



**KENYA INSTITUTE OF HIGHWAYS AND BUILDING
TECHNOLOGY**

**REGIONAL FLAGSHIP TVET INSTITUTE IN
HIGHWAYS TECHNOLOGY**

**YEAR SIX TRACER STUDY REPORT FINDINGS AND
RECOMMENDATIONS**

JUNE 2024



EXECUTIVE SUMMARY

Tracer study is conducted annually in line with the project development objectives (PDOs) and the Strategic Investment Plan (SIP) developed at the Kenya Institute of Highways and Building Technology (KIHBT), a Regional Flagship TVET Institute for Highways Technology under the East Africa Skills for Transformation and Regional Integration Project (EASTRIP). This tracer study report includes the introduction, methodology, findings, and recommendations based on survey on graduates' data in the priority sector programs for the year 2023/2024. It also provides an assessment of the overall progress made by the Institute towards improving access to quality training in programs under Highways Technologies through measuring graduate employability rates within six months after successful completion of their studies. In addition, the study also highlights female graduate employment rate within six months after graduation which is measured as either employed, self employed or pursuing further studies.

The study adopted mixed methods to collect data including phone calls, emails, questionnaires administered to target respondents including graduates and employers. The survey also included visitation to graduate employment places within the organizations. A standard questionnaire was developed and administered for the survey targeting various aspects of graduate employment opportunities, gender distributions amongst graduates employed, unemployed or are pursuing further training. Some of the challenges faced by graduates captured as well as Employers' perspectives on the quality of graduates and whether the training programs meet the industry requirements.

In this study, an overall graduate employment rate of 70% was achieved against a target of 85% and further 69% female graduate employment rate against a target of 91% which depicts an improvement from 66% overall graduate employment rate and 67% female graduate employment respectively. About 96% of graduates agreed that the training programs administered at the Institute are still relevant and hence match the job requirements. Knowledge and practical skills were cited as the most critical aspects sought after by Employers during recruitment of graduates. Only 23% of graduates are currently participating in further training against 77% who are not in further training. About 85% of graduates who are not participating in further training indicated that lack of money is a major hindrance. This report therefore recommends that the Institute should Fastrack access to government loans and bursaries through the Ministry of Education (MoE).

Regarding Employers perspectives, 23% of employers recruited graduates through advertisements and internet platforms, 20% through newspapers, 20% through internal adverts or vacancies. About 88% of all graduates' employers were in the construction sector hence depicting the relevance of programs administered at the Institute. Additionally, 96% employers agreed that the survey is relevant which confirms the need to invest in tracer study at least annually.

In summary, this tracer study recommends that to improve graduate employment rates, the Institute should strive to establish a careers guidance and counselling unit under the Industry Liaison office, accelerate industry collaborates through targeted linkages within the road sector, implement graduate internship programme aimed at mentorship and obtaining employment opportunities through internships within partner organization in the State Department of Roads. Tracer study should also be conducted at least annually to monitor progress of graduates within the first six months after graduation, obtain employer feedback on quality of graduates, measure overall graduate employment rate and more specifically female graduate employment. Decline in employment opportunities within the road sector in Kenya between 2022 and 2024 has significantly impacted graduate employment rates from the priority sector programs considered in this study. However, there was no control of this challenge by either party; Graduates, Employers, and the Institute.

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List of Abbreviations

EASTRIP: East Africa Skills for Transformation and Regional Integration Project

TVET: Technical and Vocational Education and Training

MoE: Ministry of Education

GoK: Government of Kenya

KIHBT: Kenya Institute of Highways and Building Technology

DHE: Diploma in Highway Engineering

DCE: Diploma in Civil Engineering

CCRC: Craft Certificate in Road Construction

KNEC: Kenya National Examination Council

LVSR: Low Volume Seal Road

PDO: Project Development Objectives

KENHA: Kenya National Highways Authority

KURA: Kenya Urban Roads Authority

KERRA: Kenya Rural Roads Authority

KWS: Kenya Wildlife Services

List of Symbols

N: Total population

n: Sample population

μ : Measurement of mean score

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The Kenya Institute of Highways & Building Technology (KIHBT) was originally established as a Training Division within the Public Works Department in May 1948. The purpose was to cater for skills improvement for the staff in the department. The staff identified for training included Roads Foreman, Water Foremen, Inspectors and Survey Assistants.

The Institute is a leading provider of infrastructure specific training for staff in the Ministry Departments, Agencies, County Governments, and the private sector. In collaboration with other development partners, the Institute has provided training to neighbouring countries within the sub-Saharan region.

