

Industry needs survey questionnaire results from Japanese Business Association of Cambodia (JBAC) Manufacturing Committee members

JICA TVET Project Team

Purpose of the survey: To collect information related to Japanese manufacturer’s present status of electricity technician and needs for Technical Vocational Education and Training (TVET) institutes as well as Cambodian technicians; including expectations for JICA Project for Improving TVET Quality to Meet the Needs of Industries (JICA TVET Project)

Method: Distribute questionnaire to the 51 member company with cooperation from JBAC to request answers voluntary basis. (Basically, through e-mail survey, however, before the survey, explaining contents to members at the meeting and some cases inquiring complementarily by phone and in depth interview)

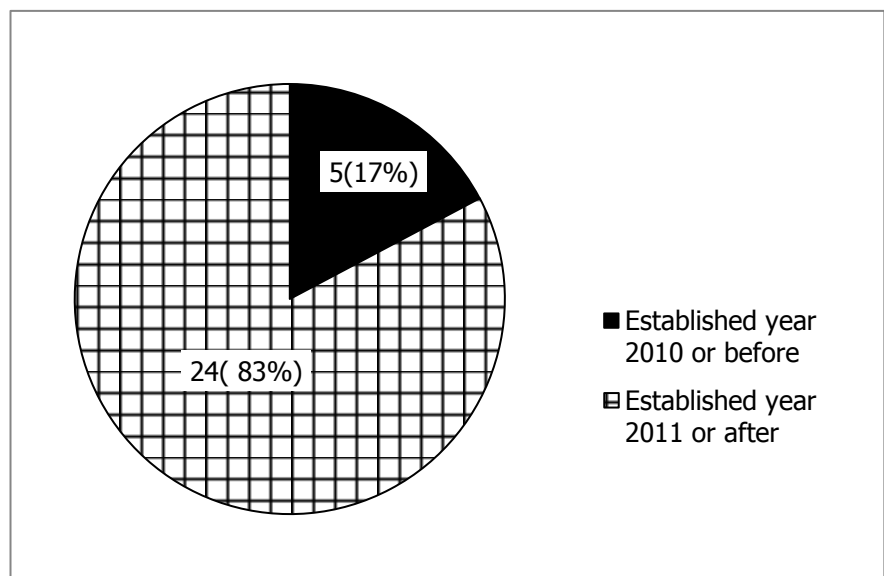
Duration: From Dec. 24, 2015 to Feb. 19, 2016

Date collected: Data available from 29 companies (Other than these companies, some replied the reason as don’t have needs for electricity technicians and cannot answer the questionnaire, others no answer)

I. Overview and background of the company

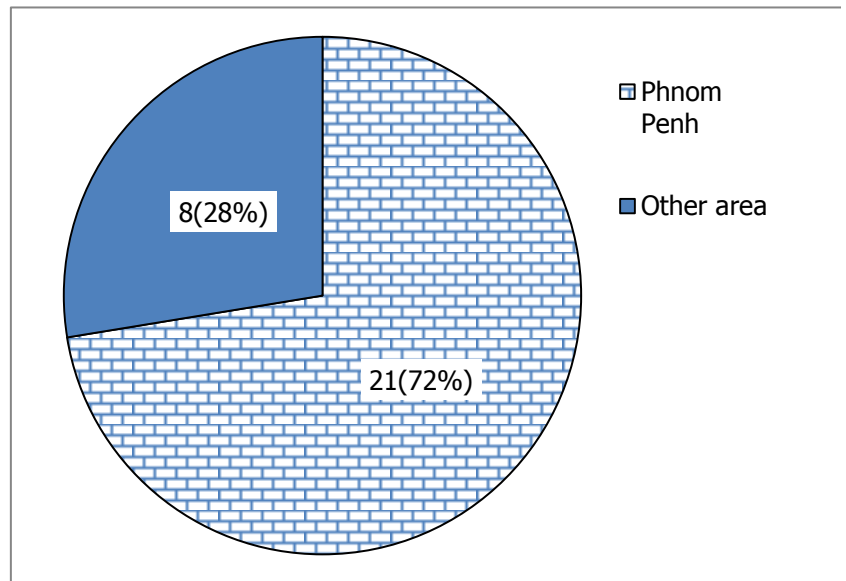
Established year of the company in Cambodia (N=29)

Established year	Number of companies
1993	1
2004	1
2009	1
2010	2
2011	6
2012	5
2013	8
2014	5
2015	1



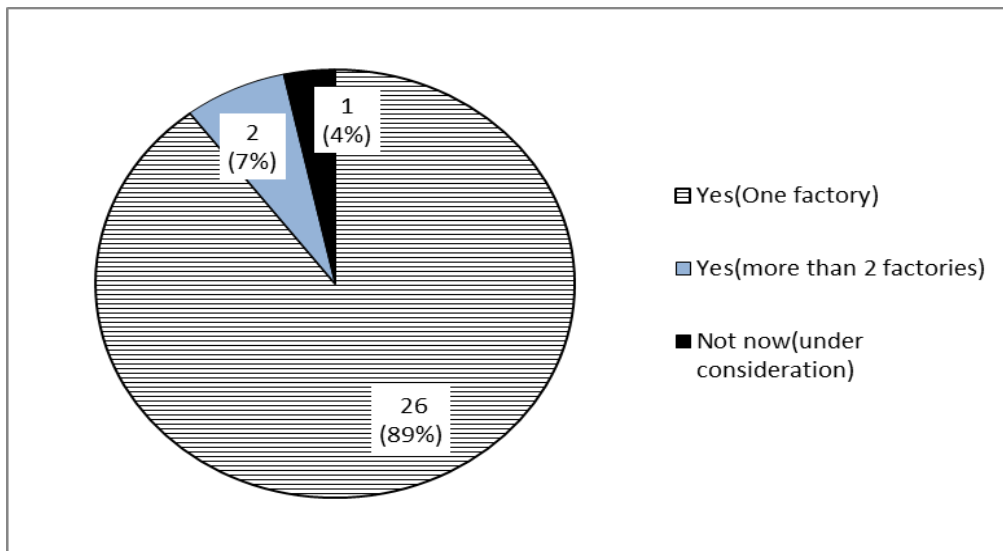
Location of the company (N=29)

Location	Number of companies
Phnom Penh SEZ	18
Sihanoukville SEZ	3
Phnom Penh	3
Bavet SEZ	2
KKSEZ (Koh Kong)	1
Poipet SEZ	1
Battambang	1



2 companies has 2 factories, select main factory only as head location

I-Q1. In Cambodia, your company has manufacturing factories? (N=29)



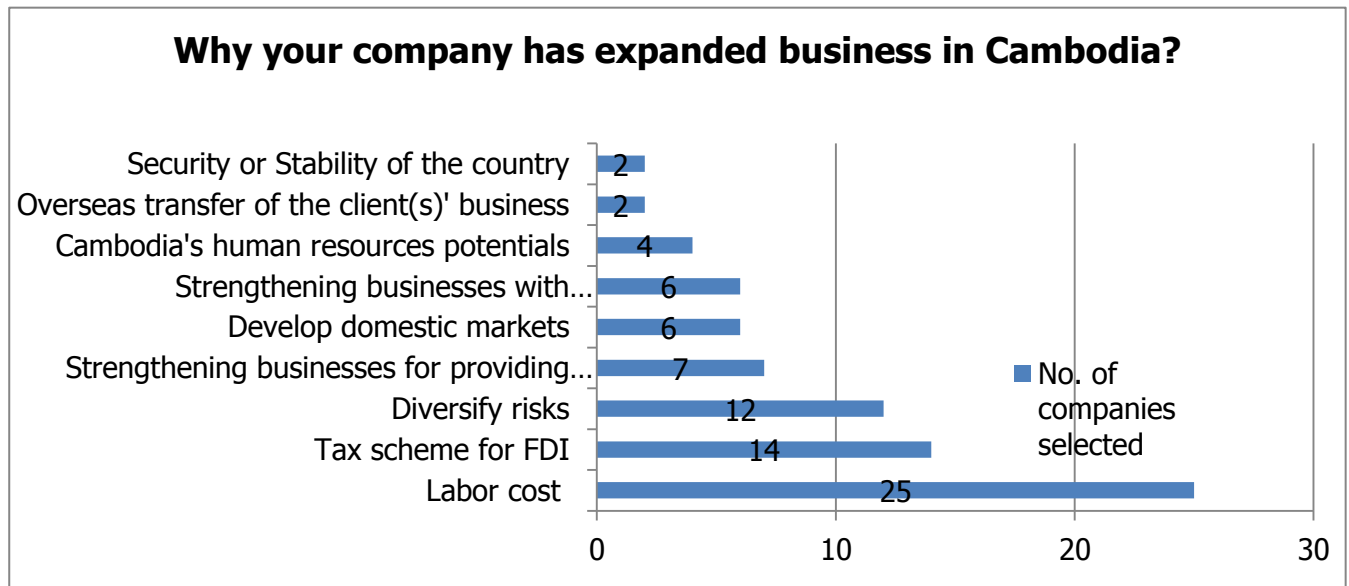
I-Q2. What type of field in manufacturing in your company?

