

# JICA Project for Improving TVET Quality to Meet the Needs of Industries

## Report On Survey Findings

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### Project information

<b>Title</b>	Improving TVET Quality to Meet the Needs of Industries
<b>Client</b>	JICA TVET / JICA Cambodia
<b>Location</b>	Cambodia
<b>Duration</b>	5 weeks

### Document history

<b>Version</b>	<b>Date</b>	<b>Comments</b>	<b>Drafted by</b>	<b>Checked by</b>	<b>Approved by</b>
V 1	Mar 15, 2016	Drafted	SK		
V 2	Mar 18, 2016	Revised	SK		
V 3	April 08, 2016	Revised	SK		

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## Abbreviations

<i>EMC:</i>	Emerging Markets Consulting
<i>GMAC:</i>	Garment Manufacturers Association in Cambodia
<i>IAG:</i>	Industrial Advisory Group
<i>JICA:</i>	Japanese International Cooperation Agency
<i>MLVT:</i>	Ministry of Labor and Vocational Training
<i>DGTVET:</i>	Directorate General of Technical and Vocational Education and Training
<i>NPIC:</i>	National Polytechnic Institute Of Cambodia
<i>NTTI:</i>	National Technical Training Institute
<i>PPI:</i>	Preah Kossomak Polytechnic Institute
<i>NEA:</i>	National Employment Agency
<i>SME:</i>	Small Medium Enterprise
<i>TA:</i>	Technical Assistance
<i>TOR:</i>	Term of Reference
<i>TVET:</i>	Technical and Vocational Education and Training

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## 1 Executive Summary

For JICA TVET project ‘Improving TVET Quality to Meet the Needs of Industries’, data from 42 companies participating in a discussion/survey workshop are analysed. The workshop was part of the project’s key activities and where 45 companies from various sectoral and business activities gather so to provide information on their present status of technical staffs and needs for them, their perceptions and expectation of, and possible collaboration with TVET institutions for the promotion of education and training provided by these institutions. The collected information is ultimately used as reference in new curriculum development and activities concerned. The representative(s) of each companies individually or jointly filled in a questionnaire that was provided.

The analysis starts in sections 4.1 and 4.2 by observing business profile and employment profile of the surveyed companies. It is followed by section 4.3, which will elaborate how companies recruit Cambodian technician, on what criteria, for what job position, and how companies evaluate Cambodian technicians. For selection criteria, personality was picked as the priority, followed by experience using relevant skill at relevant jobs and English ability. Most frequently Cambodian technicians are to be the manager/person in charge of machinery/facility maintenance and production line; they may also be assigned to tasks different from their specified role/responsibility or department. On HRD activities, companies focus more on in-company training, either at first company orientation or on daily basis as the employee carry out their role and responsibility, while some dispatch them abroad. On recruitment of new Cambodian technician, companies mainly on online ads, or ads posted at educational institution and recommendation from network. Many respondents evaluated them as possessing potential for the future growth even though currently insufficient skills/knowledge.

Section 4.4 highlights companies’ perception and expectation of the role of TVET institution for promoting industrial human resource. TVET institutions are not known to all in private sector. To those with knowledge of the TVET institutions and their education/training, they still do not consider TVET institutions as capable in contributing to the development of industrial human resources because they do not provide sufficient educational training based on the industries’ needs due to lack of practical and technical knowledge and skills applicable to working sites as well as insufficient training of the subjects such as require/specified technical skills. Overall, companies evaluate highly on the JICA TVET-proposed curricular in electricity. As a whole, they are expected to be engaged in charge of maintenance or management of the production line, however, even after fulfilling all these programs, there may be some occasions where Cambodian technicians are assigned to assist in tasks other than their specified role and responsibility. On possibility for collaboration with TVET institutions and companies at large would support for site visit or study tours by instructors and/or staffs of TVET institutions at their premises. Many are also in favour to have their technical experts dispatched as instructors at TVET institutions and to contribute through providing technical advices for the curriculum development. However, on the staff recruitment, companies still raise concern on; insufficiency in active student employment support and program for the collaboration, TVET institutions don’t educate students to have a professional mindset or purpose in society, and nonexistence of orientation/preparation program to prepare student before entering a company. On the other hand, regarding possible collaboration for employment promotion, companies support the way of application for job vacancy, internship, job fair and acceptance of job exploration to company. Some companies support the internship scheme and duration/number of interns vary among different companies, but some companies posted challenges such as establishment as implementation.

## 2 Project Overview

### 2.1 Context

A contract to implement the JICA-funded technical assistance (TA) assignment ‘Improving TVET Quality to Meet the Needs of Industries’ was awarded to Emerging Markets Consulting (EMC), Cambodia.

This TA has its overall objective stated in the project's Term of Reference (TOR) as to strengthen the capacity of diploma level electricity technicians through the development of relevant curriculum as well as the linkage between Technical Vocational Education Training institutes(hereinafter referred as "TVET institute") and relevant industries through the students' employment means' and activities concerned. The major task for the project implementation covers not only motivation of the above activities but also conduct the needs survey which includes;

- To design and facilitate a survey of 100 non-Japanese businesses from various sectors, including manufacturing, industry & engineering, construction, textile & garment, among others.
- To hold in-depth interviews with 4 businesses
- To prepare a report of the survey findings and recommendations

Thus, the result of survey is highly requested to become so useful for considering measures for the JICA TVET project, ranging 4.5 years duration.

## 2.2 Project Phases and Key Deliverables

The project has been divided into three phases for delivery, as shown in Figure 1.

Figure 1 - Project phases



As per agreement yielded at the project kicks off, the key deliverables for each phase are as follow (please note the deliverable status and date underlined):

### Phase 1 – Project Inception and Survey Design

- List of over 100 non-Japanese businesses to be invited to the discussion/survey workshop, including 4 businesses for in-depth interview (final version delivered on Feb 15, 2016)
- Survey Tools (final version delivered on Feb 25, 2016, with other workshop materials)

### Phase 2 – Primary Research

- Conducting discussion/survey workshop (delivered on Feb 26, 2016)
- Presenting preliminary findings from survey (delivered in table/graph format on Mar 08, 2016)

### Phase 3 – Business Planning

- Providing raw data in excel format in EN (delivered on Mar 08, 2016)
- Final report<sup>1</sup> in Khmer and English (refer to this report, first draft delivered on Mar 15, 2016)

## 3 Overview of the survey and in-depth interview

Aiming to help TVET Institutes in Cambodia to produce high quality technicians for the industries in the near future, this JICA TVET Project will develop a standardized national TVET curriculum for higher diploma level in electricity that reflects the needs of the industries and strengthen system of student employment to connect TVET institutions and industries, with collaborating with the Directorate General of Technical

<sup>1</sup> This refer to this product, which will be submitted as draft to JICA TVET Project Team for their review and finalized and submitted again based on the feedback of their review.

Vocational Education and Training (DGTVE) of the Ministry of Labor and Vocational Training (MLVT) and other authorities concerned.

Part of the Project's activities is to conduct a survey with private companies to obtain an overview of their present status of technical staffs and needs for them, and learn their perceptions and expectation of the quality of TVET institutions as well as of training and employment service provided by these institutions, which is eventually made use for new curriculum development and activities concerned.

The survey targets non-Japanese companies in both manufacturing/processing and other sectors in Phnom Penh and its vicinity, with main emphasis on machinery industry such as assemblers and parts suppliers, engineering, construction, textile & garment, among others, who we think are currently employing technical staffs, not necessarily technicians with a diploma level degree. Project team has developed a list of 120 target companies, including SMEs, that fit the following the criteria;

**Table 1 - Proposed target selection**

Sector	Expected Proportion	Targets	Remarks
Manufacturing with high-value added products	60%	Electricity association, members of chamber of commerce, IAG members, SME	Prioritize machinery assemble, mechanic/electronic/electric equipment assembly, means of transport assembly.
Construction and related maintenance	20%	Construction association, members of chamber of commerce, IAG, SME	
Garment & textile and other manufacturing sector	20%	GMAC	

In terms of survey methodology, EMC, JICA TVET and MLVT Project team discussed and agreed at project kick-off meeting on Feb 03, 2016, that we invite the company to the survey workshop, in this point, team received some implication from NEA. As per discussion on how to minimize the risk of having too few companies joining the workshop, we agreed to have invitation letter issued by MLVT, sent out to 100 plus 20 selected companies, with following up calls from EMC to confirm their attendance. On Feb 26, 2016, at the workshop, MLVT attended with implementing promotion of TVET institutions to participants as well as addressing some questions on TVET administration from the floor, in addition, JICA TVET experts also introduced the outline aim of the JICA project. Besides, the observers from project' TVET 3 pilot institutes (NPIC, NTTI, and PPI) and NEA distributed their brochure for promotion.

We received the valid answers from 42 companies from both manufacturing/processing and other sector, with various commercial activities<sup>2</sup>. Section 4 describes the survey analytical findings.

Using the tool developed by JICA TVET experts, the survey aims to address the following concerns and questions, among others:

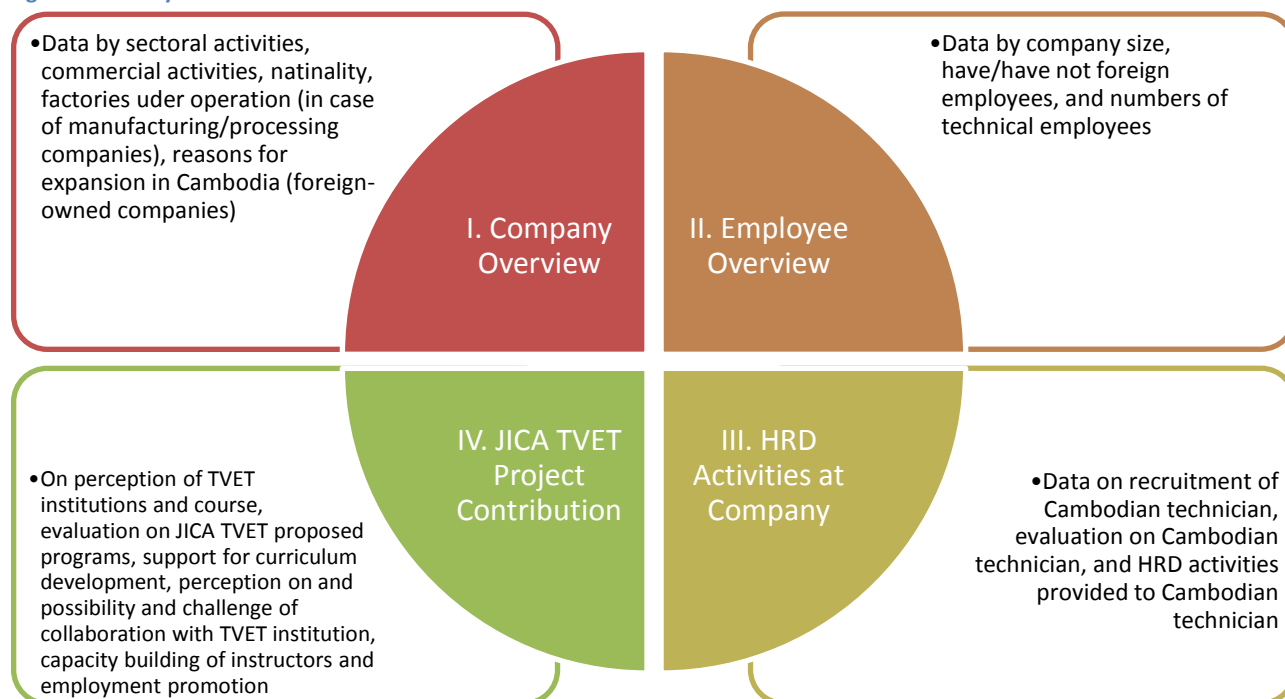
- What kinds of skill sets perceived by private companies to be important and required for TVET diploma graduates?
- Private companies' perception on the role of; obstacle faced by TVET institutions in producing high quality technicians.

<sup>2</sup> One section in the survey tool asked respondents to map the company with either manufacturing/processing sector or others. Another section asked respondents to provide account on the main product/service their companies provide. We use these accounts to build a list of commercial activates that match with them.

- Collaboration between private companies and TVET institution in developing human resource among TVET diploma graduates as well as strengthening the system for their employment; and challenges faced by both parties in collaborating with each other.
- How private companies perceived and expected the JICA TVET Project-proposed programs for diploma level in electricity field of study.

Figure 2 Illustrates the structure of the survey tools, and what kinds of data to be obtained from it.