In addition, KIHBT offers training in other Infrastructure related disciplines including Civil Engineering, Mechanical Engineering, Electrical Engineering, Architecture, Quantity Survey and Land Survey.

The Institute is well staffed and with an annual trainee turn over of more than three thousand.

Vision: The Preferred Infrastructure Training Institution in Africa and Beyond.

Mission: To Facilitate the provision of High-Quality training, research and consultancy in Infrastructure development and Maintenance in Africa and beyond.

The World Bank through GoK is funding East Africa Skills for Transformation and Regional Integration Project (EASTRIP). The Project is being implemented in three East African Countries, Kenya, Tanzania, and Ethiopia. EASTRIP aims to increase access, improve quality of technical and vocational education, and facilitate regional integration.

Kenya Institute of Highways and Building Technology (KIHBT) is one of the five TVET institutions competitively selected by the World Bank and government of Kenya to be Regional Flagship TVET Institute (RFTI) in 2018 under EASTRIP. KIHBT is a regional centre of excellence in Highway Technology.

1.2 OBJECTIVES OF THE STUDY

The objective of this tracer study is to track the effectiveness of Kenya Institute of Highways and Building Technology in offering market relevant and industry driven curriculum aimed at equipping TVET graduates with the necessary skills to successfully gain employment.

To do so, the study traced the whereabouts of graduates and assessed how successful they have been able to integrate into the labour market after completing their learning programmes in 2023. The study was conducted in 2023 and 2024, for a duration between six (6) months to one (1) year after the students graduated.

The Tracer Study specific objectives included:

- a. Examining the perceptions of employers regarding the quality of the employees they recruited from KIHBT graduates.
- b. Examining the attitude of the graduates regarding job quality, relevance, and effectiveness of their TVET education in securing employment.
- c. Assessing the adequacy of KIHBT training to enable employability in the job market.
- d. Developing and updating the graduate database for future studies.

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2. METHODOLOGY

The tracer survey was conducted between December 2023 and May 2024. This was done by oral interviews and administering questionnaires to graduates and employers which addressed the following areas: level of qualification, course of study, employment status, transition to work, relevance of training, job satisfaction, relationship between study employment and training conditions.

This chapter covers the database of potential participants, target study groups, access to the respondents, survey instruments and tools, ethical considerations, sampling strategy, and methodological challenges and mitigations.

2.1 DATABASE OF POTENTIAL PARTICIPANTS

The graduate's data used in this study was obtained from the list of final year students who sat the Kenya National Examination Council (KNEC) exam.

The population of this study included KIHBT graduates and their employers. The study focused on the long-term courses covered under the EASTRIP priority area; Diploma in Highway Engineering (DHE) and Craft Certificate in Road Construction (CCRC). The graduates were reached out via phone calls to determine their whereabouts and employers' details. This gave forth a consolidated database.

2.2 TARGET GROUPS FOR THE SURVEY

The targeted respondents for the survey included KIHBT graduates and Employers.

2.2.1 Graduates

The target population was one hundred and four (104 No.) (Male 75, Female 29) graduates. The sample size considered for analysis in this report is eighty-one (82 No.) graduates who were responsive (56 Male, 26 Female) representing 79% of the population. The remaining twenty-three (22 No.) graduates (18 Male, 4 Female) accounting for 21% of the population, were unreachable through phone calls and snowballing technique.

The participants were picked according to availability of their contact details, such as, a working phone number and/or an active email address. The study sought to categorise graduates as; employed, unemployed, self-employed, pursuing further education.

2.2.2 Employers

Employers captured in this report were twenty-seven (27 No.) who completed the questionnaire that was administered to them. They employ graduates from KIHBT and other TVET institutes.

2.3 ACCESS TO THE RESPONDENTS

During the preliminary stage of the study, two major communication channels were used to reach out to the target respondents: phone calls and email addresses.

The target respondents were invited to participate in the tracer study exercise through phone calls.

2.4 SURVEY INSTRUMENTS AND TOOLS

The study employed two questionnaires which were designed for the Graduate Survey Questionnaire (32 questions, 136 variables) for graduates of 2023. Employer Survey Questionnaire (18 questions, 77 variables), for both public and private enterprise employers. The questionnaires consisted of both closed-ended and open-ended questions. The questionnaires were administered via email and a face to face sit down session. Nine KIHBT staff assisted in the data collection process.

