Confined Space	100%	100%			
9.6	Handheld tools and equipments	100%	100%			



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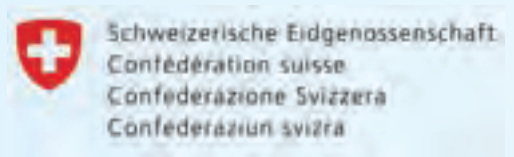
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