**Figure 2 - Survey Tool Structure**



Most of this survey tool's questions involves respondents selecting multiple answers, and the analytical approach used in this survey research is to group the answers to see how many unique respondents selected each one of selectable options. The results are illustrated as such in many of the tables and graphs in the findings section of this report.

Other than the survey, in-depth interviews were conducted with 4 selected companies at their HQ office to gain more insights on the following:

- Private company's impression on TVET institutions and the course they provides,
- Human resource models company needs for operation,
- Current employment evaluation and promotion activity,
- Obstacles and challenges on the above points,
- How to construct effective relation between company and TVET institutions in terms of improvement of their quality (i.e. contents of curriculum, instructor, technical service such as seminar, internship, job exploration, etc.).

These 4 companies were among the companies participating in discussion/survey workshop; with one as an associated entity of electricity supplier, one construction firm, one engineering firm, and one manufacturing SME. The qualitative information collected from them are used to supplement the findings from the survey. Section 5 provides concluding remarks. Section 6 lists all relevant deliverables to be submitted together with this report.



## 4 Survey Findings

### 4.1 Profile of surveyed companies

The majority of the respondents were immediate supervisors of workers in the workplaces; including HR or technical department/division director or deputy director, team leaders, and operating officers. They are representative of companies invited to the survey workshop. By sectoral activities, 38.1% are from manufacturing/processing and 61.9% from other sectors (Table 2).

**Table 2 - Frequency of companies by sectoral activities**

Sectoral Activities	Number	%
Manufacturing/process	16	38.10%
Others	26	61.90%

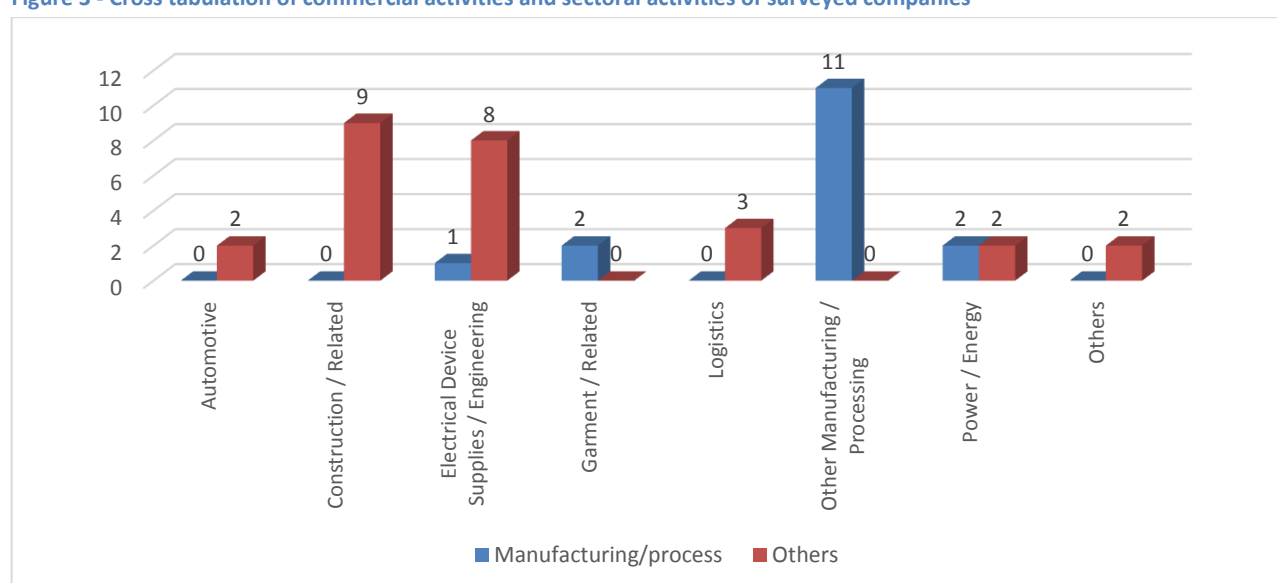
Table 3 shows breakdowns of the respondents by commercial activities, which are categorized into 8 groups as described by companies themselves through the types of products/services the company produces and/or provides.

**Table 3 - Frequency of companies by commercial activities**

Commercial Activities	Number	%
Automotive	2	4.76%
Construction / Related	9	21.43%
Electrical Device Supplies / Engineering	9	21.43%
Garment / Related	2	4.76%
Logistics	3	7.14%
Other Manufacturing / Processing	11	26.19%
Power / Energy	4	7.14%
Others	2	4.76%

Figure 3 illustrates the cross tabulation of commercial activities and sectoral activities of the companies.

**Figure 3 - Cross tabulation of commercial activities and sectoral activities of surveyed companies**



In term of ownership, the respondents are categorised in Table 4 as local companies (47.7%), foreign companies (42.9%), and having both local and foreign stakeholders (9.6%). Table 5 displays frequency of

companies by their establishing year, which was broken down into before year 2000, in between 2000 and 2005, in between 2006 and 2010, and 2011 onward.

**Table 4 - Frequency of respondents by ownership**

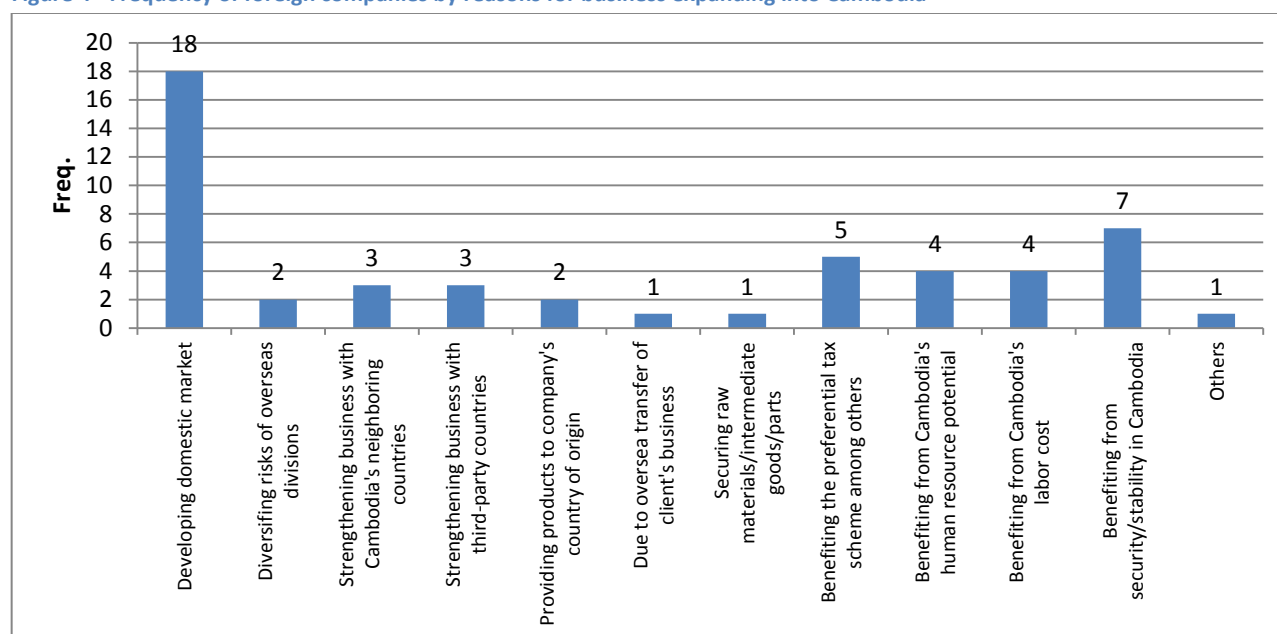
Ownership	Number	%
Local	20	47.62%
Foreign	18	42.86%
Joint	4	9.52%

**Table 5 - Frequency of companies by establishing year**

Establishing year	Number	%
Before 2000	12	28.57%
2000 - 2005	7	16.67%
2006 - 2010	15	35.71%
After 2010	8	19.05%

Figure 4 below describes the reason why surveyed foreign companies expanded their business activities into Cambodia. The majority of the response cited that the companies expanded into Cambodia because they want to develop domestic markets in the country and take advantage of current security and stability as well as to benefit from the preferential scheme Cambodia has offered such as tax break or simplified business procedures for foreign investment.

**Figure 4 - Frequency of foreign companies by reasons for business expanding into Cambodia**



One in-depth interviewed company with foreign stakeholder also provided similar account with regards to how their foreign stakeholder was interested in joining with local counterpart in their expanding activities in Cambodia; they said growth prospect in Cambodia is strong and they came mainly due to domestic market factor.

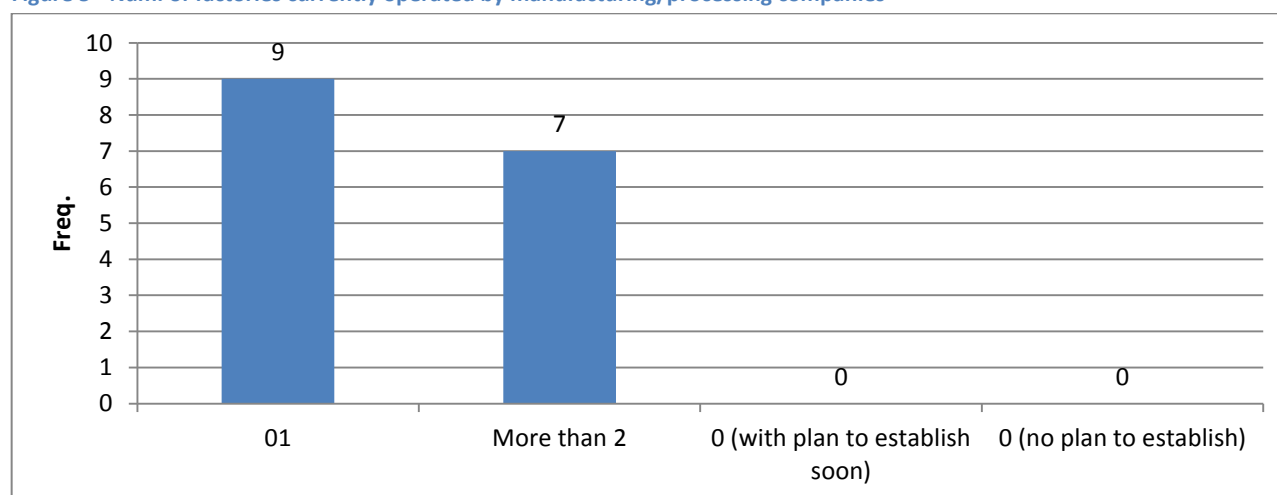
With regards to size, we categorize the respondents based on the total number of both their regular and casual employees. This survey treats companies currently employing 1 to 50 people as small (28.6%), 51-300 as medium size company (40.5%) and over 300 as large companies (30.9%).

**Table 6 - Frequency of companies by size**

Size	Number	%
1-50	12	28.57%
51-300	17	40.48%
Over 300	13	30.95%

All respondents in manufacturing/processing operate (16) with at least one factory. Figure 5 indicates 56.3% or 9 companies operate one factory and 43.7% or 7 companies operate more than 2 factories. Three of non-manufacturing/processing respondents – one big construction firm and two electric products suppliers said they have plan to build one in the near future.

**Figure 5 - Num. of factories currently operated by manufacturing/processing companies**



## 4.2 Profile of employment at surveyed companies

More often than not, companies still rely on foreign staffs to fill in such key positions for technical staffs as engineer<sup>3</sup> and technician<sup>4</sup>. Overall 61.9% of the surveyed companies said they are currently employing foreign staffs and the remaining 38.1% are not (Table 7). The needs for foreign staffs at companies is somehow consistent with accounts research team frequently hear from private sector that they are facing shortage of skilled human resource.