2.5 ETHICAL CONSIDERATIONS

Upon contacting a potential respondent, the objectives of the study were explained to him/her, and then they were left to decide whether they wanted to participate in the study or not. The respondents were assured that all information collected would be treated in confidence and only used for the purpose of this tracer study.

2.6 SAMPLING STRATEGY

2.6.1 Sample Frame

A sample frame was designed, and sample size determined to ensure that it is adequately representative of the graduates and the employers concerned. This was followed by the design of the questionnaires covering the parameters to be measured.

KIHBT selected the survey sample by convenience sampling. KIHBT purposely selected graduates who were readily/easily available while still satisfying the sampling conditions by year/cohort and gender. For the EASTRIP Tracer Study, a variation of the convenience sampling was used, identified graduates were asked to help share the latest contacts/whereabouts (snowballing technique) of their former colleagues. Although this was

time consuming, it helped KIHBT in providing/compiling current contacts for the target graduates.

2.6.2 Sample Size

The following graduate sampling approach was adopted in this study.

Where the total population (N) was less than 100, a census method (N=n), was conducted.

2.7 METHODOLOGICAL CHALLENGES AND MITIGATIONS

The graduates were identified through a list of final year students who sat for the Kenya National Examination Council (KNEC) exam.

Graduates who were available to participate in the survey were encouraged to speak to their employers to inform them of the visit by KIHBT staff.

2.7.1 Methodological Challenges

While these approaches were expected to facilitate and increase the response rate, the fieldwork indicated otherwise. The main recorded constraints included the following:

1. Some graduate contact information had changed, and others refused to be interviewed, particularly those who were unemployed because of social conventions.
2. Some graduates were not willing to give correct information on their employment status, hoping that the institute could provide them with employment opportunities in the road construction industry.
3. Some graduates declined to pick our phone calls on the day of the survey.
4. Some of the addresses that were collected were no longer valid. This is because the more time that has passed from graduation to survey, the more the validity of addresses is in question.
5. Online Questionnaires – some respondents had challenges in accessing online systems due to internet connectivity or their own inability to participate in online surveys.

2.7.2 Mitigation Measures

Despite the above-mentioned challenges and in a bid to secure a high response rate, the researchers reverted to snowball sampling techniques where both graduates and employers were asked to identify other graduates that could participate in the study. This meant that while graduates could identify both employed and unemployed peers, employers on the other

hand could only identify other employed graduates. The unemployed graduates were reached through the provided databases and snowballing techniques.

It is important to note that target respondents also indicated if they are pursuing further education. Although graduates in this category would be neither employed nor unemployed, they have been considered employed in this study. The study also considered graduates who pursued self-employment or were working in the informal sector as employed graduates.

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3. DATA ANALYSIS

3.1 INTRODUCTION

This Chapter presents the data analysis of tracer study conducted on graduates of the year 2023. The analysis of Graduates' Findings is contained in Section 3.2 and those of the Employers are in Section 3.3 below. Both quantitative and qualitative data were compiled and analysed using Microsoft Excel 2013 and presented in statistical methods, mean and standard deviation. The results are presented in percentage, tabular, graphical forms, and described in verbatim qualitative statements. The results form the basis of discussion, conclusion, and recommendations of this report.

3.2 GRADUATES' FINDINGS

The Graduate Survey focused on the long-term courses covered under the EASTRIP priority area, Craft Certificate in Road Construction and Diploma in Highway Engineering. All the traced graduates were based in Kenya from different regions; Nairobi, Ngong, Kiambu, Thika, Chuka, Nyeri, Nyandarua, Murang'a, Nanyuki, Nakuru, Eldoret, Kericho, Bomet, Narok, Iten, Kisii, Kisumu, Homabay, Vihiga, Garissa, Kitui, Machakos, Voi, Mombasa, Kilifi, Kwale, the data obtained from the completion of the questionnaires was analysed and interpreted as follows:

3.2.1 Demographic Information of the Graduates Respondents

In this section, the Demographic Information of the responsive traced graduates; gender, age, county of residence, level of qualification attained, employment and further academic situation in the first six months post graduation is presented.