(N=29)

Type of manufacturing	Number of companies
Automobile parts	6
Others	6
Electronic/Electrical parts	6
Paper (packaging)	5
Garment/textile	4
Metal works	2

I-Q3. Why your company has expanded business in Cambodia? (multiple answers)

Reasons	No. of companies selected
Labor cost	25
Tax scheme for FDI	14
Diversify risks	12
Strengthening businesses for providing products to Japan	7
Develop domestic markets	6
Strengthening businesses with neighboring countries of Cambodia	6
Cambodia's human resources potentials	4

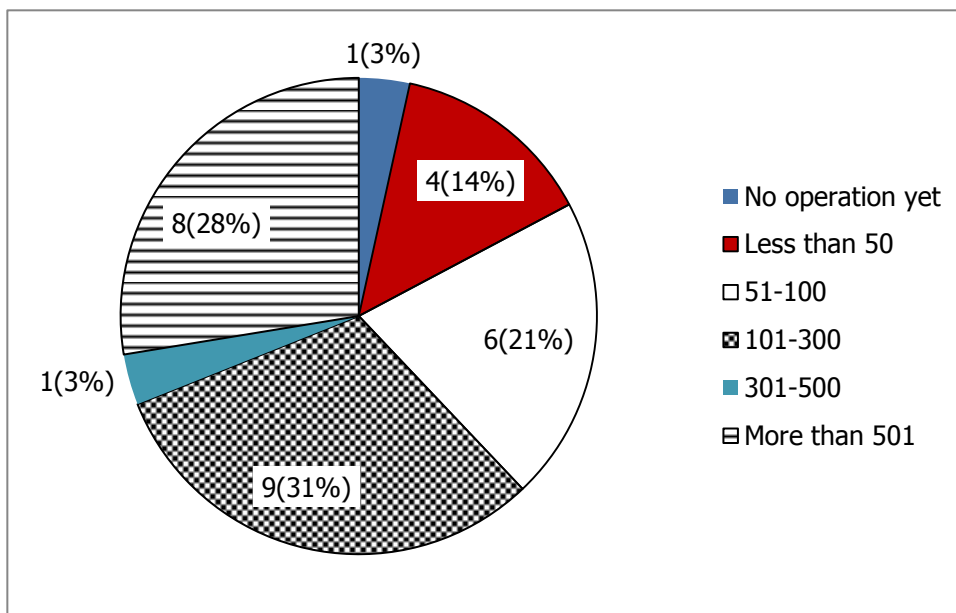


II. Employment status of the company

II-Q1. How many employees are working in your company in Cambodia?

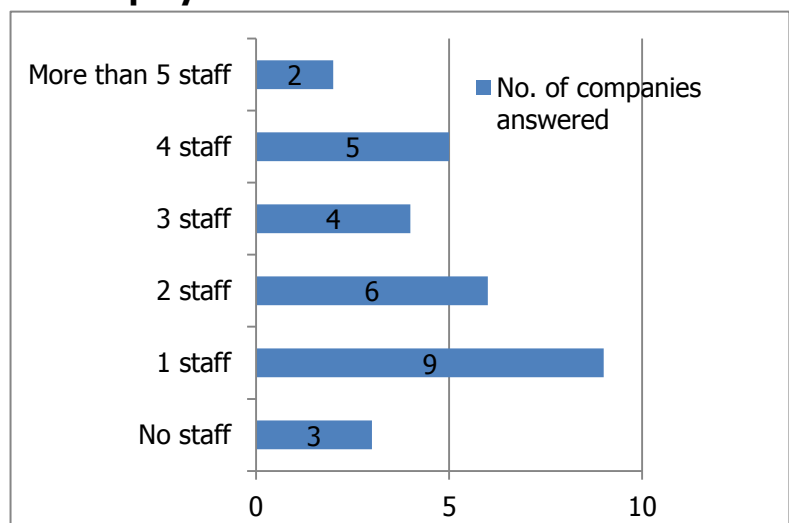
(N=29)

Number of employees	Number of companies answered
No operation yet	1
Less than 50	4
51-100	6
101-300	9
301-500	1
More than 501	8



II-Q2. Number of resident Japanese employees in Cambodia

(N=29)umber of staff	No. of companies answered
No staff	3
1 staff	9
2 staff	6
3 staff	4
4 staff	5
More than 5 staff	2



For "No staff" means non-resident Japanese staff, working in Japan or outside of Cambodia,

II-Q3. Do you have any foreign countries' resident employees (except Japanese) in your company?

These employees mean resident employees in charge of managing/maintaining product lines regardless of with or without subordinates (This question is made presuming that job posts to be expected by Cambodian nationals are actually occupied by foreign staff)

(N=11 out of 29 company; around 38% hires foreign employees)

Country	No. of companies employed	Total no. of employees
China	4	27
Thai	4	25
Vietnam	1	25
Malaysia	4	23
India	1	19
Sri Lanka	1	3
Korea	1	1

Some companies recruit from multiple countries.

II-Q4. Number of technical staff (Engineer, technician and other technical staff) in the company (multiple answers)

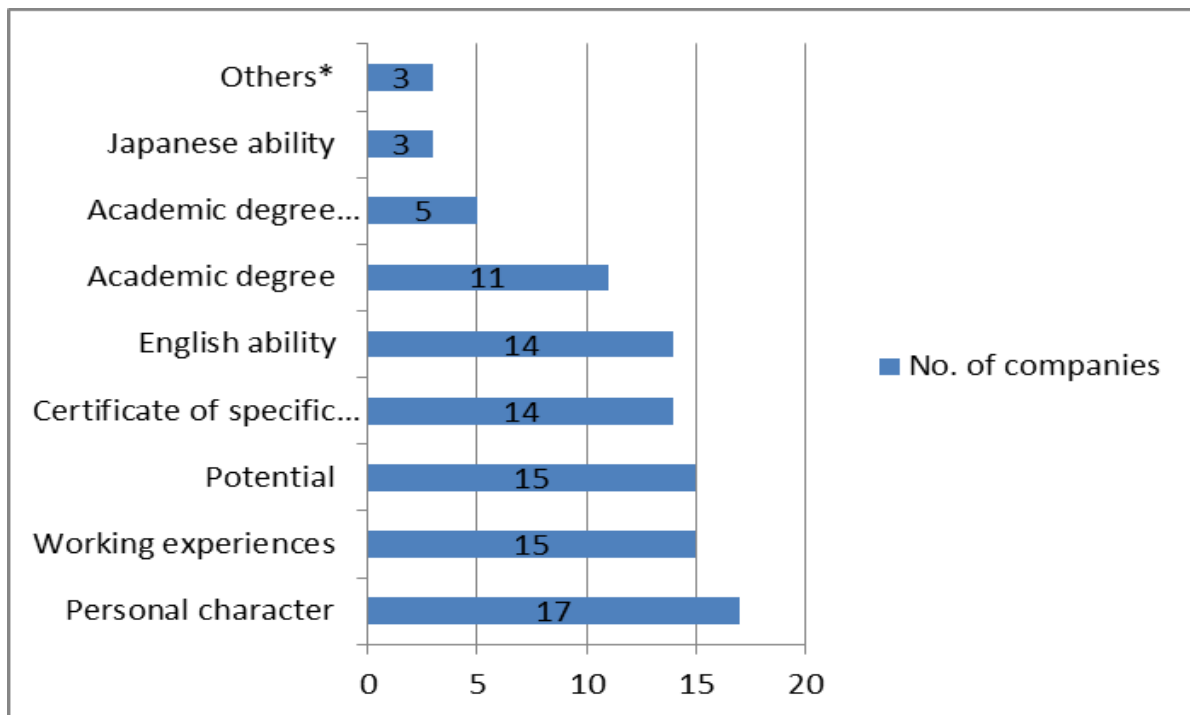
Description	Engineer		Technician		Other technician	
	Total	Female	Total	Female	Total	Female
No. of companies	9	6	10	5	9	3
Range of the number of staff	1 to 34	1 to 7	1 to 155	1 to 12	1 to 24	1 to 4

III. Employment and HRD on Cambodian technical staff

III-Q1. What kind of points you think it's important for hiring Cambodian technicians (multiple answers)?