**Table 7 - Breakdown of respondents by current status of hiring foreign staff**

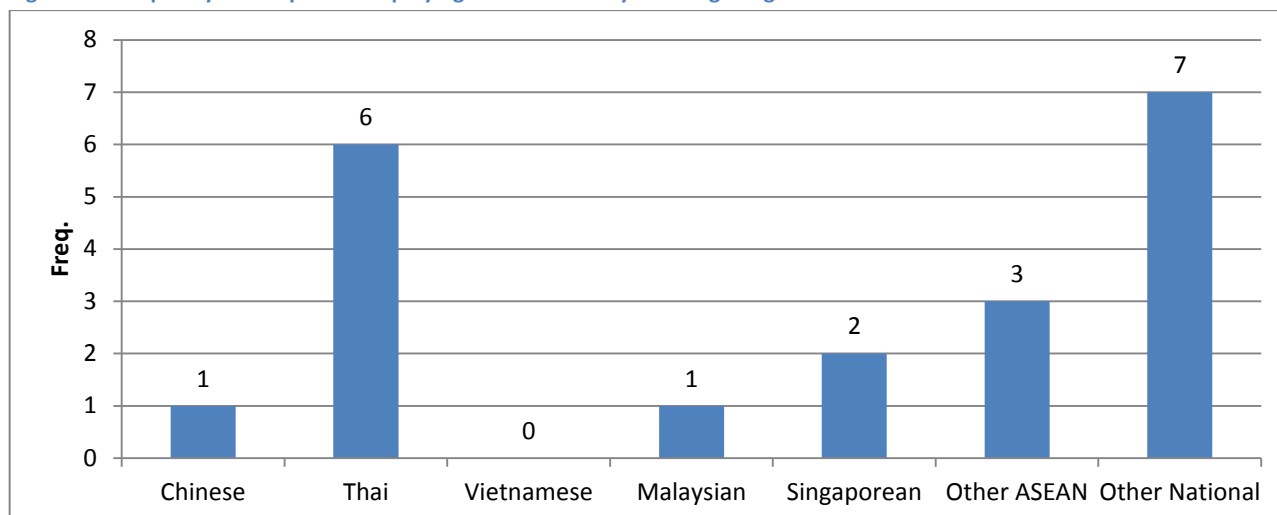
Use of foreign staff	Number	%
Not using foreigner	16	38.10%
Using foreigner	26	61.90%

With regards to nationality of foreign engineer, most companies employ Thai and other non-ASEAN nationals (Figure 6). One each of the surveyed companies reports their employment of engineers of Chinese and Malaysian national respectively. Six companies employ engineer of Thai national, two employ engineer of Singaporean national, and three employ engineer of other ASEAN national. Other nationals are employed as engineer by seven of the surveyed companies.

<sup>3</sup> In this survey, 'Engineer' refers to a university or TVET institution graduate after completion of at least 4-years academic study (Bachelor degree level); in manufacturing field, person in charge of designing/developing product lines, detect, explore and direct solutions on problems are regarded as engineers.

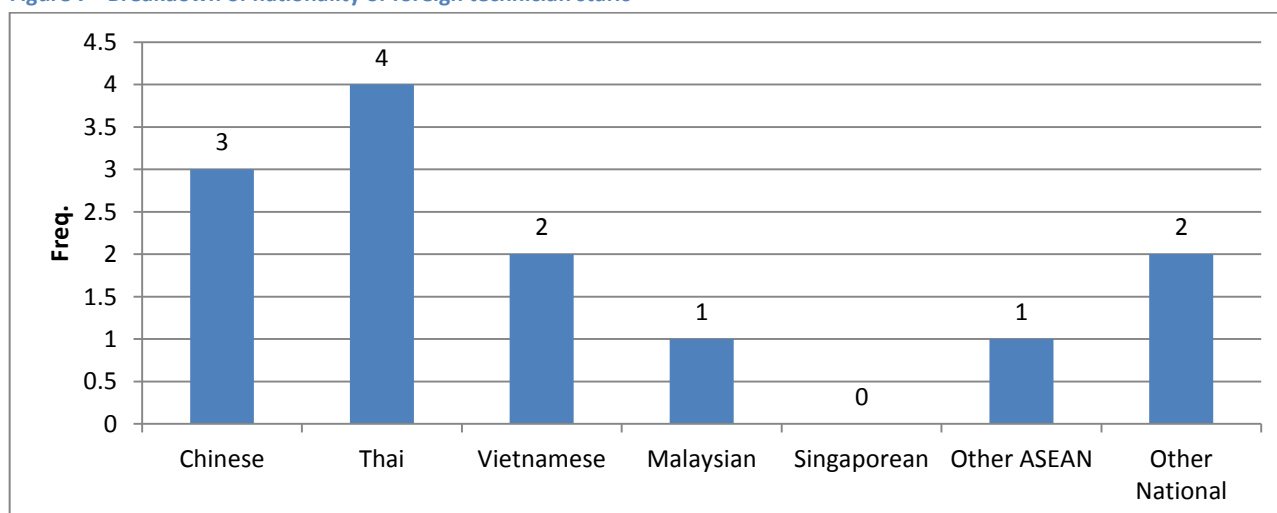
<sup>4</sup> 'Technician' refers to a graduate of either 2-year course at higher diploma level at TVET Institutes, or non-graduate of these degree but in charge of product line operation, improvement, repair and maintain lines, quality control of the product as a leader/core member at site.

Figure 6 – Frequency of companies employing each nationality of foreign engineer staffs



As for foreign technician, most companies employ nationals from Thailand, China, Vietnam, Malaysia and other non-ASEAN countries (Figure 7). One garment factory the research team followed up post the survey, for example, said their core team leader at production line was a foreigner while the Cambodian technical staffs fill in deputy position at most.

Figure 7 - Breakdown of nationality of foreign technician staffs



Looking at the breakdown in Figure 8 of whether the companies employ either one of the three types of technical staffs defined for the survey, 17 employ all types of technical staffs, including engineer, technician and other technical professional<sup>5</sup>. 4 companies do not employ any kind of technical staff at all.

<sup>5</sup> Not completed academic studies as engineer and technician; they may be graduates of high school level or lower but the companies hire them to work on specific technical tasks on daily basis.

Figure 8 - Frequency of companies employing engineer, technician, and other technical staffs

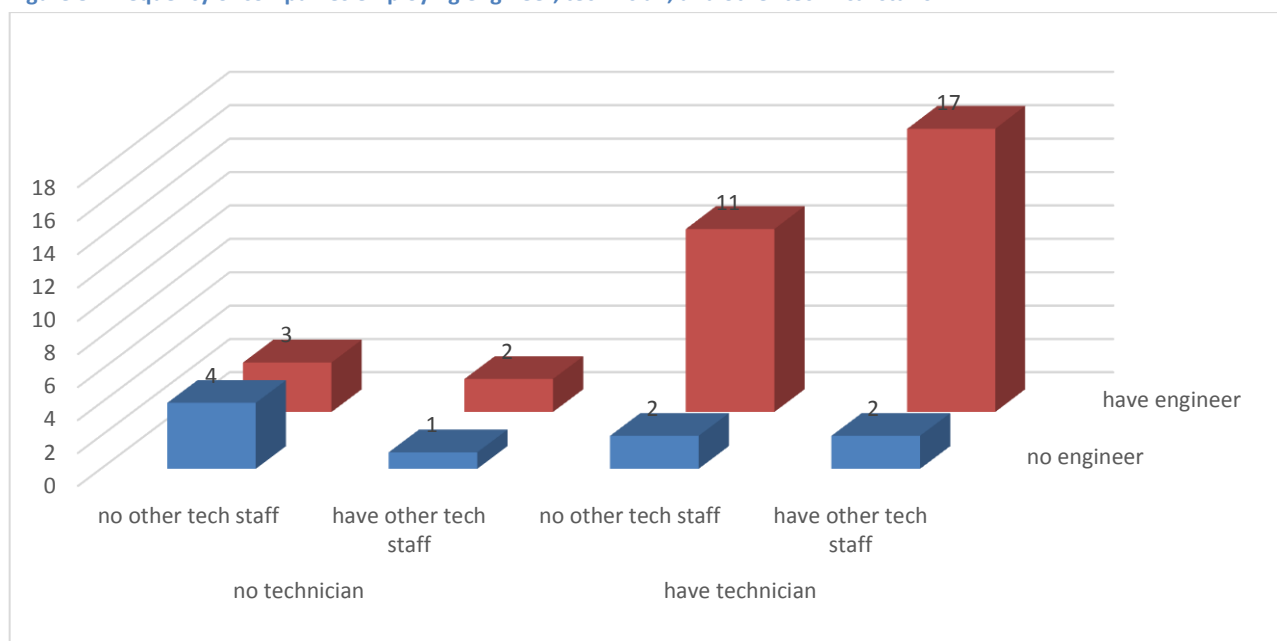


Table 8 displays the number of each type of technical staffs reported by surveyed companies. Consistent to the size breakdown of surveyed companies, the number of each type of technical staffs varies from 1 the smallest to more than 200 the greatest.

Table 8 - Number of each type of technical staffs reported by surveyed companies

	Num. of Companies	Average Num. Of Technical Staff	Min Num. of Technical Staff	Max Num. of Technical Staff
Engineer	33	22.48485	1	218
Technician	31	39.80645	1	300
Other Technical Staffs	22	38.77273	1	207

Note: one company (housing developer) did not provide the number of their technician.

This section of the survey also comprises questions to which we had difficulty in collecting answers. Regardless of sectoral or commercial activities or ownership or size of the company, many respondents could not provide forecasts for their future recruitment of technical staffs.

Accounts provided by 3 companies that we interviewed left the impression that companies do not have regular recruitment cycle and that the demand for new and/or additional personnel at companies frequently change depending on the business and economic situation and social circumstance and it is most likely that these companies will not commit to recruitment in advance. An HR manager at one company said because the company's business depends largely on project, the need for new recruitment varies from time to time and even rainy/dry seasons can sometimes influence the availability of new vacancy.

### 4.3 Employment and HRD on Cambodian technician

While the recent growth in private sector investment has contributed to the initial stage of industrialization in Cambodia, it has also brought along high requirement of high quality industrial human resources such as excellent technicians and leaders who can improve production and service provision operations through increase in productivity and innovative activities. As it is essential for the country to be able to produce these highly skilled industrial human resources, the private sector is playing even more important role in developing these personnel through various HRD mechanisms, includes performance appraisal and reward, career planning, training, and feedback and performance coaching.

One section of our survey tool focus on companies' recruitment of and HRD on Cambodian technician staffs. The purpose is to observe how companies recruit Cambodian technician, on what criteria, for what job position, and how companies evaluate Cambodian technicians.

**Figure 9 - Cambodian technician recruitment criteria**

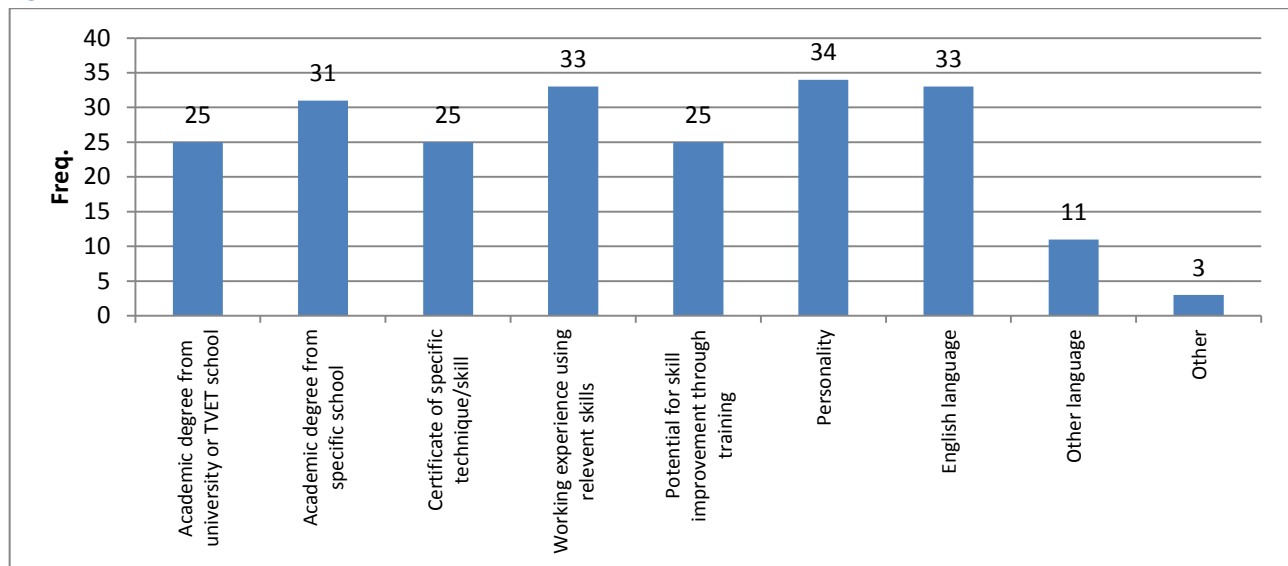
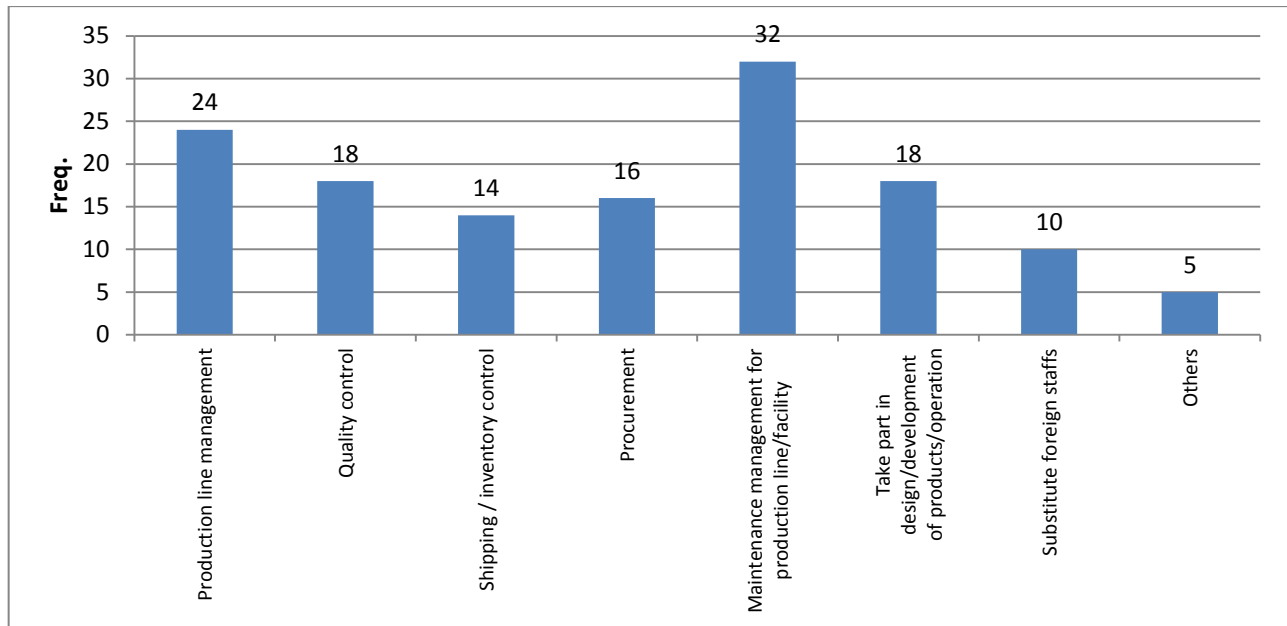