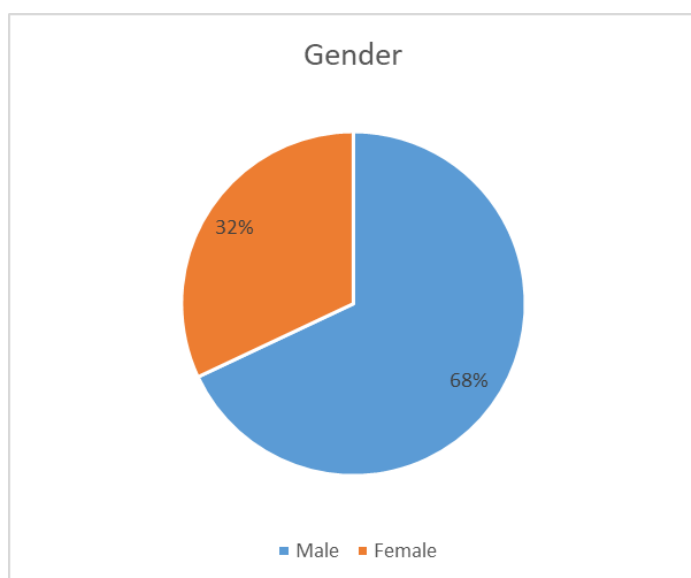
3.2.1.1 Graduates traced by gender.

Table1 summarizes the gender distribution of the 82 graduates who were traced during the survey of which 68% of the traced graduates were male while 32% were female.

Table 1 Graduates traced by gender.

	Gender		Total Graduates
	Male	Female	
Frequency	56	26	82
Percent Distribution	68%	32%	100%

Figure 1 Graduates traced by gender.



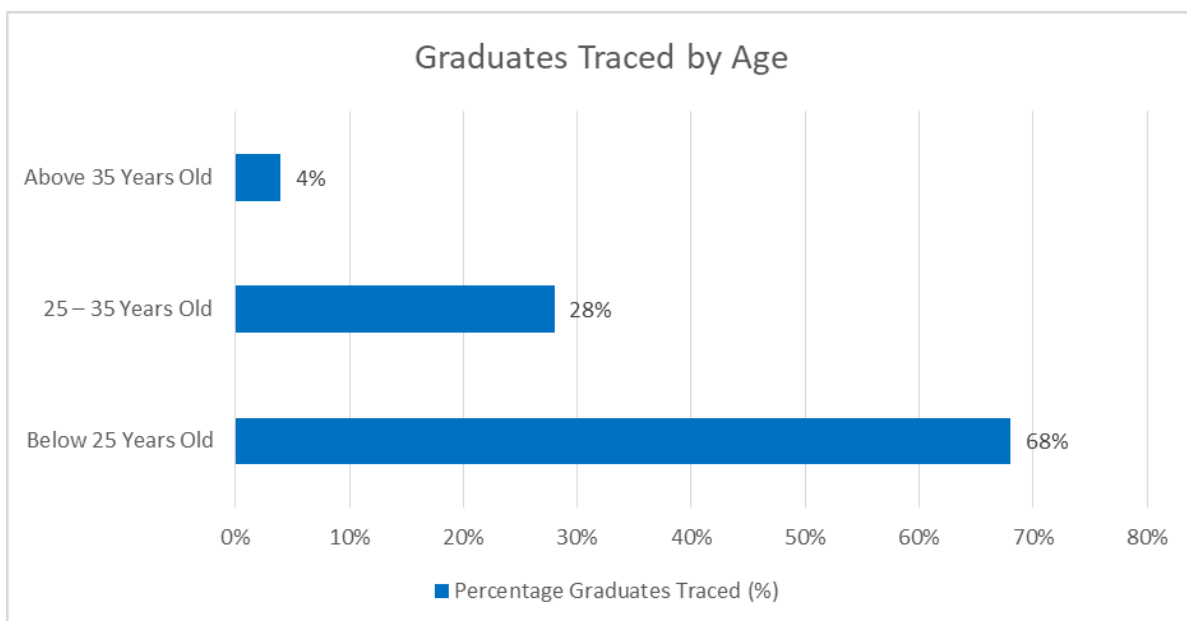
3.2.1.2 Graduate traced by Age.

Table 2 summarizes the Age Bands of traced graduates. Out of the 82 graduates, 68% were aged below 25 years, 28% were aged between 25 and 35 years and 4% were aged above 35 years.

Table 2 Graduates traced by age.

	Age Bands in Years		
	Below 25	25 -35	Above 35
Frequency	56	23	3
Percent	68%	28%	4%

Figure 2 Graduates traced by age.



