SKILLS DEMAND SURVEY IN LIGHT ENGINEERING AND MANUFACTURING SECTOR



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Abbreviations

BACCO	Bangladesh Association of Call Center and Outsourcing
BACI	Bangladesh Association of Construction Industry
BANBEIS	Bangladesh Bureau of Educational Information & Statistics
BBS	Bangladesh Bureau of Statistics
BEIOA	Bangladesh Engineering Industry Owners' Association
BGMEA	Bangladesh Garments Manufacturing Employment Association
BIDS	Bangladesh Institute of Development Studies
BITAC	Bangladesh Industrial and Technical Assistance Center
BKMEA	Bangladesh Knitwear Manufacturing Employment Association
BMET	Bureau of Manpower, Employment and Training
BPC	Business Promotion Council
BSCIC	Bangladesh Small and Cottage Industries Corporation
BTEB	Bangladesh Technical Education Board
BTMA	Bangladesh Textile Mills Association
CAD	Computer Aided-Design
CBLM	Competency-based Learning Material
CBT	Competency-based Training
CBT&A	Competency-based Training and Assessment
CNC	Computer Numerical Control
CS	Competency Standard
DCI	Data Collection Instrument
DTE	Department of Technical Education
EIG	Employment and Income Generation
ERW	Electrical Resistance Welded
FDI	Foreign Direct Investment
FY	Fiscal Year
GDP	Gross Domestic Product
GoB	Government of Bangladesh
HDRC	Human Development Research Centre
HSC (Voc)	Higher Secondary Certificate (Vocational)
ILO	International Labour Organization
IMT	Institutes of Marine Technology
JSC	Junior School Certificate
JDC	Junior Dakhil Certificate
KII	Key Informant Interview
LEM	Light Engineering and Manufacturing
LFS	Labour Force Survey
MoE	Ministry of Education
MoEWOE	Ministry of Expatriates' Welfare and Overseas Employment
MoI	Ministry of Information
MPO	Monthly Pay Order
NGO	Non-Government Organization

NSC	National Skill Certificate
NSDC	National Skills Development Council
NSDP	National Skill Development Policy
NTVQF	National Technical and Vocational Qualifications Framework
PKSF	Palli Karma-Sahayak Foundation
RMG	Ready Made Garment
RPL	Recognition of Prior Learning
RTO	Registered Training Organization
SAW	Submerged-Arc Welded
SDCMU	Skills Development Coordination and Monitoring Unit
SCDC	Standards and Curriculum Development Committee
SEIP	Skills for Employment Investment Program
SMEF	SME Foundation
SSC (Voc)	Secondary School Certificate (Vocational)
TSC	Technical School and College
TTC	Technical Training Center
TTTC	Technical Teachers Training College
TVET	Technical and Vocational Education and Training
UCEP	Underprivileged Children's Educational Programs
VET	Vocational Education and Training
VTTI	Vocational Teacher Training Institute

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Executive Summary

Palli Karma-Sahayak Foundation (PKSF) is working with Skills for Employment Investment Program (SEIP) to support the targeted group of people to enhance their employable skills with the purpose of meeting the skills demand of the industries and self-employment. PKSF, through 22 training centers, is providing training mostly to the poor and low income group participants to improve their skills and make them employable. This study aims to let PKSF know the present and future skills demand as well as skills gap in Light Engineering and Manufacturing sector of Bangladesh to formulate her future policy and program in the area of skills development.

In particular, this study aims to explore occupation-wise potential employment demand in Light Engineering and Manufacturing sector and determine the number of prospective human resources by category of less-skilled, semi-skilled and skilled. This task is likely to be accomplished according to employers' demand in congruence with the objective of SEIP. The specific objectives of the study are as follows.

1) To identify occupation wise job demand in Light Engineering and Manufacturing sector in home and abroad;
2) To examine the skills gap of existing human resources in comparison with potential job market demand;
3) To identify the causal factors of skills gap of existing human resources;
4) To formulate an action plan to ensure effective demand-driven skills training program for the less-skilled, underprivileged and low-income group.

Study Design and Implementation

The study adopted both quantitative and qualitative tools to collect data and information from primary and secondary sources. Enterprise level survey was conducted to collect primary data on the job demand, skills gap and causal factors of skills gap by interviewing both employer and employee using semi-structured interview schedule. For primary data collection, this study followed non-probabilistic or purposive sampling with a total number of 10 enterprises for sample survey. Officially published data are also used extensively. Both quantitative and qualitative data are analyzed and triangulated. In addition, relevant stakeholders and knowledgeable entrepreneurs of this sector were consulted in different phases of the study.