Figure 9 on recruitment criteria of Cambodian technician indicates that while companies consider academic degree is important, they consider degree students received from specific school(s) or course(s) is relatively more important than degree received from university or TVET institutions. Companies put even more importance on working experience in the relevant area, personal character and attitude, and English language ability. Other than English, companies also consider ability in other language important and they include Chinese, Japanese, Thai, Vietnamese, and French. A few companies cited the importance of integrity, IT knowledge and long-term vision.

The finding is in line with comments noted by three of the companies we interviewed face to face; they said personality was the priority when they judge job applicants on job interview. And, this is followed by basic knowledge/skill required for the job position and experience using relevant skill at relevant jobs. One of the three companies interview also focus on English language ability because the business deals with foreigners.

Figure 10 - Job description for Cambodian technician



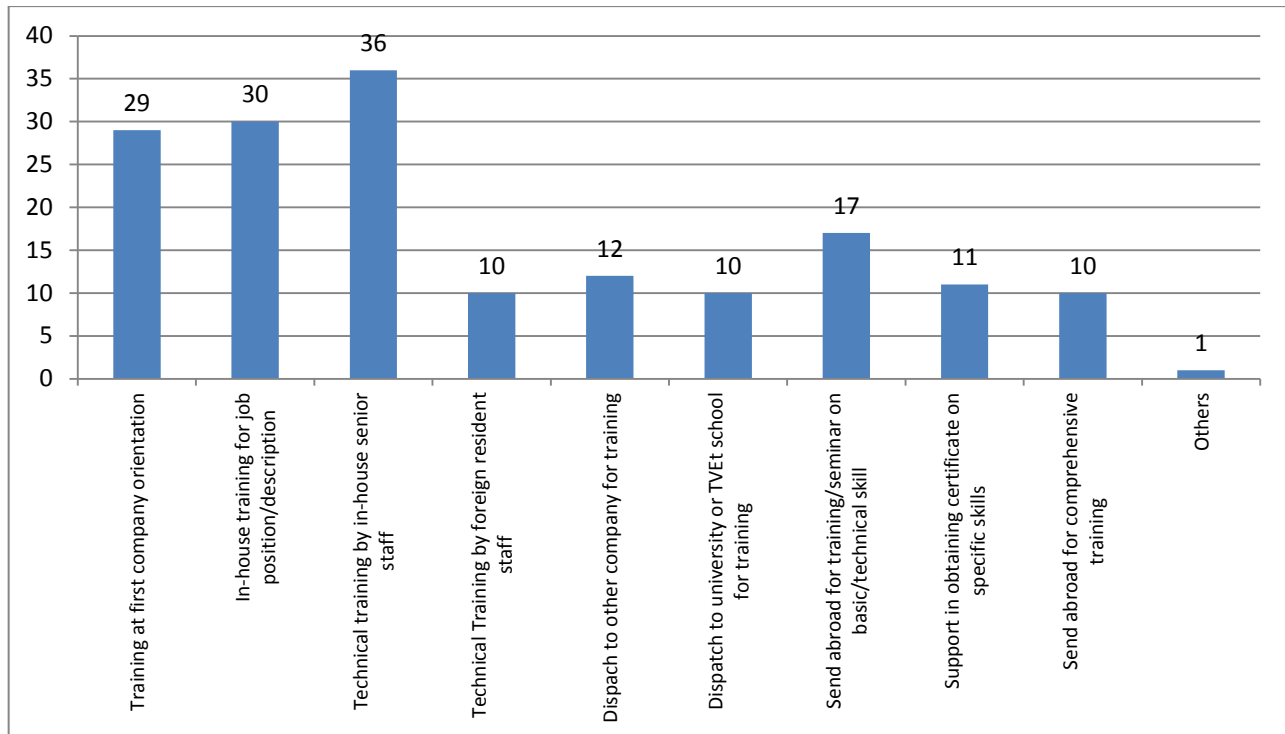
On job position for Cambodian technician, as Figure 10 shows, the majority of response was in favor of maintenance management for product line/facility; also relatively important includes production line management, quality control and taking part in product/operation design and development.

10 response indicates they would use Cambodian technician as substitute for non-Cambodian technician. Responds as 'Others' includes using Cambodian technician as engineer or let him/her do general task.

Two companies we interviewed cited they use Cambodian technicians to also work in area other than their specified department. This was to address the issue of mismatch between supply and demand (the situation of more jobs than people that happen occasionally) or simply because the technician can work on other tasks company expects.

In term of HRD activities companies provide to Cambodian technician, three items stands out as majority and they include; training at first company orientation; in-house training for job position/description; and technical training by in-house senior staffs (Figure 11). The figure also shows that some companies send their technician abroad for training.

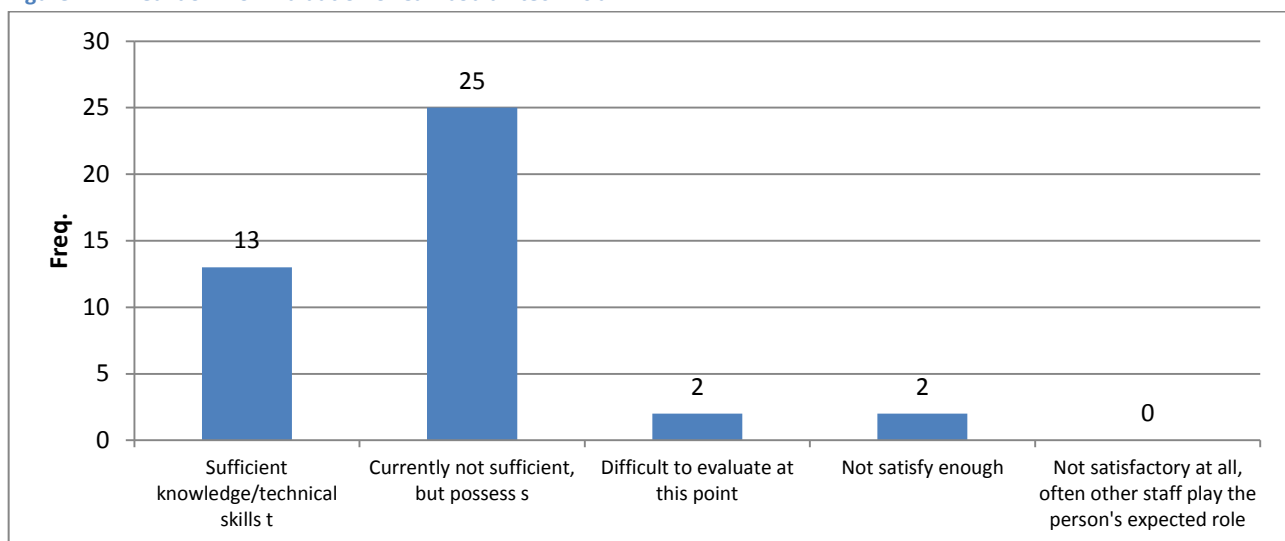
Figure 11 - HRD activities provided to Cambodian technician



The answers are confirmed during our in-depth interview, where all the interviewed companies also cited the importance of in-company training, either at first company orientation or on daily basis as the employee carry out their role and responsibility.

Almost all surveyed companies think positive when asked to evaluate Cambodian technicians at their work place with the majority indicates as in Figure 12 that while insufficient knowledge and technical skills to carry out expected role from technical aspect, Cambodian technicians possess strong potential for future skill development based on their current working attitude. Some companies even highly evaluate their Cambodian technicians as to have possessed sufficient knowledge and technical skill to implement their role as technical staffs.

Figure 12 - Breakdown of Evaluation of Cambodian technician

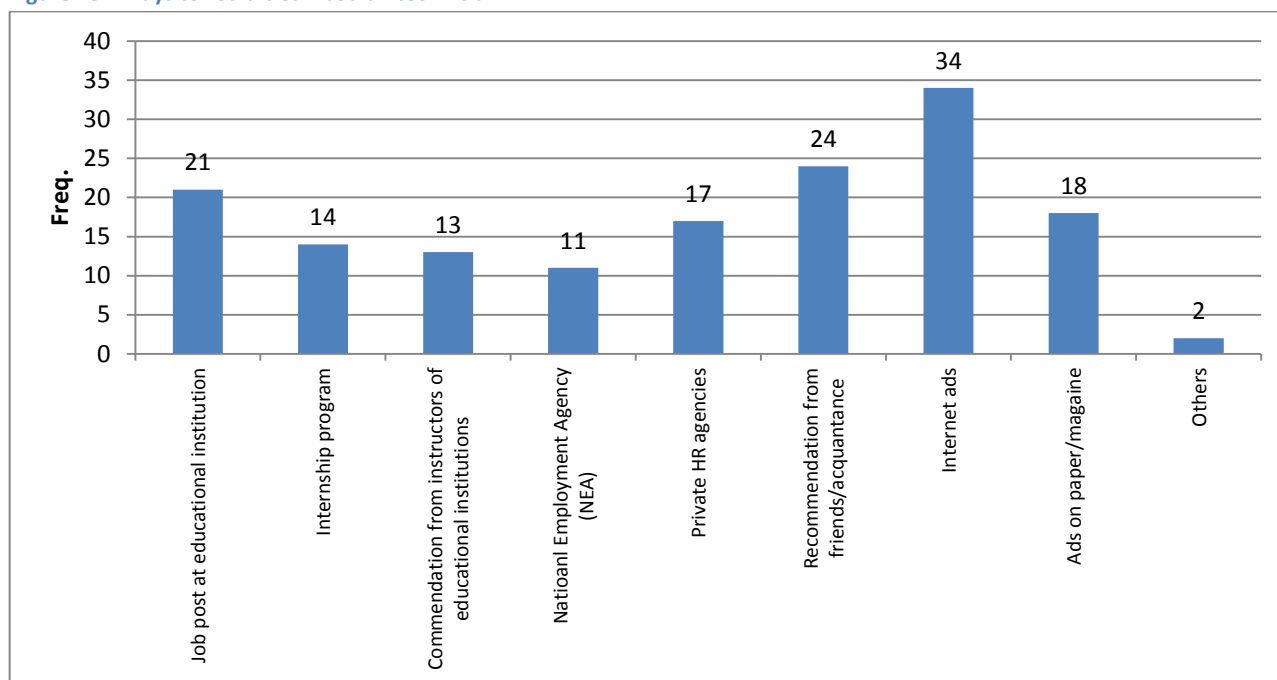


The majority of companies recruit their Cambodian technician through internet advertisements, as illustrated in Figure 13; this is in line with our observation of the widely use among employers of free



online platforms available around. Companies' HR management also relies on recommendation and consultation with friends and acquaintance and job post at education bodies such as school and TVET institutions. At one face to face interview, we learn that other than promoting job vacancy online, the company rarely face trouble in finding new staff as the boss is very well-connected and often received job applications through the boss's interaction with other friends and acquaintance. Three interviewed companies (each of which is in different sector) also cited the importance job post placed internally at the workplace; by this, staffs can spread the word of new vacancy and frequently the companies receives job applications from friends of existing staffs.