Criteria	No. of companies selected
Personal character	17
Working experiences	15
Potential	15
Certificate of specific technique/skill	14
English ability	14
Academic degree (In general including TVET)	11
Academic degree (specific school(s)/course(s))	5
Japanese ability	3
Others*	3

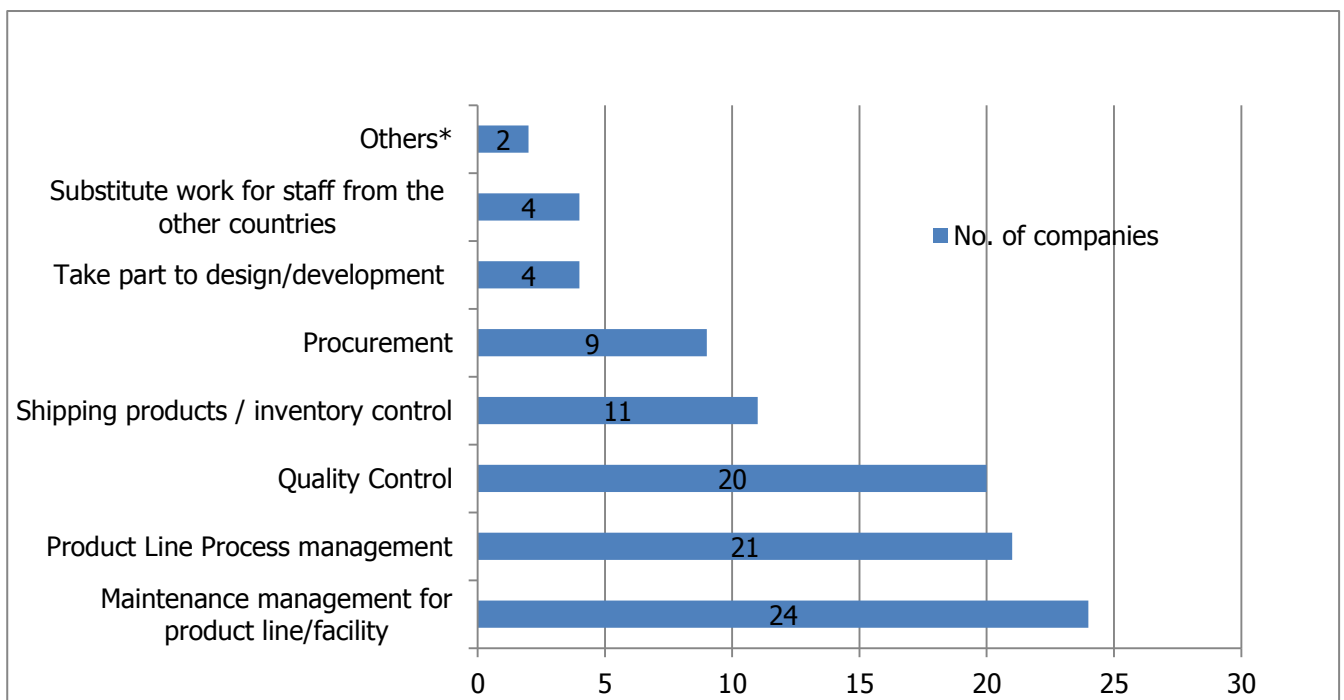
*; Person with patience, person with good learning attitude, diligence for work



III-Q2. Expected job descriptions for Cambodian technician (multiple answers)

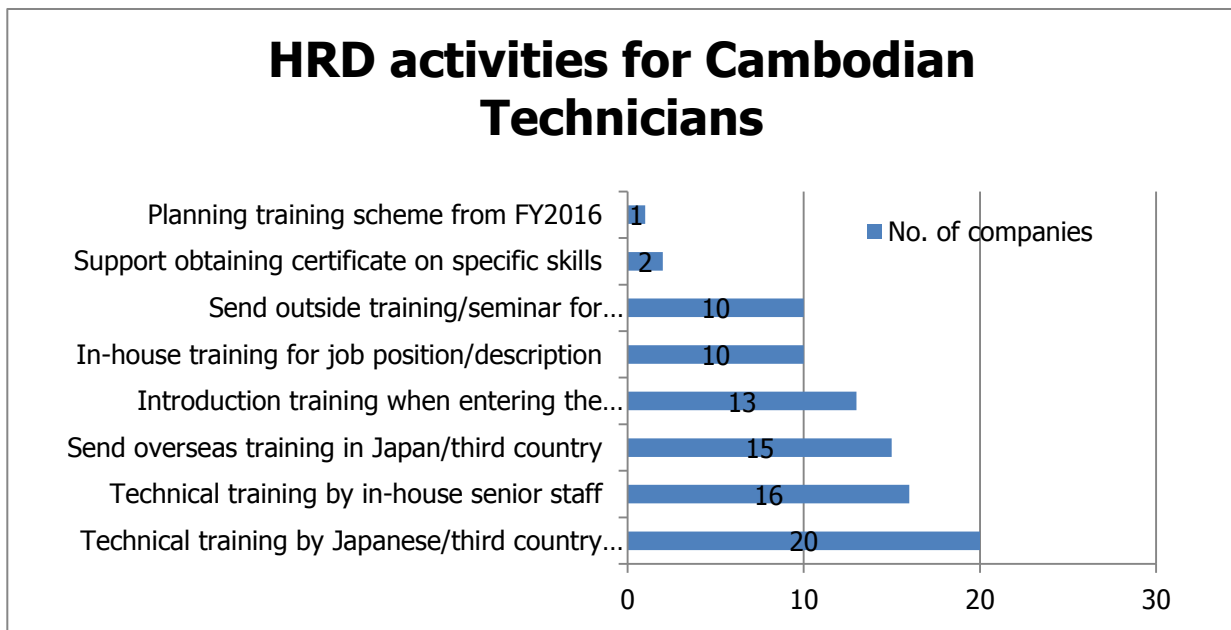
Criteria	No. of companies
Maintenance management for product line/facility	24
Product Line Process management	21
Quality Control	20
Shipping products / inventory control	11
Procurement	9
Take part to design/development	4
Substitute work for staff from the other countries	4
Others*	2

*; Production technique, environmental response / compliance for technology



III-Q3. HRD activities that the company provides for Cambodian technicians (multiple answers)

Criteria	No. of companies
Technical training by Japanese/third country resident staff	20
Technical training by in-house senior staff	16
Send overseas training in Japan/third country	15
Introduction training when entering the company	13
In-house training for job position/description	10
Send outside training/seminar for basic/technical skills	10
Support obtaining certificate on specific skills	2
Planning training scheme from FY2016	1

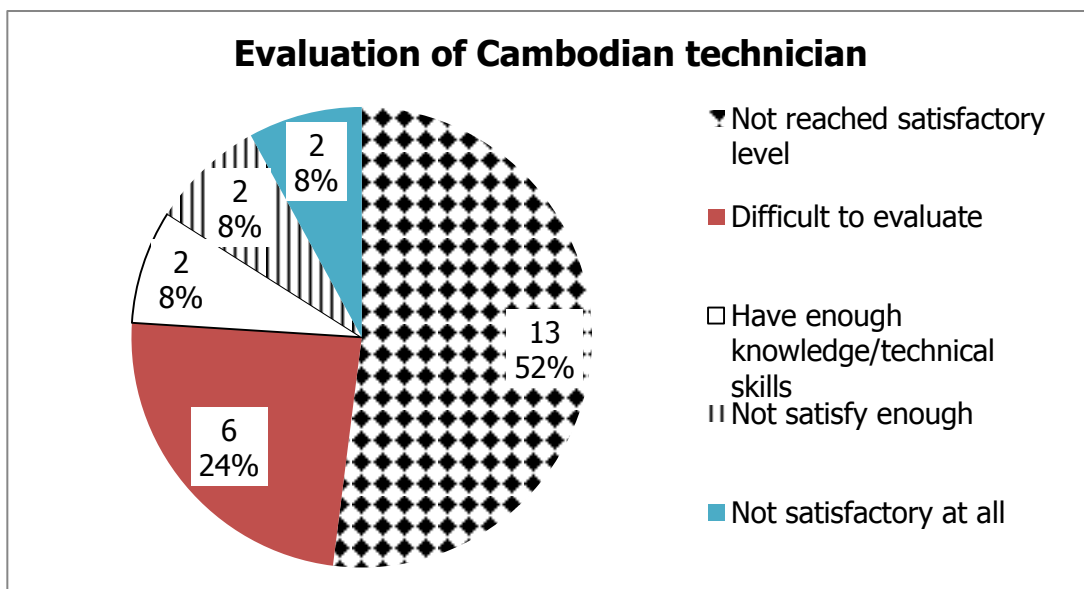


III-Q4. Evaluation of Cambodian technician

(N=25)

Criteria	No. of companies
Not reached satisfactory level, but expected to become in the near future based on the present working attitude	13
Difficult to evaluate at this point	6
Have enough knowledge/technical skills to plan an expected role from technical aspect	2
Not satisfy enough	2
Not satisfactory at all, often other staff play the person's expected role	2