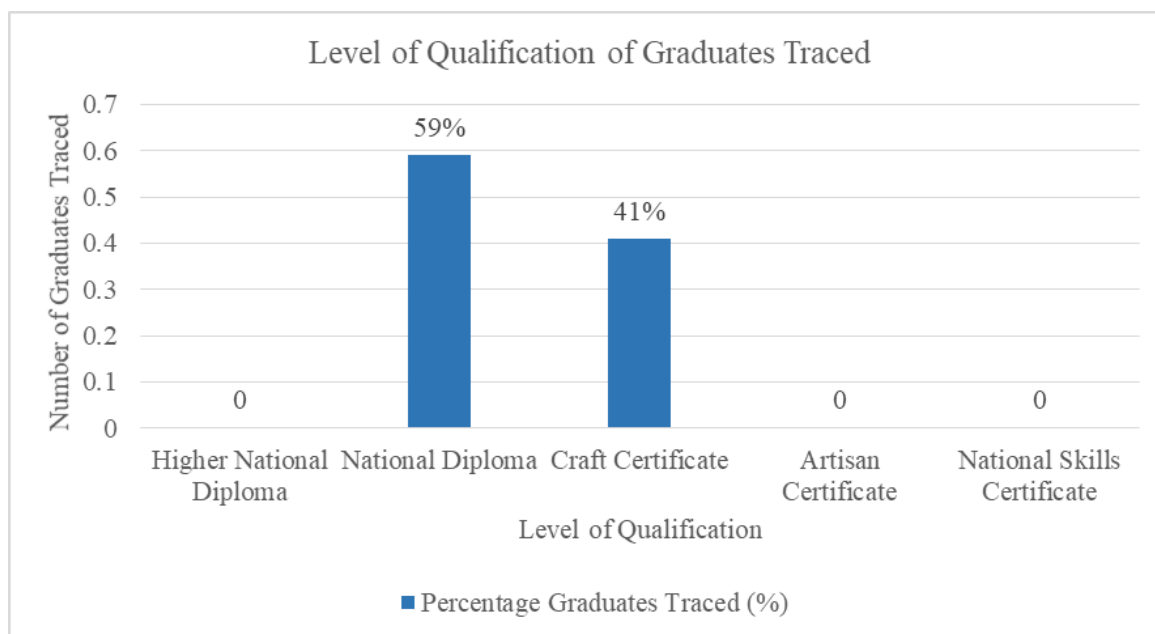
3.2.1.3 Level of qualification of traced graduates

From Table 3, about 48 (59%) graduates are National Diploma graduates while 34 (41%) are Craft Certificate graduates.

Table 3 Level of qualification of traced graduates.

Level of Qualification	Higher National Diploma	National Diploma	Craft Certificate	Artisan Certificate	National Skills Certificate	Others
Frequency	0	48	34	0	0	-
Per cent	0	59%	41%	0	0	-

Figure 3 Level of qualification attained by traced graduates.



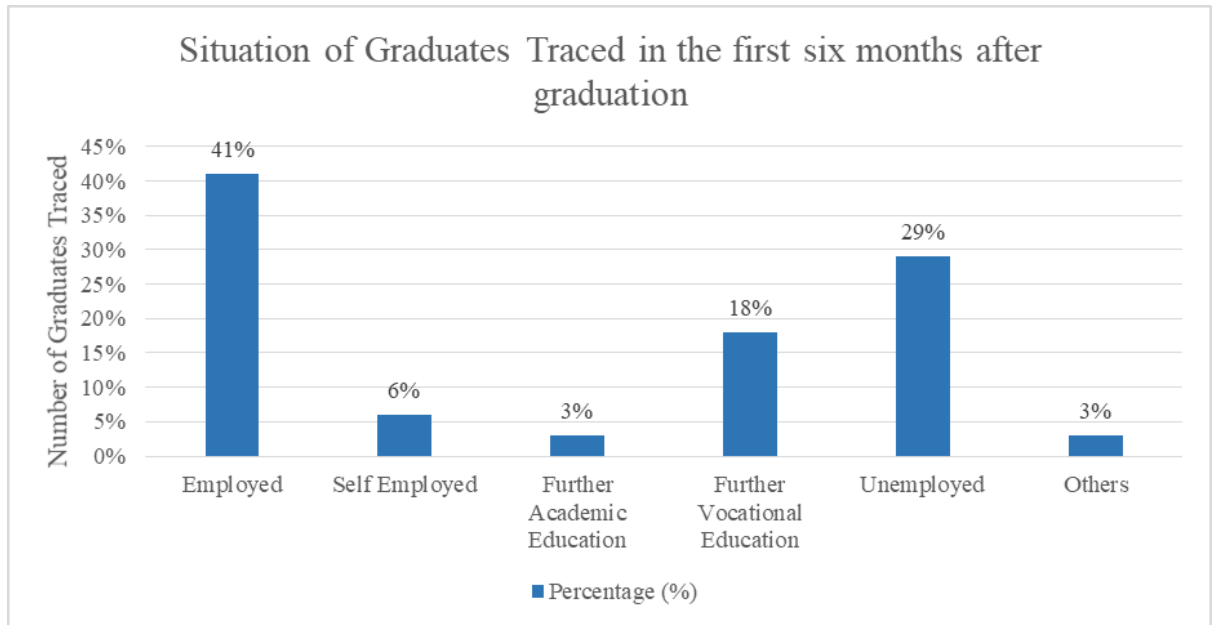
3.2.1.4 Graduates situation in the first six months post-graduation