**Figure 13 - Ways to recruit Cambodian technician**



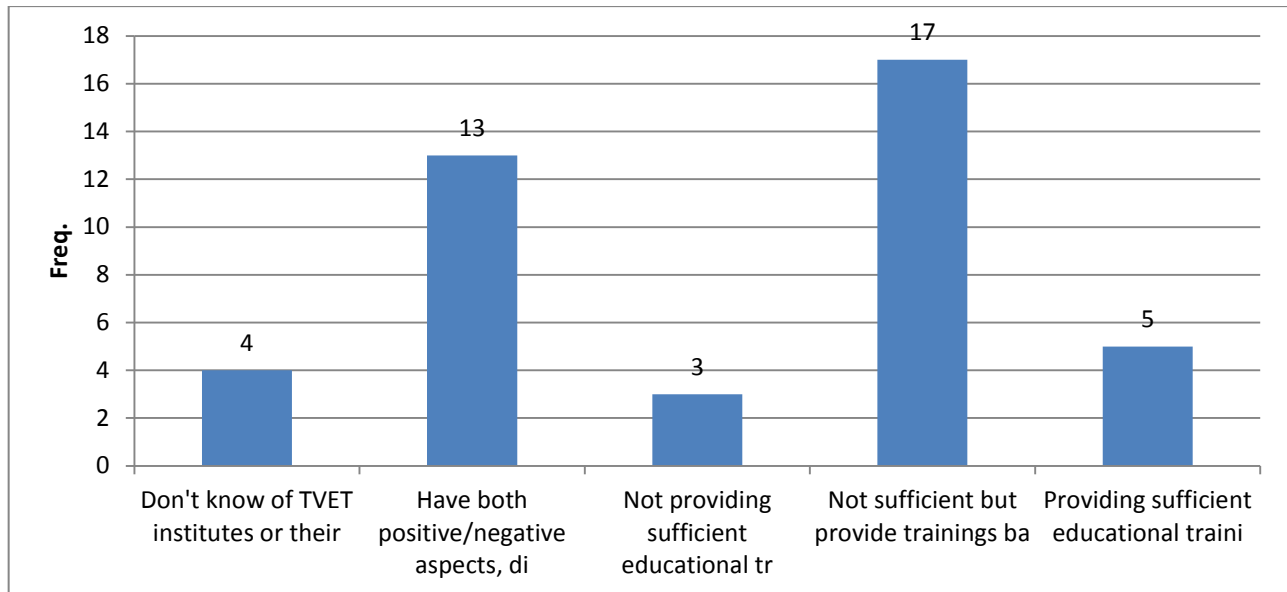
#### 4.4 Evaluation of TVET Institute and its education/training

This section is to highlight companies' perception and expectation of the role of TVET institution for promoting industrial human resource through their education and training provision. It also aims to gain understanding of the industrial need of Cambodian technician and factors that may influence their skill development, such as quality of students (e.g., basic and specific skills), TVET institutions and their programs (e.g, instructors, curriculum and practical training), private companies' support (e.g., provision of internships, ad-hoc lectures and customized technical seminar and training) and possibility for strengthening their relationship.

In this section, we also asked respondents to grade their answers from 0 to 5 in the questionnaire, aiming at quantifying their perception on JICA TVET-proposed curriculum for electricity technician diploma courses. We observe the overall average scores and examine this average by industrial sectoral activities, companies' nationality of ownership, size and current status in employing non-Cambodian technical staffs.

The survey results seem to indicate that TVET institutions are not known to all companies in private sectors (Figure 14). Among the surveyed companied, 4 said they did not know about TVET institutions and their function in providing education and training. It also indicates that the majority of companies still do not consider TVET institutions as capable in contributing to the development of industrial human resources because they do not provide sufficient educational training based on the industries' needs. There are also companies who take relatively more cautious stance in evaluating the TVET institutions, citing that these institutions have both positive and negative aspects and that it is difficult for them to provide a strong judgement.

Figure 14 - Overall impression of TVET institutions



In our in-depth interview, we met representative from two companies who they graduated and are currently enrolling in courses at TVET institutions. They were relatively cautious when asked about their overall impression of TVET institutions. They cited while the gained fairly amount of education in terms of basic skill and knowledge, they had little chance to do actual practice at school. When they come to work, they find the gap in knowledge about the machinery and operation of machinery. They said learning from school and what they gain at workplace compliments one another.

Figure 15 summarize how companies evaluate higher diploma level courses provided by TVET institutions. It indicates that companies still at large consider the training courses does not provide enough practical and technical knowledge and skills applicable to working sites as technician and that while it is sufficient in terms of basic training, it falls short of the subjects such as require/specified technical skills for industries' need and not providing sufficient amount of technical practices. These are in line with accounts provided by interviewer as mentioned above. Some respondents pointed out TVET institutes do not well provide 5S and Kaizen skill and knowledge.

Figure 15 - Impression of higher diploma level course provided by TVET institutions

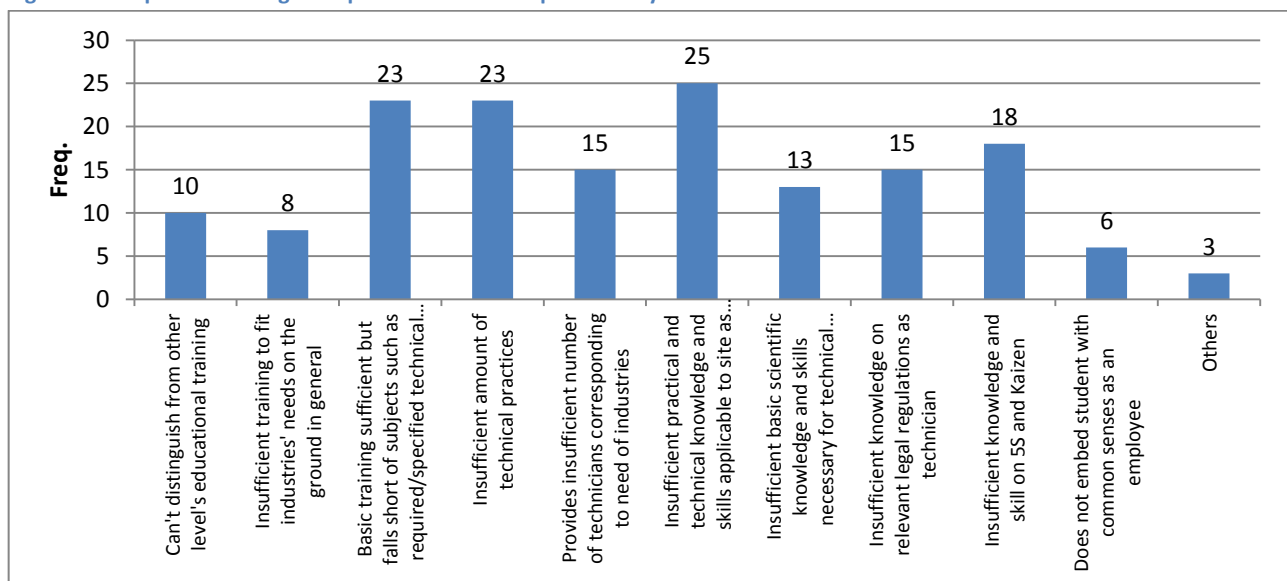


Figure 16 displays the average score on how surveyed companies evaluate each of the 22 contents that JICA TVET project considers to include for the standardized curriculum for electricity technician diploma

course. Reader may refer to the survey tool, attached to this document for details of each content. Overall each of the content receives considerably high score in average, and particularly 10 of them are perceived to be the area where companies would cooperate at least partly for their implementation. They include;

1. Electrical maintenance certified technician (Q26.1)
2. Basic electrical engineering \*Q26.2)
3. Electrical circuit (Q26.3)
4. Saving energy technology using multi-purpose inverter (Q26.7)
5. Basic skills and knowledge on installation of electrical facilities (Q26.8)
6. Design and product of control panel and electric distributor (Q26.11)
7. Electrical drawing using AutoCAD (Q26.14)
8. Safety and health education (necessity of lead-free soldering (Q26.15)
9. 5S<sup>6</sup> and Kaizen<sup>7</sup> on quality control education (Q26.16)
10. Vocational education for domestic technical skill competition (Q26.19)

Other include;

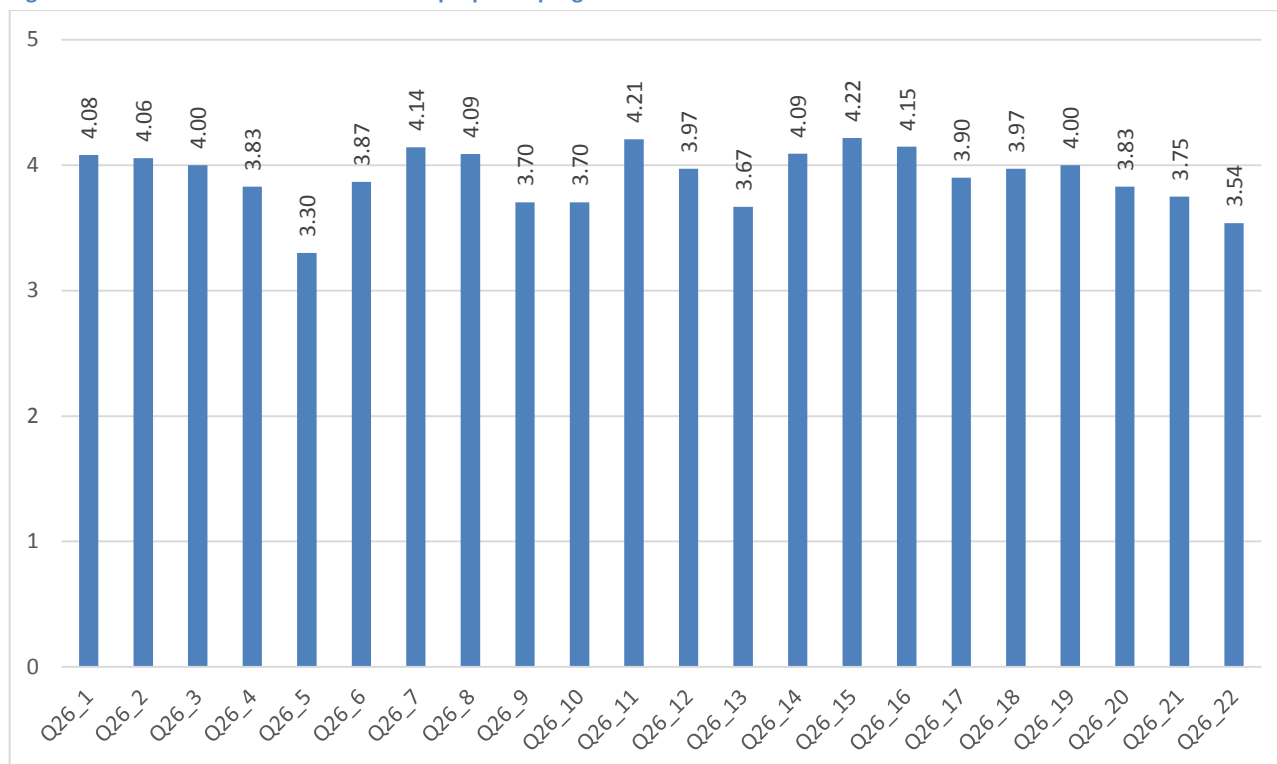
- Electrical Measurement (Digital multi-meter, Clamp meter, and Digital Oscilloscope) (Q26.4)
- Trial product of the printed analog circuit board using PCB milling machine (Q26.5)
- Process sensor technology and Process control measurement (operation of temperature, pressure, and flow sensor using signal transducer) (Q.26.6)
- Sequence Control (Operation of Alternative Current and Direct Current) (Q26.9)
- Pneumatic Control and Pneumatic Equipment Maintenance (Pneumatic circuit diagram understanding) (Q26.10)
- Design and product of Control panel using PLC (Q26.12)
- Small Motor Control - Automation technology using Small Motor Control (Q26.13)
- Reliability of product life cycle (Failure Mode and Effect Analysis , Fault Tree Analysis ,Predictive maintenance) (Q26.17)
- Production Management (Internship and manufacturing company site seeing) (Q26.18)
- Methods of Material testing (Hardness Test,Stress test,Imapct) Not exclusive to repair Analog type Television and Radio technology in this course (Q26.20)
- General mechanic Engineering (Mechanic drawing of toothed gear , Mechanic maintenance of valves and pumps Not exclusive to repair Cell-phone technology (Q26.21)
- Industrial instrumentation (Calipers, Micrometer and their measurement of conventional true value) Not exclusive to Mathematics and English (Q26.22)

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<sup>6</sup> 5S is a method for organizing a workplace, especially a shared workplace, and keeping it organized. It is a reference to a list of five Japanese words, which literally mean "sort", "set in order", "shine", "standardize", and "sustain " in a manner of code of practice at site based on long years of efforts by both employers and employees to invent/utilize for improving/managing of way/procedure of basic work and work environment under the concept of these words.