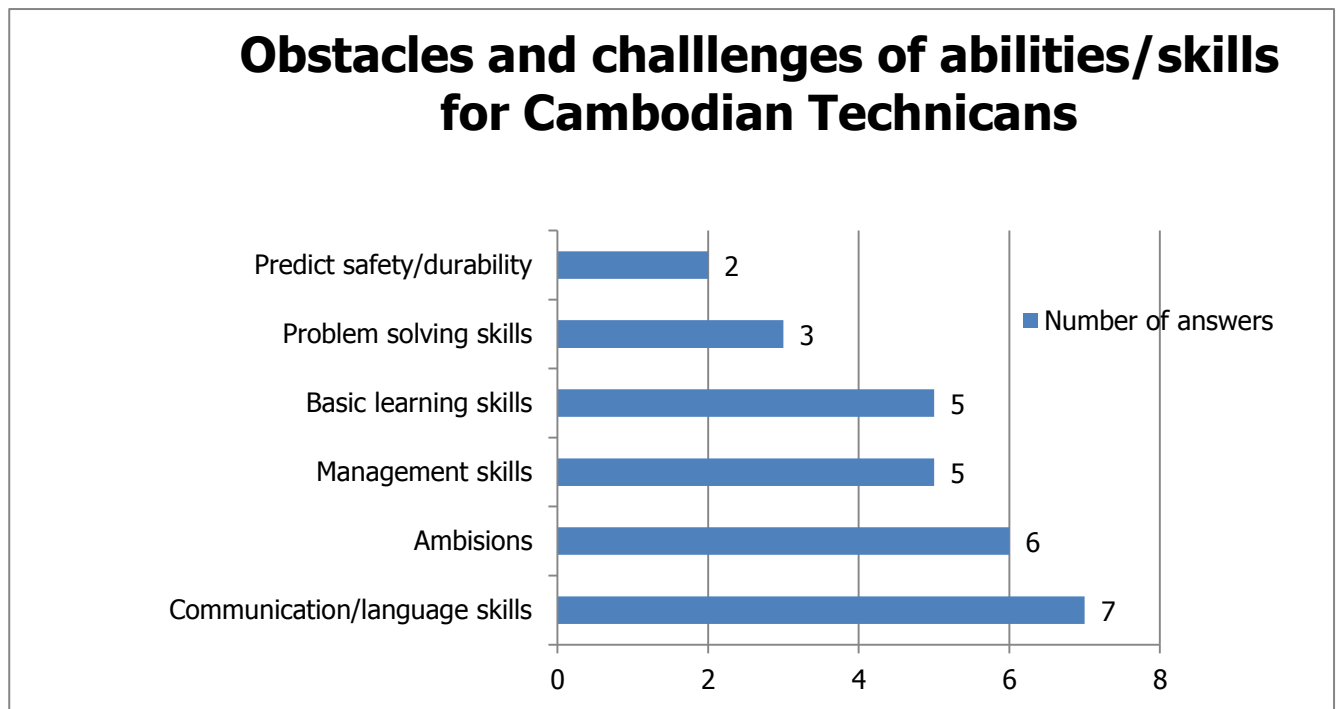
(N=25)



III-Q5. Obstacles and challenges that the Cambodian technicians have (multiple answers)

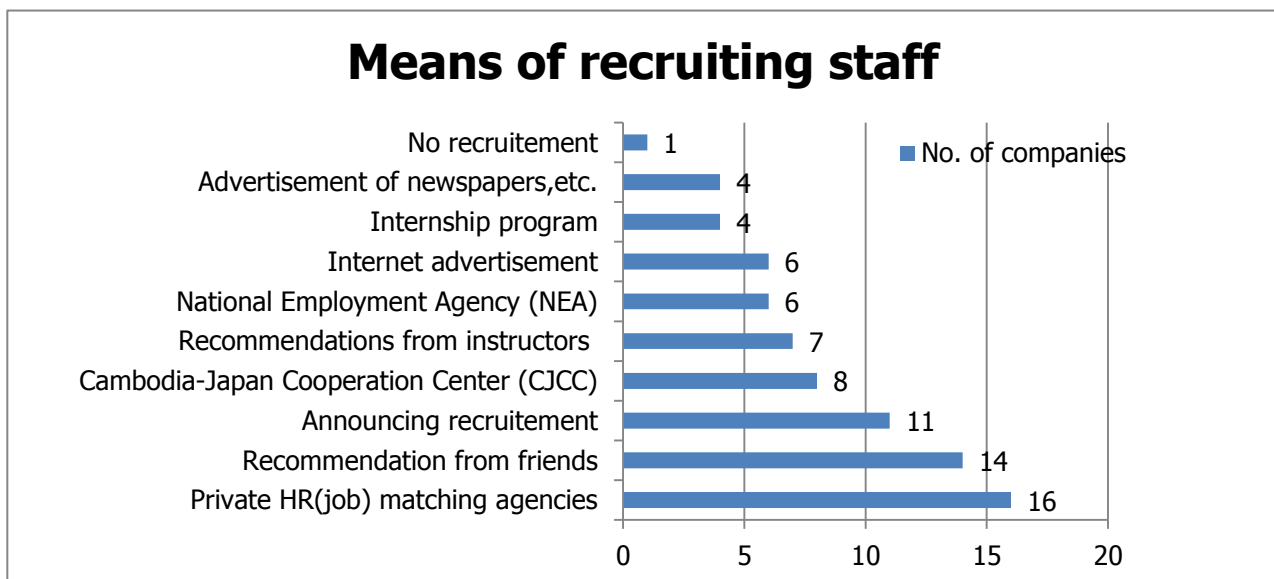
Description	Number of answers
Not enough communication/language skills	7
Not enough ambitions	6
Not enough management skills	5
Not enough basic learning skills	5
Not enough problem solving skills	3
High disponible rate	2
Not enough ability to predict safety/durability	2
Others*	9

*; *Skills in general, planning skills, computer skills, practical skills, lack of working experiences, lack of patience/common sense as employee, lack of predicting ability, less ability of thinking in long-term view, less refinement ability*



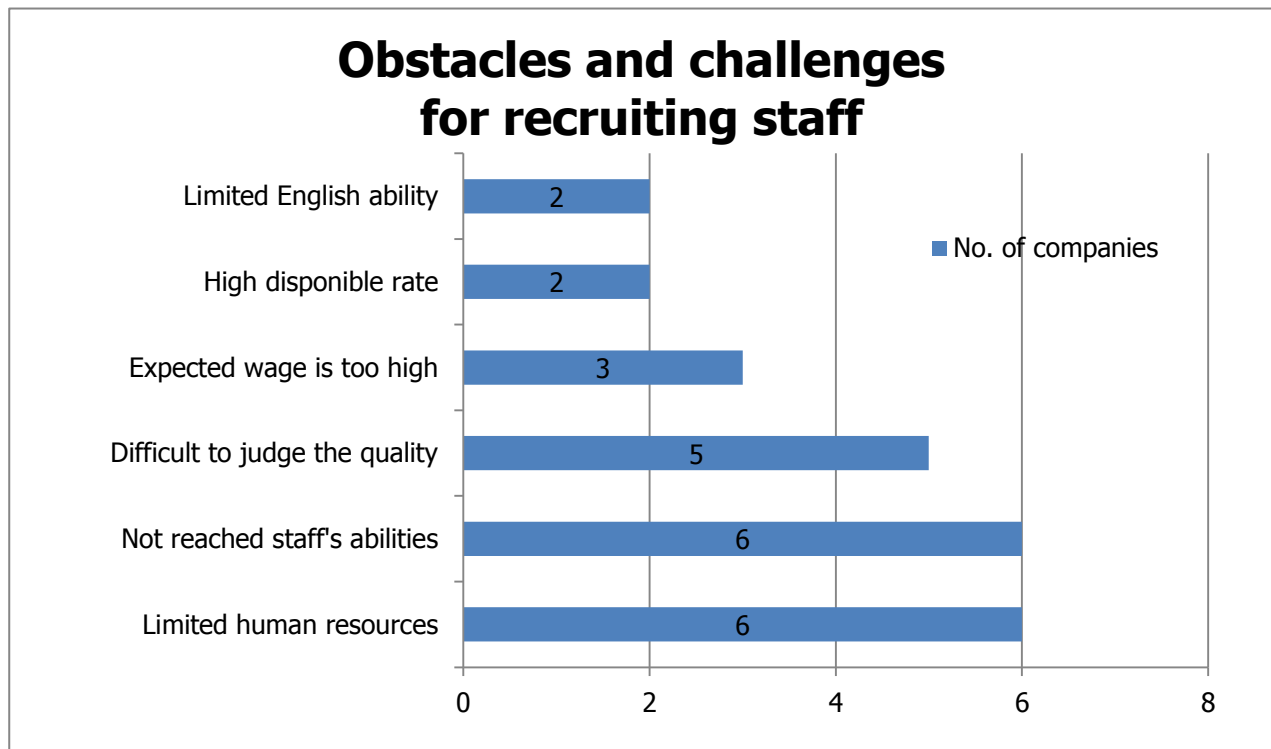
III-Q6. Please choose the means for recruiting Cambodian technicians at your company? (Multiple answers)