Study Findings

Domestic and Overseas Job Demand Projection

The projection on the future job demand in Light Engineering and Manufacturing sector for domestic and overseas market is estimated separately. Although there are liberal and conservative estimates on the projection of overseas job demand, this study relies on conservative estimates. The projected future job demand in Light Engineering and Manufacturing sector indicates that the total number of employment in this sector will be 0.63 million by the year 2022 and nearly 1.2 million by the year 2027 increasing from 0.33 million in the year 2017. It means that this sector will employ a total of 1.2 million people by the year 2027. It also implies that 0.30 million additional jobs will be created in this sector by the year 2022 and 0.85 million by the year 2027.

In comparison with the size of employment in domestic market, the overseas employment is small. Estimates shows that the total number of overseas employment in Light Engineering and Manufacturing sector will be 15,320 by 2027 from 9,492 in the year 2017. Combining

the estimates for both domestic and overseas market the estimated number of job demand in 2027 is 1,107,226 while the same was 342,750 in 2017.

In the domestic market, employment in skilled job will be on rise from 57.0 per cent in 2017 to 58.1 per cent in 2027; a total of 0.69 million job will be created under skilled category in the year 2027 from 0.37 million in the year 2022 and 0.18 million in the year 2017. Among the different occupation under skilled category, considering the changed skill-mix assumption, the highest number of jobs will be created for Lathe machine operator/Turner which is accounted for 0.22 million jobs followed by CNC machine operator (0.14 million) and Electric welder (0.1 million) in 2027.

The proportion of semi-skilled jobs will almost remain unchanged during the period of 2017-2027. Under the semi-skilled category, the projected number of jobs created will be 0.48 million in 2027 and 0.25 million in 2022 from 0.13 million in 2017. Among different occupation or trade under semi-skilled category, in 2027 highest number of jobs will be created for Foundry worker (0.27 million) followed by Fitter (0.10 million) in 2027.

The projected number of jobs under less-skilled category will be 11,919 in 2027 from 9,998 in 2017. During the time period (2017-2027), employment in less-skilled job will decrease from 3.0 per cent to 1.0 per cent.

The overseas employment in this sector will continue to be dominated by less-skilled workers in the next decade. Study indicates that most of the opportunities in overseas job demand is expected to be created for the occupation like Fitter (4,529), QA/QC Engineer (4,532), Steel worker (2,385), Mechanics (1,431), and engineer (918).

Skills Gap Assessment and Its Causes

Skills assessment results unveil that most of the occupations are suffering from adequate number of competent workers while semi-competent and less-competent workers occupy the sector to a great extent. Competent workers are found only in the two skilled trades (AC technician and Industrial electrician); while there is only one trade in the semi-skilled trades (Shaper) where some competent workers are found. This assessment indicates that there is serious skills gap or skills shortage in various occupations or trades in the Light Engineering and Manufacturing sector of Bangladesh.

Lower level of general education was the leading reason behind the existing skills gap in sector, followed by high turnover rate, inadequate existing training curriculum, non-attractive financial benefits and financial constraints to be enrolled in the relevant training courses. According to the experts and employers interviewed in this study, there is less coordination between the industry needs and trainings provided. The trainings are mostly lecture-based and assessment is not competency-based. This type of learning provides a little practical experience.

A large majority of the workers opined that overall quality of the training and quality of training materials was very good (33.3%) and good (45.8%). The two-third workers, however, stated that there was no verification at all while the remaining workers noted that their training was verified by the internal and external assessors. Only 10 per cent workers received some sorts of training from their current employer. Regarding future training needs, most of the workers (73.3%) were in favor of training provisions in the future. The reported areas of training among others are Machine operator (34.1%), CNC/Lathe (13.6%), Welding and fabrication (11.4%), Automobile (11.4%), and Electrician (9.1%).

Skills Development System

A good number of Bangladeshi public and private TVET institutions provide a number of courses and training programme for Light Engineering sector. There is a total of 16 different courses relevant to Light Engineering skills development. Each of the training courses has its own curriculum, duration, entry requirement and assessment procedure.