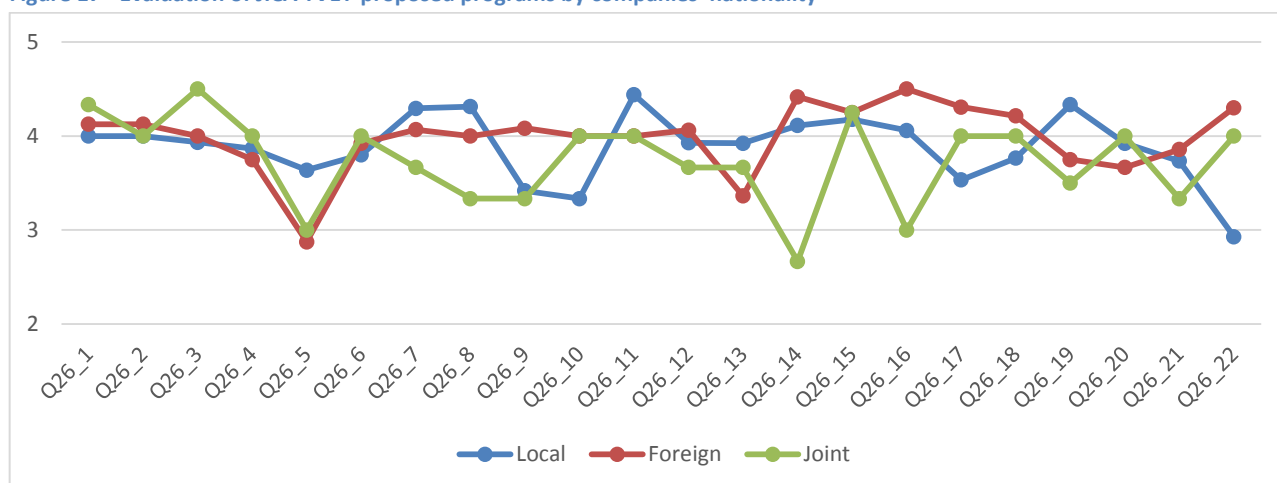
<sup>7</sup> Kaizen (Continuous Improvement) is a strategy rooting on PDCA cycle (plan-do-check-act) where employees at all levels of a company work together proactively to achieve regular, incremental improvements to the manufacturing/operating process for upgrading efficiency/productivity.

**Figure 16 - Overall evaluation of JICA TVET-proposed programs**



For some of the contents, the evaluation varies by companies' ownership (Figure 17), sectoral activities (Figure 18), size (Figure 19), and present status of using foreigner staffs (Figure 20). However, project team feel the need of further survey and analysis in the near future when the project activities are progressed for any concrete conclusion can be made.

**Figure 17 - Evaluation of JICA TVET-proposed programs by companies' nationality**



Looking at the breakdown of the evaluation by sectoral activities in Figure 18, average scores given by companies in non-manufacturing/processing sector are comparatively higher for most of the contents. Possibly, manufacturing/processing companies may feel that their in-house training is far more important than the pre-employment education and training at TVET institutions as confirmed by our in-depth interview and the resulted figure could have been affected by their perception that TVET training do not address to their needs for actual operation.

Figure 18 - Evaluation of JICA TVET-proposed programs by sectoral activities

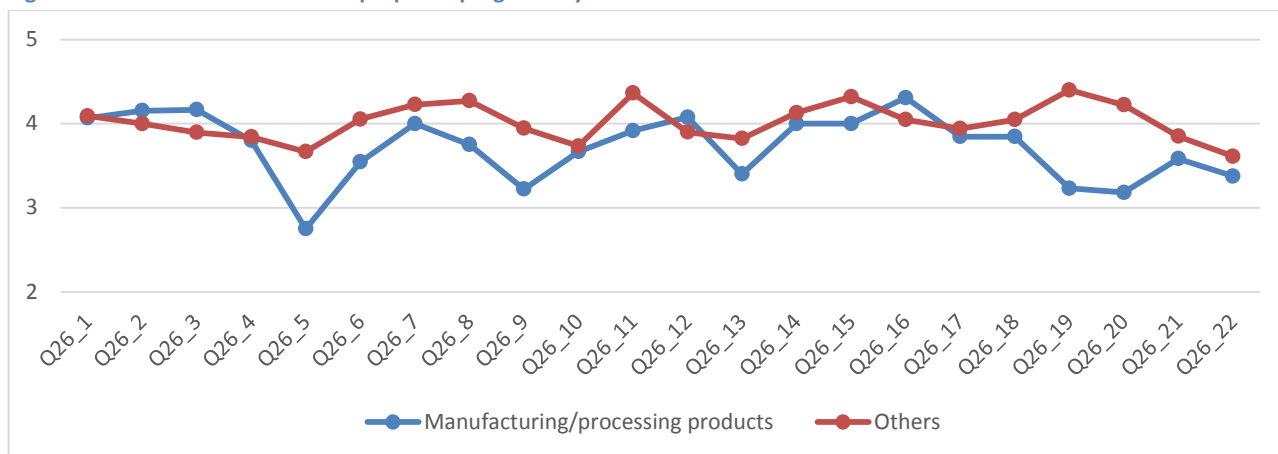


Figure 19 - Evaluation of JICA TVET-proposed programs by company size

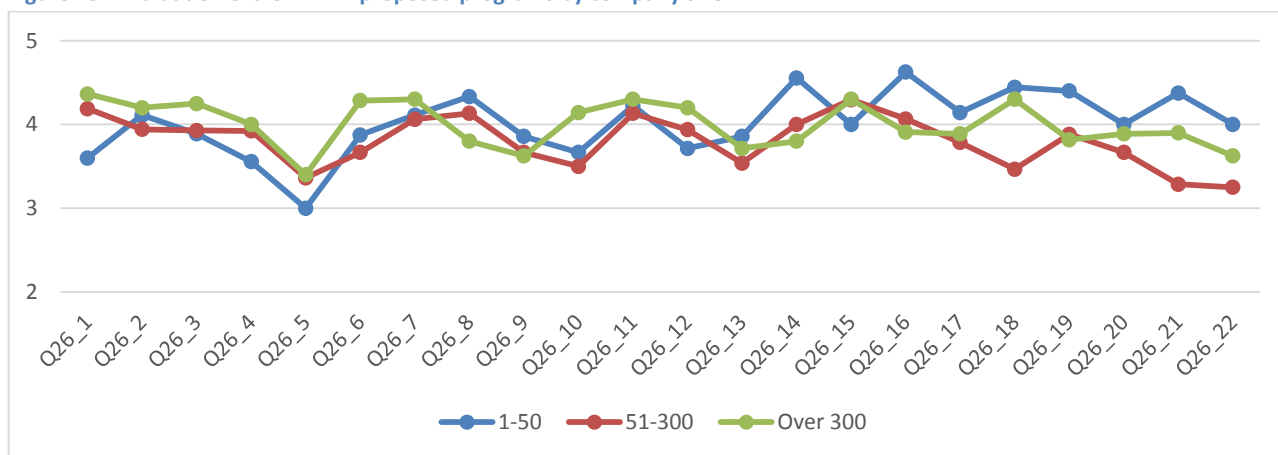


Figure 20 - Evaluation of JICA TVET-proposed programs by companies' status of using foreign employees

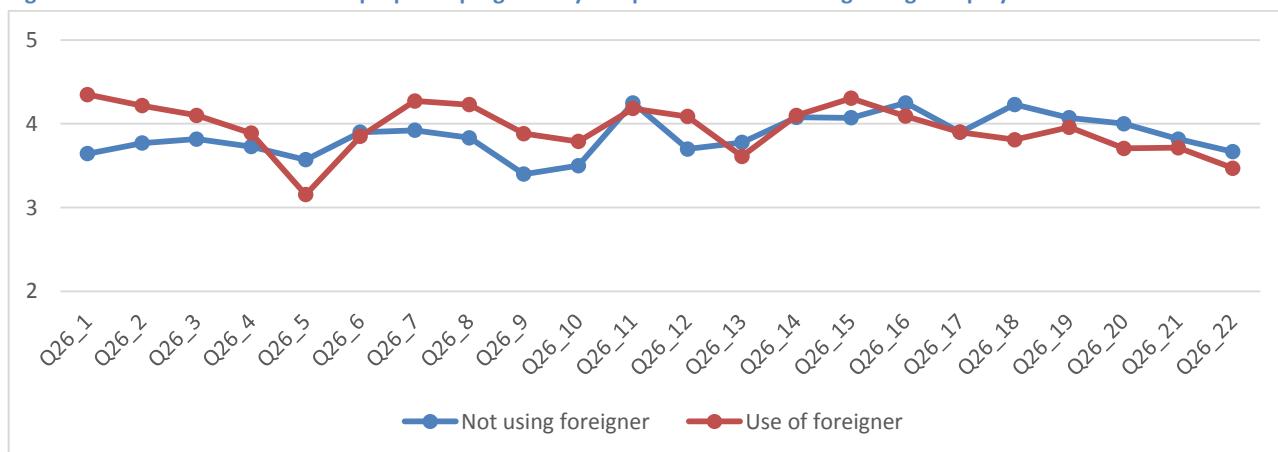
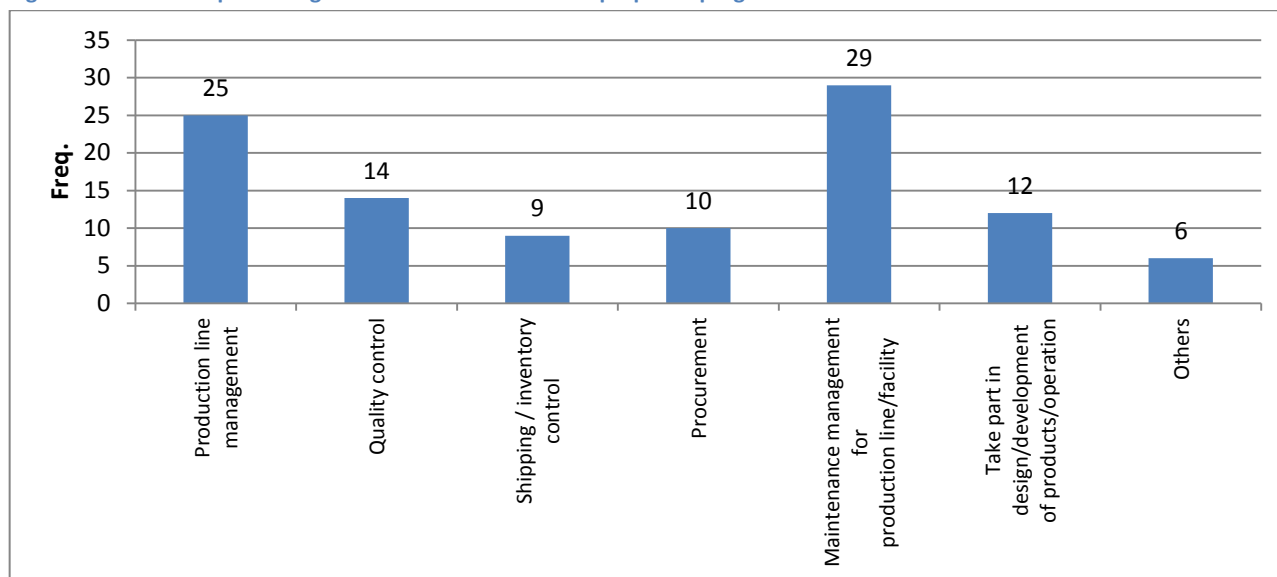


Figure 20 displays average score for every one content, broken down by companies' status of using foreign employees. They vary slightly in general but overall companies using foreign employees give comparatively higher score in average. Again, these companies may be expecting for relatively higher performance by locally produced technician through education and training on these contents at TVET institutions.