Criteria	No. of companies
Through private HR(job) matching agencies/companies	16
By recommendation from friends/acquaintance	14
Announcing recruitment through educational bodies such as schools, TVET Institutes	11
Through Cambodia-Japan Cooperation Center (CJCC)	8
By recommendations from instructors of those educational bodies	7
Through National Employment Agency (NEA)	6
Through internet advertisement	6
Through internship program from those educational bodies	4
Through advertisement of newspapers/magazines	4
No recruitment	1



III-Q7. Obstacles and challenges for recruiting Cambodian technician (Multiple answers)

Description	No. of companies
Limited human resources match to the requirement	6
Not reached staff's abilities as expected	6
Difficult to judge the quality of the staff	4
Expected wage and actual ability don't match	3
High disponible rate	2
Limited English ability	2

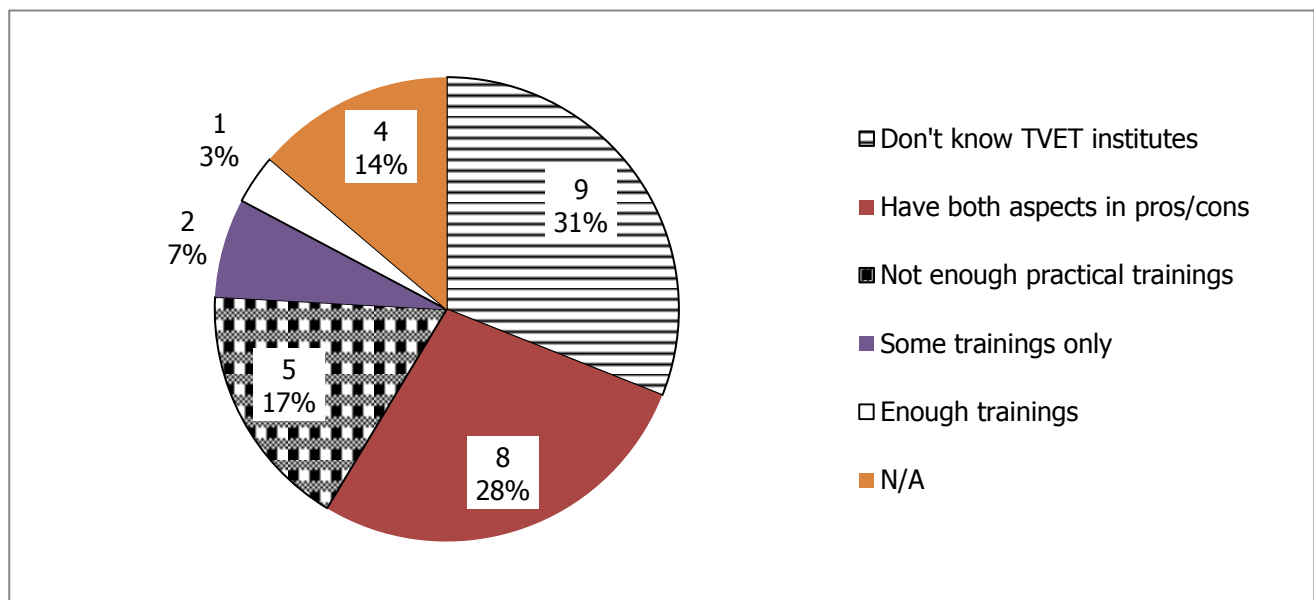


IV. Expectation for JICA TVET Project

IV-Q1. Your impression of TVET institutes in general (regardless of level and whether actual employment or not)

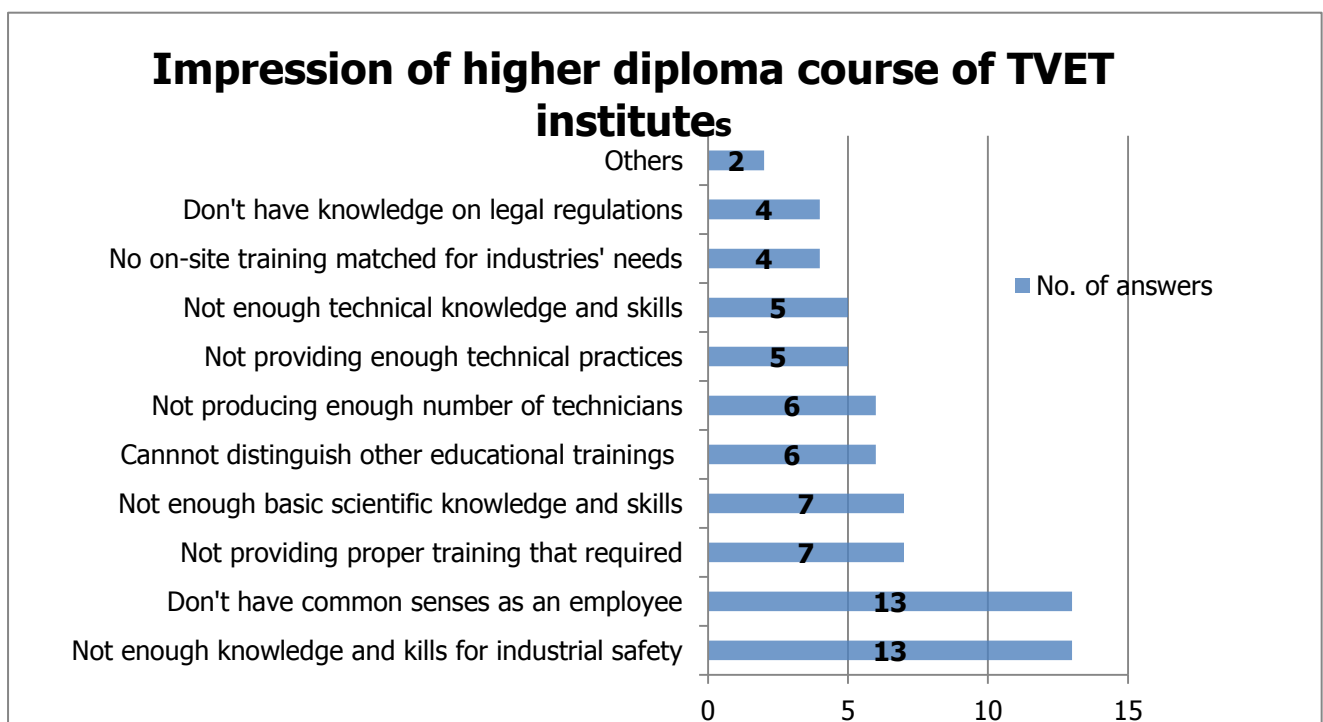
(N=29)

Description	No. of companies
Don't know TVET institutes or their function	9
Have both aspects in pros/cons, difficult to judge	8
Not providing enough educational trainings based on the industries' needs	5
Not all but providing educational trainings based on the industries' needs to some extent	2
Providing enough educational trainings based on the industries' needs	1
N/A	4



IV-Q2. Your impression for higher diploma level course of TVET institutes/students (multiple answers)

Description	No. of answers
<i>For TVET institute graduates</i>	
Not gaining enough knowledge and skills on industrial safety, 5S or Kaizen as technicians	13
Students don't have a grounding or common senses as an employee	13
Not gaining enough basic scientific knowledge and skills as technicians	7
Not gaining enough technical knowledge and skills as technicians	5
Not gaining relevant knowledge on legal regulations as technicians	4
<i>For TVET institute</i>	
Not providing educational training that required/specified technical skills for industries' needs	7
Cannot see its significance of existence because cannot distinguish other level's educational trainings	6
Not providing enough number of technicians needed for the industries	6
Not providing enough technical practices in the course at TVET Institutes	5
Not providing educational training that responded for various industries' needs at site	4
Others--(<i>Don't know on TVET institutes</i>)	2