Table 4 summarizes the situation of the traced graduates in the first six months after graduation. Amongst the 82 graduates that were traced in the study, 34 (41%) were Employed within the first six months after graduating, 5 (6%) were Self-Employed 2 (3%) went pursuing Further Academic Education, 15 (18%) are pursuing Further Vocational Education, 24 (29%) are unemployed and 2 (3%) had resit in their final exams.

Table 4 Situation in the first six months after graduation.

Situation six months after graduation	Employed	Self-employed	Further Academic Education	Further Vocational Education	Unemployed	Others
Frequency	36	5	4	11	24	2
Percent	41%	6%	3%	18%	29%	3%

Figure 4 Situation in the first six months after graduation.



3.2.2 Graduates Employment Status

In this section the study examines the employment status of the traced graduates. If employed, the industry sector they are engaged in, their present employment status, type of employment contracts they hold, number of hours worked per week, time taken to find their first job and how they found their job. Those not employed, the reasons they are not in employment.

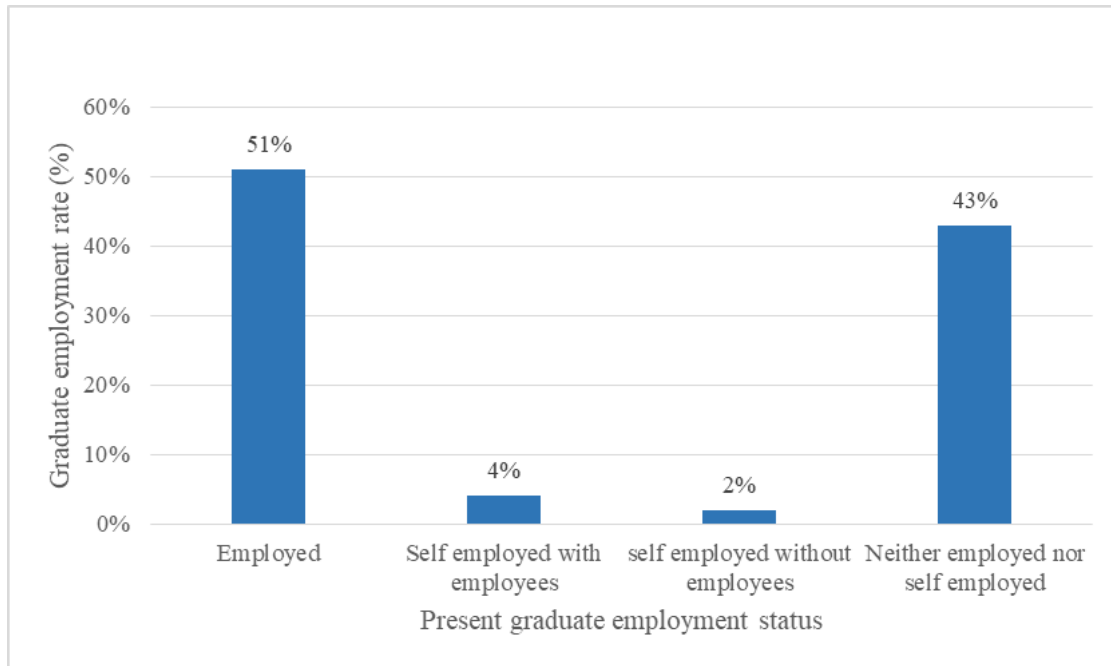
3.2.2.1 Present Employment Status

Table 5 summarizes the Present Employment Status of the traced graduates. About 34 (42%) are Employed, 3 (4%) are Self-employed with Employees, 2 (2%) are Self-employed without employees and 43 (52%) are Neither Employed nor Self-Employed.