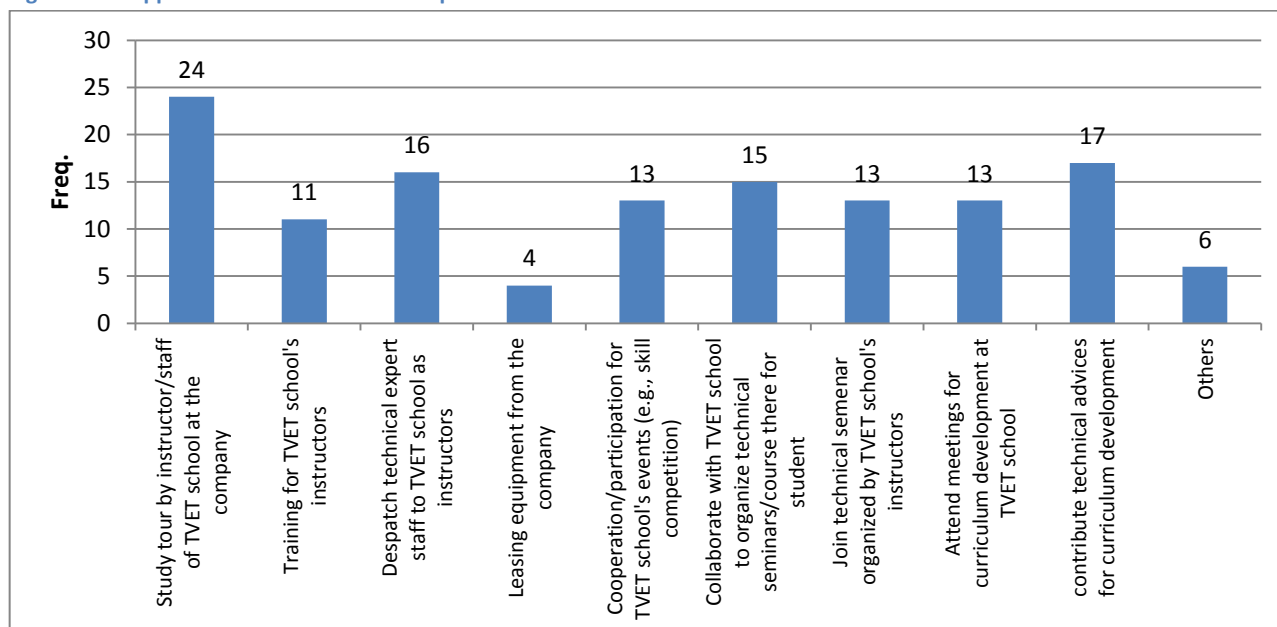
With regards to job description for graduates who fulfil the JICA TVET-proposed programs above, Figure 21 suggests companies prefer to position them as maintenance management for product line/facility and production line process management.

**Figure 21 - Job description for graduate who fulfill the JICA-proposed programs**



All companies we interviewed face to face, while welcoming the introduction of the programs proposed by JICA TVET, said due to nature of their work place Cambodian technician may be assigned to specified role and department but also cautioned there may be occasion that the company use them for other tasks simply because the 'other tasks' are easily assisted by the technicians, which may imply that technician is expected or applicable to engage in multi tasks at site.

**Figure 22 - Support activities for the development of useful curriculum for TVET institutions**



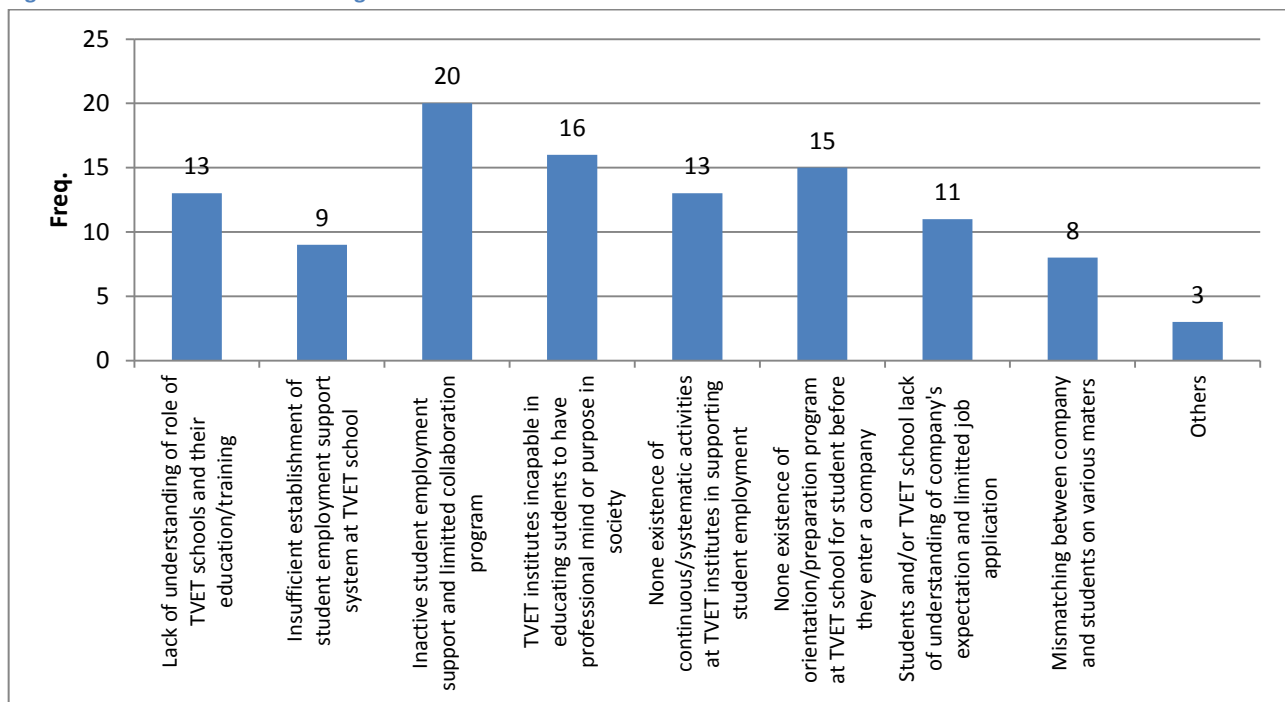
On supporting activities for the development of useful curriculum for TVET institutions, Figure 22 indicates companies at large may support for site visit or study tours by instructors and/or staffs of TVET institutions at their premises. Many responses also favour to have their technical experts dispatched as instructors at TVET institutions and to contribute through providing technical advices for the curriculum development.

Two of the companies we interviewed showed strong support for the internship program by students of TVET institutions and study tour by instructor; they also support the initiative of dispatching technical expert from their companies either to join in providing training as instructor or to join in technical seminar as attendee, but cautioned this will depend on the availability of the staff as well as further discussion with TVET institutions.

Key obstacles cited by respondents with regards to collaborating with TVET institutions for staff recruitment are displayed in Figure 23; they includes but not necessarily limited to; insufficiency in active student employment support and program for the collaboration, TVET institutions don't educate students to have a professional mindset or purpose in society, and nonexistence of orientation/preparation program to prepare student before entering a company.

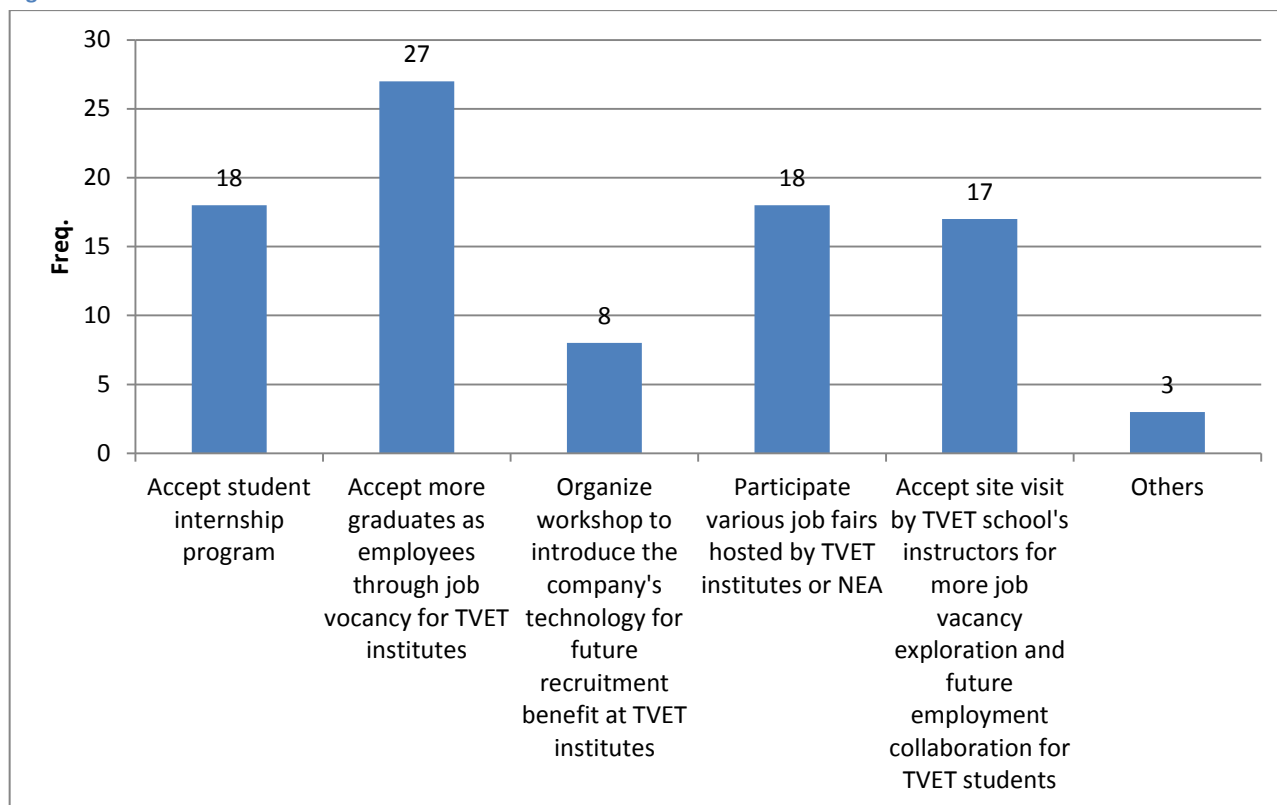
As a matter of fact, all companies we interviewed with have never collaborated with TVET institutions; they cited this could be due to both sides – the company did not feel compelled as there is no need for any collaboration so far and TVET institutions did never ask for any collaboration. Rarely, they said, TVET institutions contact the company to seek opportunity for student to do internship. Most frequently, students contact the company directly, either as individual or group to seek internship.

**Figure 23 - Obstacle in collaborating with TVET institutions for staff recruitment**



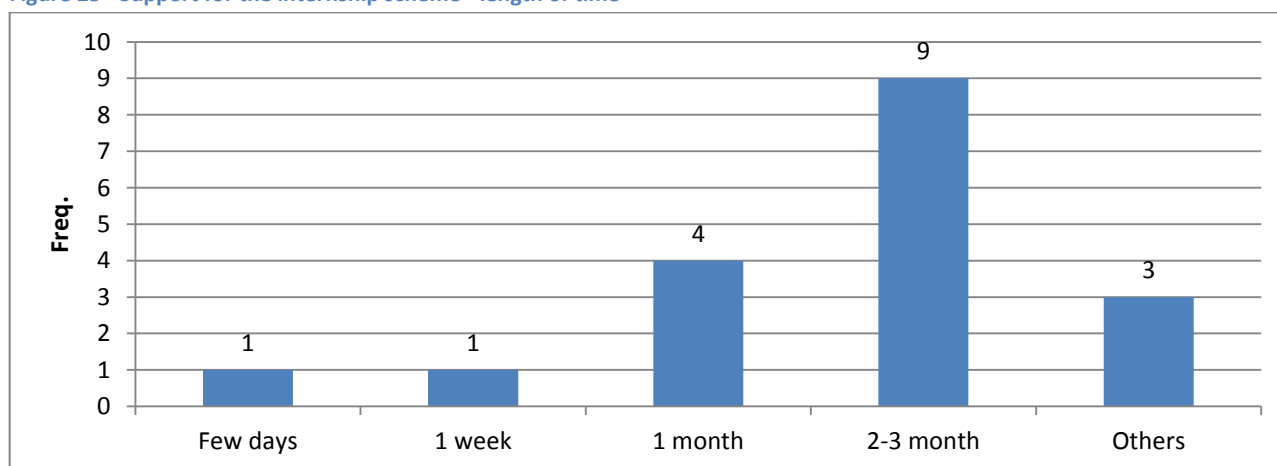
On supportive scheme in terms of staff recruit for collaboration with TVET intuitions as illustrated in Figure 24, many respondents said they would support by accepting more TVET graduates as employees through job vacancy; noticeably high responses also supports for internship program, job fair participation and accepting site visit by TVET institutions' instructor to explore more opportunities for their students' employment.