IV-Q3. Your opinions on the contents for the standardized curriculum

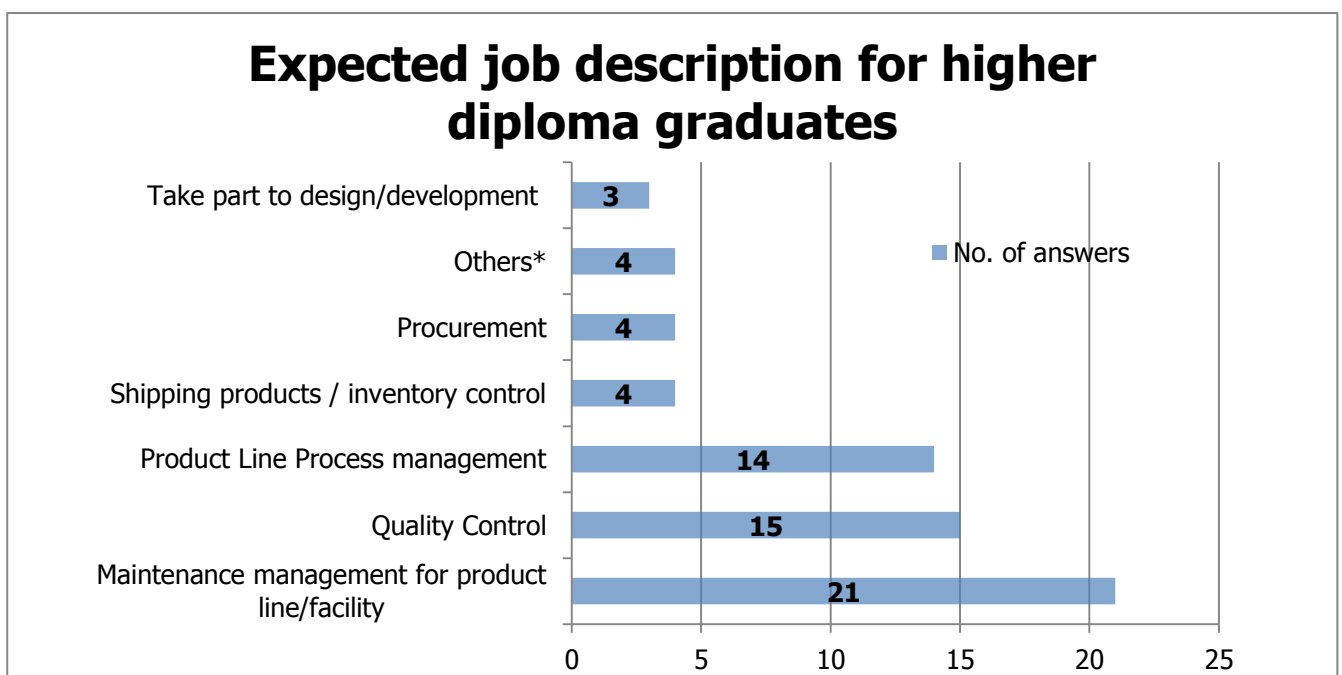
(Attached the detailed contents)

- 1) In general, good (5 answers)
- 2) Needs for facilities on electricity maintenance, CAD
- 3) Needs for Process sensor technology, Process control measurement
- 4) Needs for Quality Control in a broad sense considering ISO
- 5) Consider education method for students to be proactive way of learning and responsible for things proactively
- 6) Better to have knowledge on materials, elements of machineries, Metalworking techniques/practice into this course
- 7) No contents related with mechanics (3 answers)

IV-Q4. Expected job description for TVET higher diploma graduates who fulfill the requirement with technical knowledge and practical skills (Multiple answers)

Description	No. of answers
Maintenance management for product line/facility	21
Quality Control	15
Product Line Process management	14
Shipping products / inventory control	4
Procurement	4
Others*	4
Take part to design/development	3

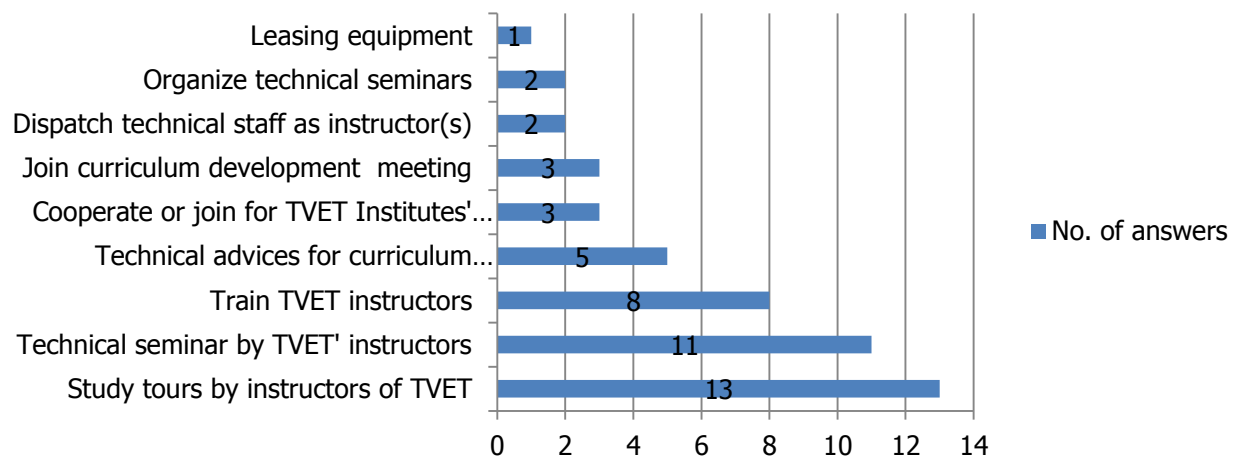
*; Production technology, designing/technical sales, Electric system maintenance/management (2)



IV-Q5. Company's support in order to develop a practical and useful curriculum focusing on its quality to be matched with the industries' needs (multiple answers)

Description	No. of answers
Study tours by instructors/staff of TVET institutes	13
Join the technical seminar for companies organized by TVET institutes' instructors	11
Training for TVET Institutes' instructors	8
Contribute technical advices for curriculum development	5
Cooperation/Participation for TVET Institutes' events (e.g. skill competition (opening booth, observation events) ,etc.)	3
Attend meeting(s) for curriculum development at TVET Institutes	3
Dispatch technical expert staff from your company to TVET Institutes as instructor(s)	2
Collaborate with TVET Institutes to organize/open a series of technical seminars/course there	2
Others— <i>(Based on the request to consider its possibility)</i>	1
Leasing equipment from your company	1

Support from the companies



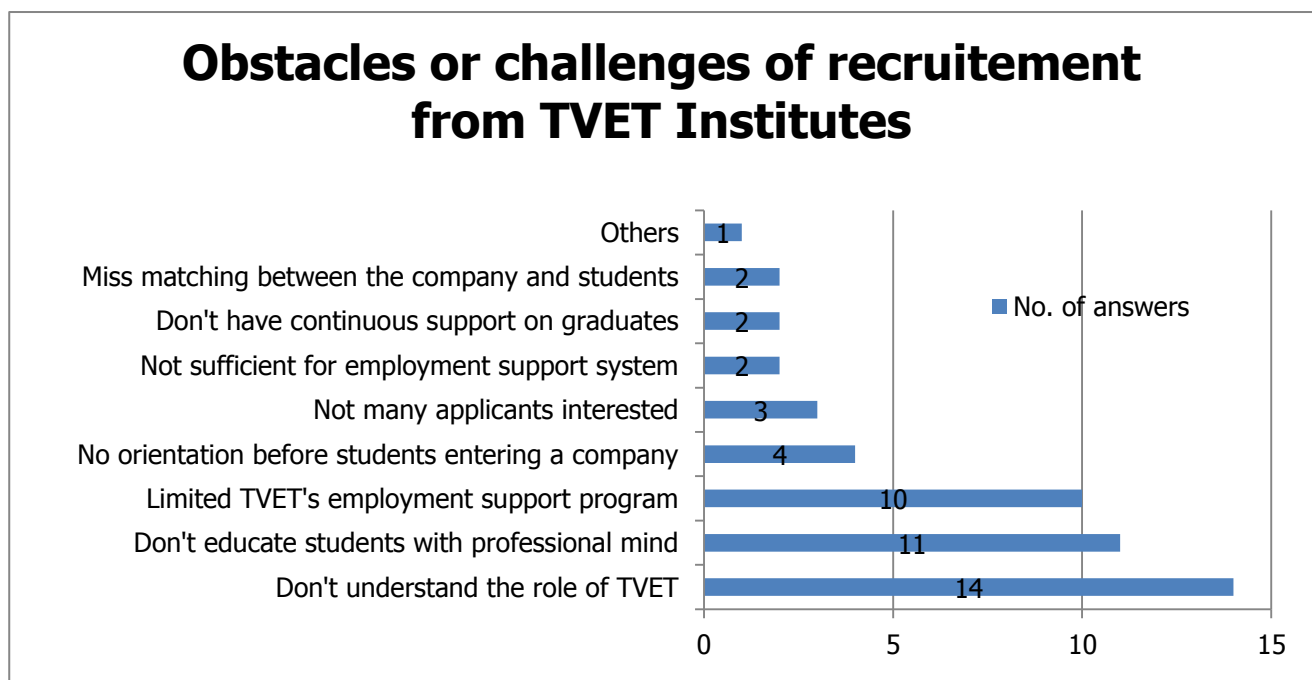
IV-Q6. Challenges or obstacles you think through providing support, please specify and state in below.

- 1) TVET institutes should guarantee that the graduates should have a certain level of knowledge and skills
- 2) Need to consider graduation system to approve only students with a certain level of knowledge and skills
- 3) Mechanical facility maintenance skills are highly needed and request to consider for curriculum contents
- 4) Doubted that the capacity of instructors are not reached satisfactory level
- 5) Doubted whether the companies in Cambodia needed such technicians
- 6) No obstacles or challenges since no needs for technician
- 7) Difficult to answer since the company's production is not on a profit base

IV-Q7. In order to collaborate with TVET Institutes for staff recruitment, what kind of obstacles or challenges that your company have (Multiple answers)?