Table 5 Present Graduate employment status.

Employment Status	Employed	Self-employed with employees	Self-employed without employees	Neither employed nor self-employed
Frequency	42	3	2	35
Percent	51%	4%	2%	43%

Figure 5 Present employment status.



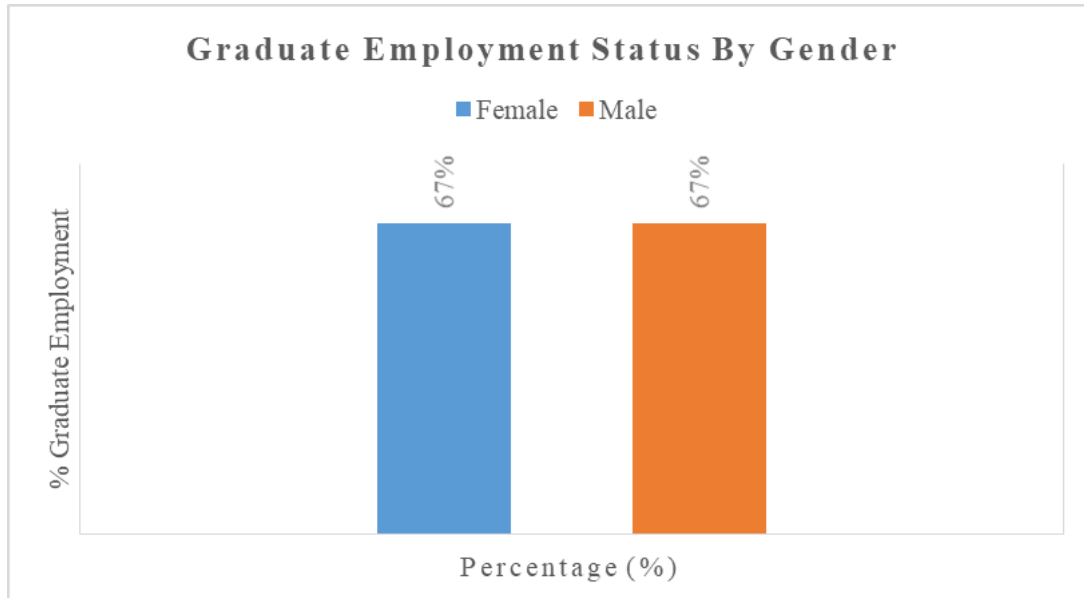
3.2.2.1.1 Graduate Employment Status by Gender

Table6 summarizes the present graduate employment status by gender. About 16 (67%) female graduates are employed compared to 31 (67%) male graduates who are employed.

Table 6 Graduate employment status by gender.

Employment Status	Female	Male
Employed	16	31
Not employed	8	15
Total	24	46
Percentage (%)	67%	67%

Figure 6 Employment status by gender.