Figure 24 - Scheme for collaboration with TVET institution



Asking companies who may support through internship program scheme on how long they would accept intern students and how many student they would accept in average per year, the answer skewed to the longer duration of at least one month and preferably for 2 two 3 months for the internship duration; two responses even claim to be able to accept intern students for more than 3 months and one response accounts that the duration at the company may vary from 1 week to 3 months given the business and economic situation the company is facing.

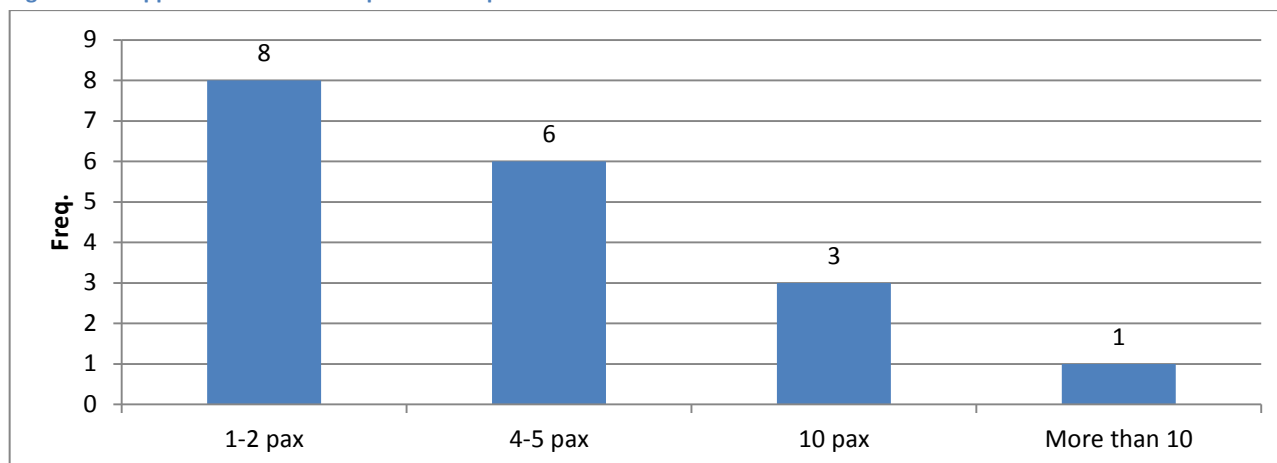
Figure 25 - Support for the internship scheme - length of time



In term of number of intern student the company can accept in average annually, the response is skewed to the lower number with the majority would accept 1-2 persons, followed by 4-5 person, 10 person, and more than 10 person.

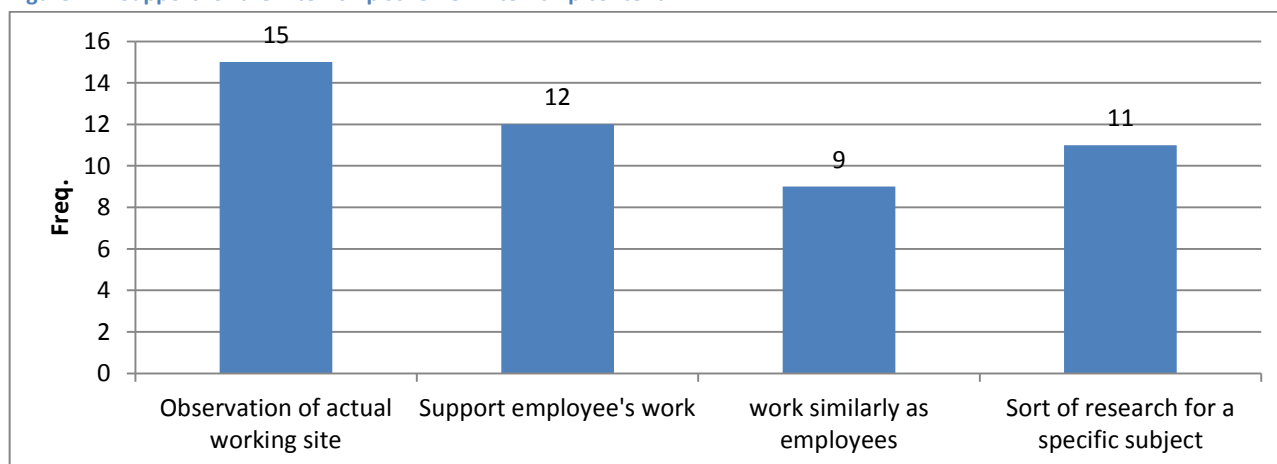


Figure 26 - Support for the internship scheme - quota of intern students



On internship content, response in favour of helping students to observe actual working condition on site takes the majority, followed by using intern student to support own employees' work, helping students to carry out research on specific subject or skill, and letting student work similarly as other employees.

Figure 27 - Support for the internship scheme - internship content



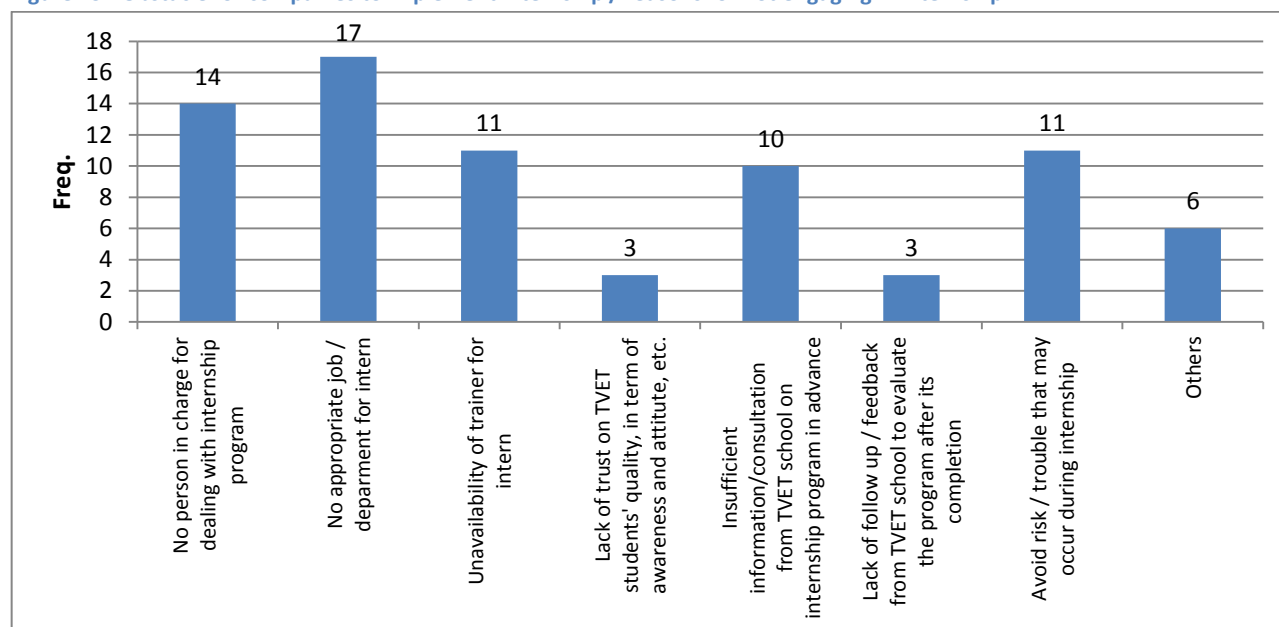
The majority of companies expressing their willingness or support for the internship scheme do so for their future employment; they also said this attributes to their social contribution activities and for good relationship with TVET institutions. Interestingly, least response considers internship as part of their recruitment process. However, the companies we did in-depth interview with all mentioned their experience in promoting intern students to become their employees.

Figure 28 - Support for the internship scheme - internship purpose



All respondents were also asked to provide their thoughts on obstacle for companies to implement internship or reasons for not wanting to engage in internship program scheme. Key issues raised by the majority of the response include; no appropriate job position or department for the intern, no person in charge of or dealing with the scheme, unavailability of technical staffs who would be the trainer for the intern, companies want to avoid risk or trouble that may occur during internship duration, and insufficient information or consultation between companies and TVET institutions in advance.

**Figure 29 - Obstacle for companies to implement internship / reasons for not engaging in internship**



One of the companies we met face to face for in-depth interview and who support the internship scheme said the company would be able to receive about 15 people for a 3-month duration but this also depends on availability of work and staffs in charge.

## 5 Concluding Remarks

It has been widely recognized that Cambodia's effort in promoting private sector investment in general and in attracting foreign investment into the country in particular have played important role in generating high economic growth rates the countries have witnessed in the last two decades or so. While low wages, a beneficial geographic location, an open investment and trade regime, political stability, have often been cited driving investment decisions, research team observe that private sector frequently complains about difficulties in finding the competent staffs, particularly in the technical field; this is partly explained by perception among potential employees about the skills they need to acquire to pursue their career goals. This explanation was also heard as concern among some audients at the workshop, who raised that the students often selected to pursue education at higher educational institution other than TVET school and in areas such as management, accounting, finance, where the labour market is oversupplied.

In the survey process, we also found TVET institutions both roles and contents of education and training are not known to some respondent. Promoting the awareness of TVET institutions, their important roles and especially engaging TVET institutions more with private sector is equally important and research team feels this needs to be done parallels with curriculum development effort.

In term of what is taught at TVET institutions, most of the companies surveyed even do not really count on pre-employment education and training to be provided by TVET institutions. They focus considerably more on in-company training. This may reflect companies' perceptions that TVET institutions fail to provide sufficient amount of technical knowledge and skills corresponding to the present industrial needs, in terms of both curriculum and quality of instructor, particularly practical skills to students who do not have

working experience. Research team believes that very few, if any, TVET institution provides skills such as 5S and Kaizen in classroom, while one manufacturing SME we talked to said their factory implement these methods. Maybe TVET institutions can start by making students familiar with these methods with having them to tidy their own classrooms or labs and to return tools to the appropriate places after use. Regarding provision of employment promotion activity, TVET institutes is not proactive to conduct.

However, while understanding industrial need is one thing, what is equally important for TVET institutions to turn these understanding into strategic plan and vision for their future promotion and improvement, such as having educational and training curricula that fit the demand in industrial labour market. For example, from the finding that survey companies support widely on the introduction of JICA TVET-proposed curricula, TVET institutions can adopt and implement these curricula to their advantage and come up with more initiatives in involving more actively with private sector for activities relevant to development of industrial human resource as well as for employment promotion for their students with more elaborate service. They could seek more opportunities to be able to work with private companies through internship and dispatching instructors to observe the actual working site at private companies so that they learn the up-to-date skills, new tools and working condition/requirement, which ultimately transform to improved performance at education and training activities. These activities can lead to Capacity Development of instructor and staff of TVET institutes. On the process, it is also thought to bring benefits or fruits from activities such as technical seminars to industries, which will further bring to strengthen human resource in Cambodia who can contribute to addition of high value to currently operating industries and diversification of industries in future.

Finally, we strongly request JICA TVET project should consider and motivate detailed actions necessary depending on the result of survey as soon as possible.

## **6 Attached Deliverables and Materials**

This report is the final deliverable of the project and submitted together with other key deliverables and documentation comprising the following:

### **Survey Tools**

- *Available as file – ‘JICA-TVET\_SurveyTool\_EMC\_v1.pdf’*

### **Other documentation:**

- PowerPoint Presentation of overview of findings from survey
- *Available as file – ‘overview of findings from survey\_EMC\_1.ppt’ (pending)*
- Raw data in excel format (as separated file)
- *Available as file – ‘JICA TVET\_RawDataFramework\_SK03.xlsx’*