Description	No. of answers
Don't understand the role or educational contents of TVET institutes	14
Not active on student employment support and program for collaboration(s) are very limited	11
TVET Institutes don't educate students to have a professional mind or purpose in society	10
TVET Institutes don't provide any orientation/predation program before students entering a company, limited (stay) just to connect (job matching) between students and company)	4
Neither students or TVET Institutes don't understand well on the company's expectation and not many applicants interested, only to scarce fulfillment for job vacancy	3
Not sufficient system/establishment on student employment support system in TVET institutes	2
TVET Institutes don't have continuous/systematic activities on student employment support (e.g. contact new companies to seek for employment opportunities, follow-up questionnaire after recruitment for company)	2
Others*	2
Often occurs miss matching between the company and students from various reasons	1

*:Need a program to prioritize to introduce graduates from provinces to the companies located in provinces

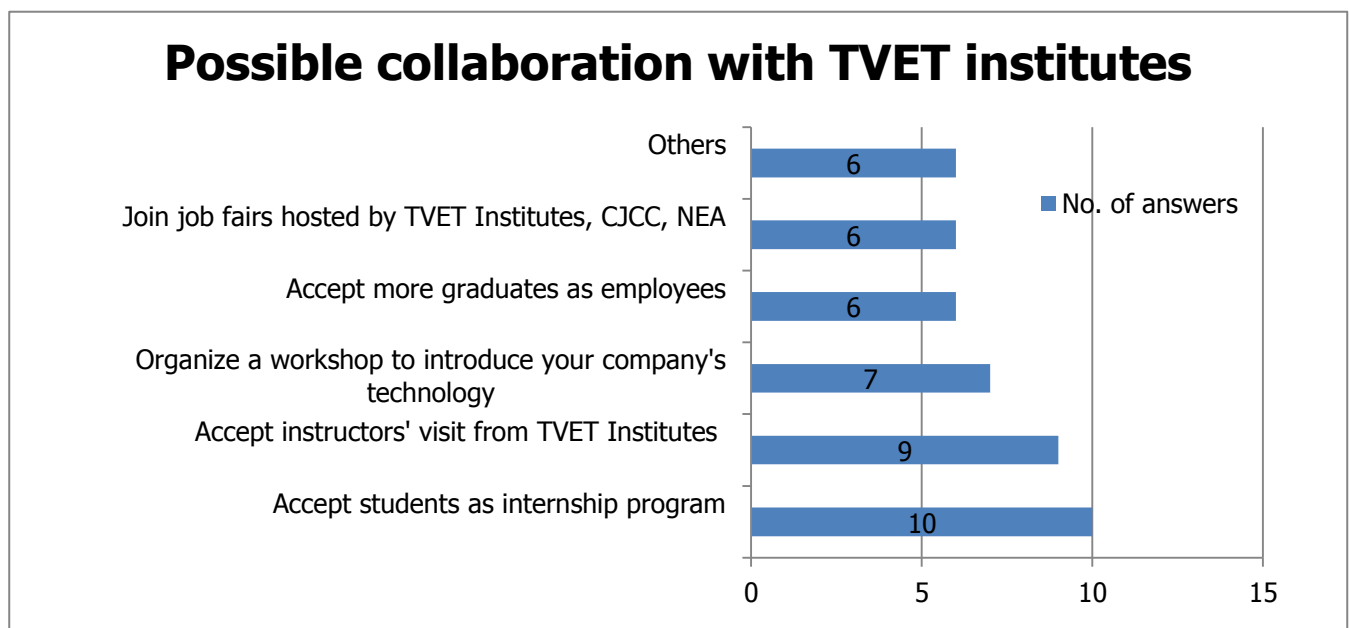


IV-Q8. For TVET Institutes to collaborate with your company, would it be possible to accept any schemes stated in below in your company? (Multiple answers)

Description	No. of answers
Accept students as internship program	10
Accept instructors' visit from TVET Institutes for more job vacancy exploration and future employment collaboration for TVET students	9
To organize a workshop to introduce your company's technology for future recruitment benefit at Institutes	7
Accept more graduates as employees through application of job vacancy for Institutes	6
To participate various job fairs hosted by TVET Institutes, Cambodia-Japan Cooperation Center, or National Employment Agency (e.g. setup company booth, attend staff for employment consultation, etc.)	6
Others*	6

*; 6 opinions as follows;

- 1) To be consider based on circumstance (2)
- 2) Possible to accept internship but not required industrial knowledge and skills
- 3) No department/person in charge available to accept students/instructors
- 4) Under consideration since unclear whether to utilize TVET institutes as company's resource
- 5) For answering questionnaires



IV-Q9. Regarding internship program, what kind of cooperation is possible in your company (multiple answers)?

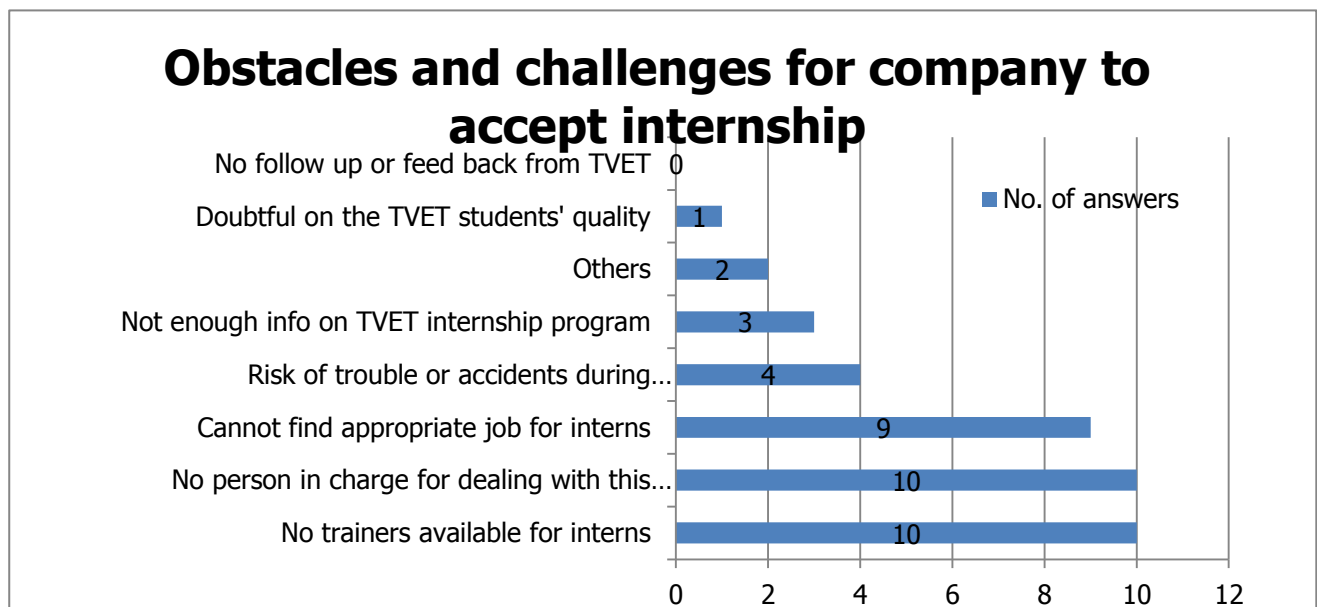
Number of companies answered

1. Duration of acceptance(Per person/time)	1 to 2-3 days	Around 1 week	Around 1 month	2-3 months
	0	4	6	4
2. Number of person(s) accepted Per year	1 to 2 person(s)	4 to 5 person(s)	Around 10 person(s)	More than 10 person(s)
	8	3	1	1
3. Contents	Observation of the actual working site	Support employees' work	Work similarly as employees	Sort of research for a specific subject
	2	10	7	3
4. Purpose of the acceptance	social contribution activity	Consider as part of recruitment procedure	For future employment	To make a good connection with TVET Institutes
	7	4	12	7

IV-Q10. In order to implement internship program(s), what kind of obstacles and challenges does your company have (multiple answers)?