Through the centers and sub-centres of BEIOA, Light Engineering Training Institute has a target to train 8,940 participants with the help of the SEIP. Duration of this training will be 30 to 900 hours. Training will be provided, in and out of Dhaka, six days per month with 2 to 5 hours per day. Under SEIP (tranche-1) Bangladesh Bank is imparting training on Lathe Machine Operation through 37 training institutes for 1,200 trainees. Under SEIP, BITAC has a target to train 3,240 persons on Welding and Fabrication; and Machine Shop Practice/ Machine Tools Operation/Machinist for Light Engineering sector. The BITAC imparted that training are 4-month-long basic (360 hours) course. BMET will train 34,620 students through 15 Technical Training Centre, is imparting training on: 1) Electrical Installation and Maintenance; 2) Machine Shop Practice/Machine Tools operation/Machinist; 3) Mechanical Fitter; and 4) Welding and Fabrication PKSF supported training courses in the Light Engineering and Manufacturing sector are: 1) Welding and Fabrication; and 2) Small Engineering and Metal Working. UTTORAN a national NGO has a target of 69 batches of training on Electrical, Machinist and Welding.

Current State of Skills Acquisition

One-third of the total workers had skills development training prior to joining their present job in Light Engineering and Manufacturing sector. Such training includes a variety of trades or courses namely, Lathe machine operator; Automobile; Welding and fabrication; Furniture and cabinet making, ARC and gas welding, Computer operator; and Machinist. The prime motivation behind receiving these training was acquiring new skills (87.5%) followed by learning more knowledge and upscale skills (25%).

The surveyed potential job seekers completed training on the trade courses like Welding and fabrication (60%), Electrician (20%), and Automobile (10%). Half of the respondents indicated that there was no verification of learning at the end of training. According to the potential employees or job seekers, training quality could be improved by taking few measures like inclusion of more important and easily understandable content; increasing duration of training; appointing more qualified trainers; provisioning of latest machineries for practical lessons; and increasing number of practical lessons.

Employers mentioned that soft skills were expected as training outcome. Among various types of soft skills 80 per cent of employers keep the ‘self-driven or motivated’ in the top of the list followed by team work (70%) and problem solving attitude (70%).

Recommendations and Action Plan

1. Considering the future job demand in various occupations established by this study findings, skills development initiatives should target a number of trades under skilled; and semi-skilled category for both domestic and overseas market, including Lathe machine operator/Turner; Foundry worker, CNC machine operator; Fitter; Electric welder; Heat treatment plant operator; Electrical installation and maintenance technician; Dice maker; Shaper; Boring operator; Gas cutter; QA/QC Engineer; Steel worker; Mechanics and engineer.

2. NSDC is developing competency standards for the trainings of LEM sector, among others. The courses and their duration are stated below. Training for the above-mentioned high demand trades should be designed on the basis of the following trainings as per CBT&A developed and set by BTEB and NSDC.

a. Consumer Electronics Technician	390 hrs.
b. Automotive Mechanics	400 hrs.
c. Electrical Installation and Maintenance	360 hrs.
d. Fitting	420 hrs.
e. Machine shop practice	420 hrs.
f. Refrigeration & Air Conditioning	360 hrs.
g. Motorcycle servicing	360 hrs.
h. Agriculture Machinery	360 hrs.
i. Solar Electrical System	360 hrs.
j. Common (NPVC 2; pre vocational)	360 hrs.

3. PKSF is working with NGOs for poverty eradication and most of them are creating jobs, self-employment, through Employment and Income Generation (EIG) program as well as providing job opportunity in the formal sector including overseas employment. To this end, skills training for Light Engineering sector should target above-mentioned occupations/trades.

4. In order to ensure inclusion of people from low income group, following intervention strategy should be taken.

   - Trainee selection and need assessment should be done by the NGOs
   - For easy initial placement, trainings for trades should consider local demand and
   - Common training (NPVC 2) could be provided in order to make them prepared for further training

5. Study finds that there are five clusters (Lalbagh, Tipu Sultan road, and Sutrapur in Dhaka; Madaripur Sadar and Railway market in Bogra) where women are working in this sector. Training facility and/or future training provision in this area and in other areas should have especial focus including more women trainees in various courses.

6. Competency-based learning materials (CBLMs) built upon the competency standard approved by BTEB have to be prepared and used in the training. Periodical review of the CBLM is needed. It will ensure updating knowledge and technology to be imparted by training institutes.

7. In order to maintain the quality of training and provide nationally accredited certification, training providers have to be registered training organization (RTO) and the outcome of training to be assessed by BTEB accredited assessors.

8. Training participants under RTOs should be given the opportunity to be assessed later on to get NTVQF certificate in case of unavailability of the BTEB accredited assessor on time.

9. Based on the BTEB approved competency standards, learning materials should include core, trade and soft unit of competency. In addition, it should focus extra unit on labor right, decent work, safe migration, green job, climate change, disaster and worker migration.