Description	No. of answers
No trainers available for interns even the company has some jobs/departments	10
No person in charge for dealing with this matter	10
Cannot find appropriate job / department to accept interns	9
Risk of getting trouble or accidents during internship program	4
Not enough information/consultation from TVET Institutes on internship program in advance	3
Others*	2
Doubtful on the TVET students' quality in terms of their awareness, attitudes, etc.	1
Not conducted follow up or feedback to evaluate the program from TVET Institutes after the internship completed	0

*; Difficult to answer since depends on the situation, unknown due to no needs for now



V. Other comments (including general comments)

- 1) Need to strengthening basic education
- 2) Difficult to recruit staff with require higher skills
- 3) Important to have a creative thinking to utilize the earned knowledge and practices.
- 4) Request TVET institutes to include the decision making skills for study (staff with high qualification but low decision making skills with no goal)
- 5) Quit job easily without much experiences"
- 6) Internship by ITC students works well with repair/improvement of specific manufacturing facilities
- 7) Waiting to recruit higher diploma level technicians on electricity field as well as mechanics field
- 8) Willing to accept internships
- 9) Since located in remote area, add up incentives for employees when recruiting

Summary of the survey

1. Overview and background of company responded this time

- (1) This time succeeded in collecting 29 answers from 51 members of JBAC manufacturing subcommittee.
- (2) Only a few companies have more than 5 years operation in Cambodia, on the other hand, more than 80% of the companies recently initiated their business within 5 years.
- (3) Companies located mostly in Phnom Penh (around 72%), and around 86% run business in SEZ regardless of the location.
- (4) As for the type of the industry, major fields are automotive parts, electronic/electrical parts, paper (packaging), garment/textile etc.
- (5) The major reasons for deployment of business in Cambodia are attractive labor cost and tax/business procedure, while some answers recognizing diversification of business risks in overseas, that needs to support the company for overcoming risks and challenges.

2. Status of constituent of employment

- (1) Diversified scale among the companies from 15 to 7,000 employees but around 69% of the replied companies have staff less than 301 employees.
- (2) 26 out of 29 companies (90%) have resident Japanese employee(s) but have only 1 to 5 Japanese staff (except one company with 15 staff as maximum, while, nine companies with only 1 staff is most in answers (around 31%)).
- (3) Third countries' technical staff such as technicians (non-Cambodian, non-Japanese; such as China, Thailand, Malaysia and Viet Nam, etc.) are hired and involving in product activity.
- (4) For grasping status of engagement of engineer, technician and other technical worker including female, number of staff are diversified among the companies.

3. Employment and HRD on Cambodia technical HR such as technician

- (1) When recruiting, companies regarded important as candidate's personal character and potential, while, they thought also significant for working experience and specified skills. However English ability is vital.
- (2) Recognize strong expectation for engaging in relevant product line management concerned activity.
- (3) For HRD activities, major answers were providing training(s) by Japanese/3rd country staff or in Japan /3rd country, while, some in-house trainings (such as On-the Job Training(OJT) or sending trainings domestically) were also implemented.

- (4) Although the result shows strict evaluation for Cambodian technicians, some assess future potential even not enough at present. As for challenge, insufficient in basic technical skill and knowledge as well as proactive attitude as production line leaders, with insufficient English/communication skills.
- (5) When recruiting staff, major answers in utilization of private HR (job) matching companies or introduction by acquaintance; while take methods of job vacancy announcement through TVET institutes, NEA/CJCC or internet. As for challenge, posted as applicants' lack of quantity and quality in both aspects.

4. Expectations to the JICA TVET Project

- (1) As a whole impression on TVET institutes, major answers were not familiar with their function/educational programs and/or not providing suitable training to match the needs of industry.
- (2) Especially on higher diploma level institutes graduate, major answers were not enough skill and knowledge of KAIZEN, 5S and working safety as well as basic natural science required for technician, and not having common sense as employee. As for institutes, many evaluated those TVET institutes generally not addressing industry needs.
- (3) Regarding expected subject posted for higher diploma of electricity, certain number of companies replied favorable recognition while requesting additional contents of Quality Control (QC) and Mechanics.
- (4) For expected job description by graduate completed the above (3) subjects, major answers were product line management and maintenance as well as QC.
- (5) About cooperation with company in terms of curriculum development and improvement of quality of instructor, major answers were providing instructor with study visit or training at company and holding the technical seminar for company by TVET institutes. As challenge, TVET institutes need to assure quality of graduate and improve ability of the instructors.
- (6) Recognized challenges when collaborating between TVET institutes and company to recruit graduate, major answers were unknown its existence/role or activities of TVET institutes, not proactive of TVET institutes for employment support and lack of cultivation for student to have vocational consciousness.
- (7) For possible collaboration with TVET institutes, major answers were students' internship, instructors' visit for job exploration to seek for its training needs, and organize workshop(s) for introducing companies.
- (8) As for possible internship acceptance, preferable duration ranges from 1 week, 1 month and 2 to 3 month; number of acceptable participants major answer was 1 to 2; internship contents major answers were to support employee or work similarly as employee, for the purpose of internship, major answer was future employment while some implement as social contribution and aiming to build good relations with TVET institutes.
- (9) To conduct internship companies recognized some challenges, major answers were no trainers even existence of job, no person in charge for internship, and no appropriate job.

Observation, future orientation of JICA TVET Project

General remarks

- (1) Although labor costs or tax/business procedures attract companies, another major reason for operation in Cambodia is diversifying business risks; it requires to cultivate Human Resource (HR) in order to upgrading their productivity urgently.
- (2) At present, there are substitutions of HR from 3rd countries for technicians. To strengthen Cambodian industries, it is important to produce national qualified HR in Cambodia. While much introduced HR training depending on Japan/3rd countries, the Project aims to further support to utilize Cambodia HR themselves to conduct domestic trainings in the near future.
- (3) Though a lot of challenges lay in the present status, many companies require and some already hire engineers/technicians with recognition of their potentials, the Project hopes to proceed HRD activity in order to contribute to address their needs.

Main Points

- (1) Because TVET institutes are not well known to people, the Project needs to proceed various TVET promotion activities.
- (2) Recognized relevance for curriculum of higher diploma in electricity posted, however not yet been understood about significance in some cases. Therefore, the Project needs to continue to disseminate it continuously and implement further reviews for grasping companies' needs at TVET institutes level and consider covering the subjects concerned.
- (3) The Project hopes to target technicians engaging in product line management/maintenance including Quality Control with practical skill and knowledge. In addition, covers areas for increasing potential such Kaizen, 5S and Industrial Safety.
- (4) The Project makes efforts in improving ability of instructor of TVET institutes by providing opportunities in further cooperation with companies such as site visits, etc.
- (5) To expand job selection and provide decent work for student, the Project encourages TVET institutes to improve their abilities (i.e. career guidance etc.) and facilitates them to have more cooperation with NEA etc.
- (6) The Project strengthens collaboration between TVET institutes and companies positively in terms of internships/job exploration and technical seminars for companies, which also bring good effects on improving TVET institutes' quality.
- (7) The Project motivates TVET institutes to record and keep students'/companies information concerned systematically with more feedbacks for improving and sharing information practically.

- (8) Since most companies locate in Phnom Penh area, the Project focus on the Pilot TVET institutes for the time being. However, companies other than Phnom Penh area also answered as needed HR, the Project aim to cover their needs with considering the future dissemination as the result of the PJ activities.
- (9) Finally, the Project hope to continue to cooperate with JBAC and their member companies for the purpose of vitalizing PJ activities.

Expected standardized curriculum contents of electricity in higher diploma level through JICA TVET Project

(Exclude following subjects:1) Repair Analog type Television and Radio technology, 2) Repair Cell-phone technology, and 3) General subjects such as Mathematics and English)

- 1) Electrical maintenance certified technician (2nd grade level equivalency in Japan)
- 2) Basic electrical engineering (electric shock, electric fire, and capacity calculation of wiring)
- 3) Electrical circuit (RLC circuit, Wheatstone bridge circuit and Star-delta three phase circuit)
- 4) Electrical Measurement (Digital multi-meter, Clamp meter, and Digital Oscilloscope)
- 5) Trial product of the printed analog circuit board using PCB milling machine
- 6) Process sensor technology and Process control measurement (operation of temperature, pressure, and flow sensor using signal transducer)
- 7) Saving energy technology using Multi-Purpose Inverter (Electrical Power monitoring on Process control)
- 8) The Second Class Electric Work Specialist level equivalency in Japan
- 9) Sequence Control (Operation of Alternative Current and Direct Current)
- 10) Pneumatic Control and Pneumatic Equipment Maintenance (Pneumatic circuit diagram understanding)
- 11) Design and Product of control panel and electric distributor
- 12) Design and product of Control panel using PLC (Sequence Control technician level equivalency in Japan)
- 13) Sequence Ladder Programing using Program Logic Controller (Basic Order and Application Oder)
- 14) Automation technology using Small Motor Control (Use Selection and Control of DC motor, stepping motor, DC brushless motor)
- 15) Basic mechanical engineering (How to read mechanical drawing and its method)
- 16) Electrical Drawing using Auto CAD
- 17) Safety and health education (Necessity of Lead-Free Soldering)
- 18) Process sensor technology and Process control measurement (operation of temperature, pressure, and flow sensor using signal transducer)
- 19) 5S activities promotion (Seiri, Seiton, Seiso, Seikestu, Shistuke on vocational training)
- 20) ○KAIZEN activities on Quality Control education (Example; questionnaire survey after training)
- 21) ○The Second Class Electric Work Specialist level equivalency in Japan
- 22) ○Production Management (Internship and manufacturing company site seeing)
- 23) ○Vocational Education for domestic technical skill competition