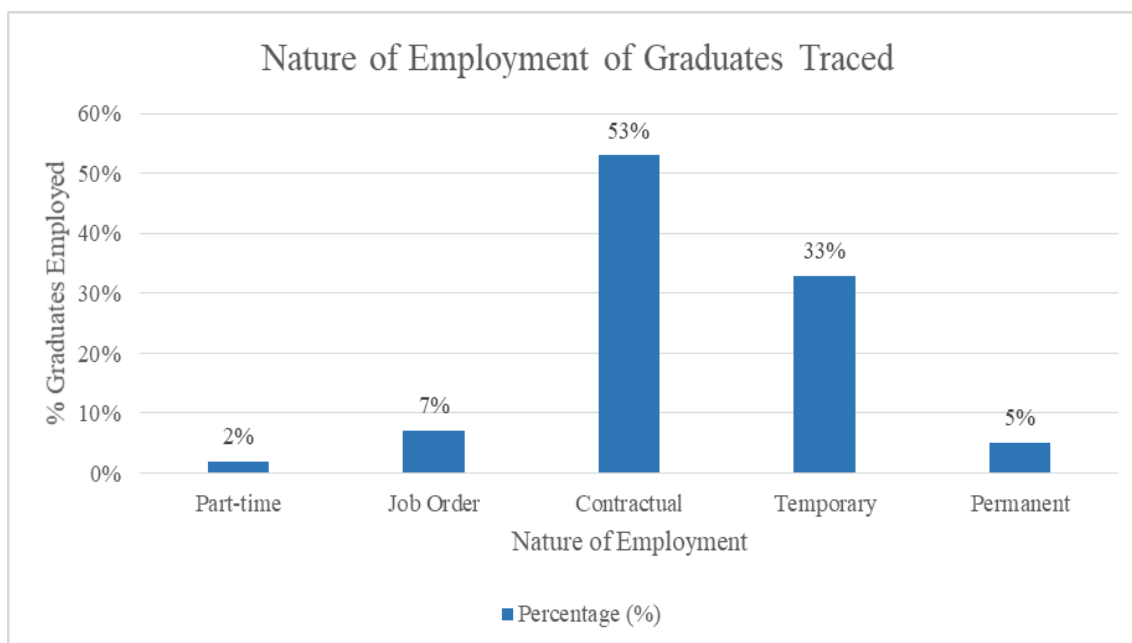
3.2.2.2 Nature of Employment

Table 7 summarizes the Nature of Employment held by the traced graduates after graduating from KIHBT. Out of the 47 traced graduates who are employed only 43 were responsive to this question. 1 (2%) are on part-time, 3 (7%) are on a Job Order arrangement, 23 (53%) are on Contract, 14 (33%) are working on a Temporary agreement while 2 (5%) are permanently employed.

Table 7 Nature of employment of graduates traced.

Nature of Employment	Part-time	Job order	Contractual	Temporary	Permanent
Frequency	1	3	23	14	2
Per cent	2%	7%	53%	33%	5%

Figure 7 Nature of employment of graduates traced.



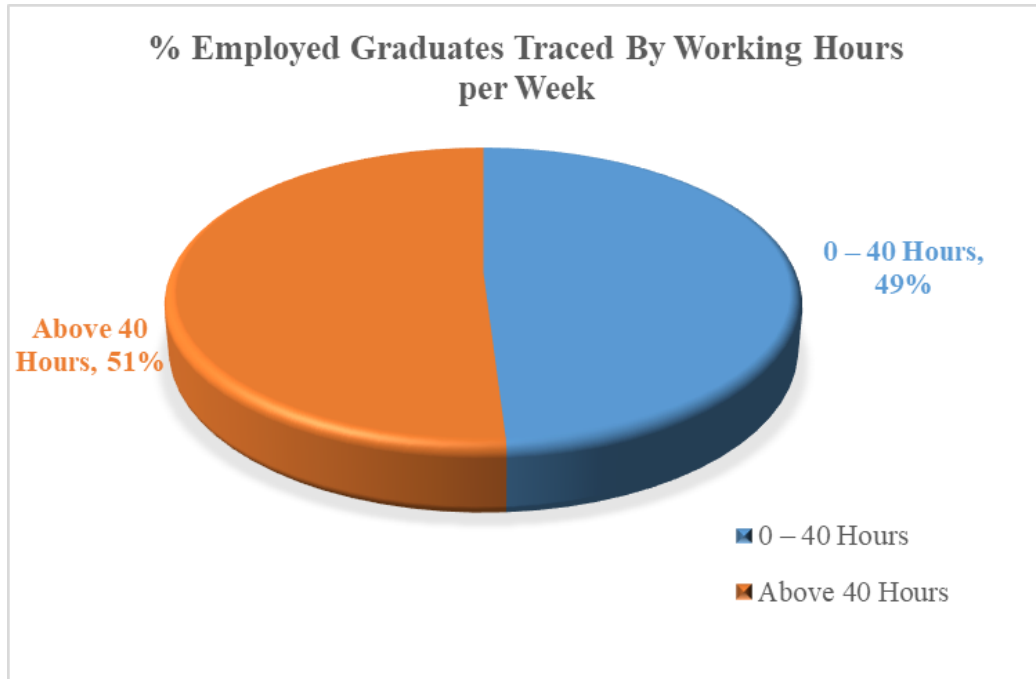
3.2.2.3 Working Hours per Week

Table 8 below summarizes the Number of Working Hours per Week for the graduates traced in employment. Out of the 43 responsive graduates to this question, 21 (49%) graduates worked between 0-40 hours per week, while 22 (51%) graduates worked for more than 40 hours per week.

Table 8 Number of hours worked per week by employed graduates.

Working hours	Number of Hours Worked Per Week	
	0 - 40	Above 40
Frequency	21	22
Percent	49%	51%

Figure 8 Number of hours worked per week by employed graduates.



3.2.2.4 Employment of Graduates by Industry Sector

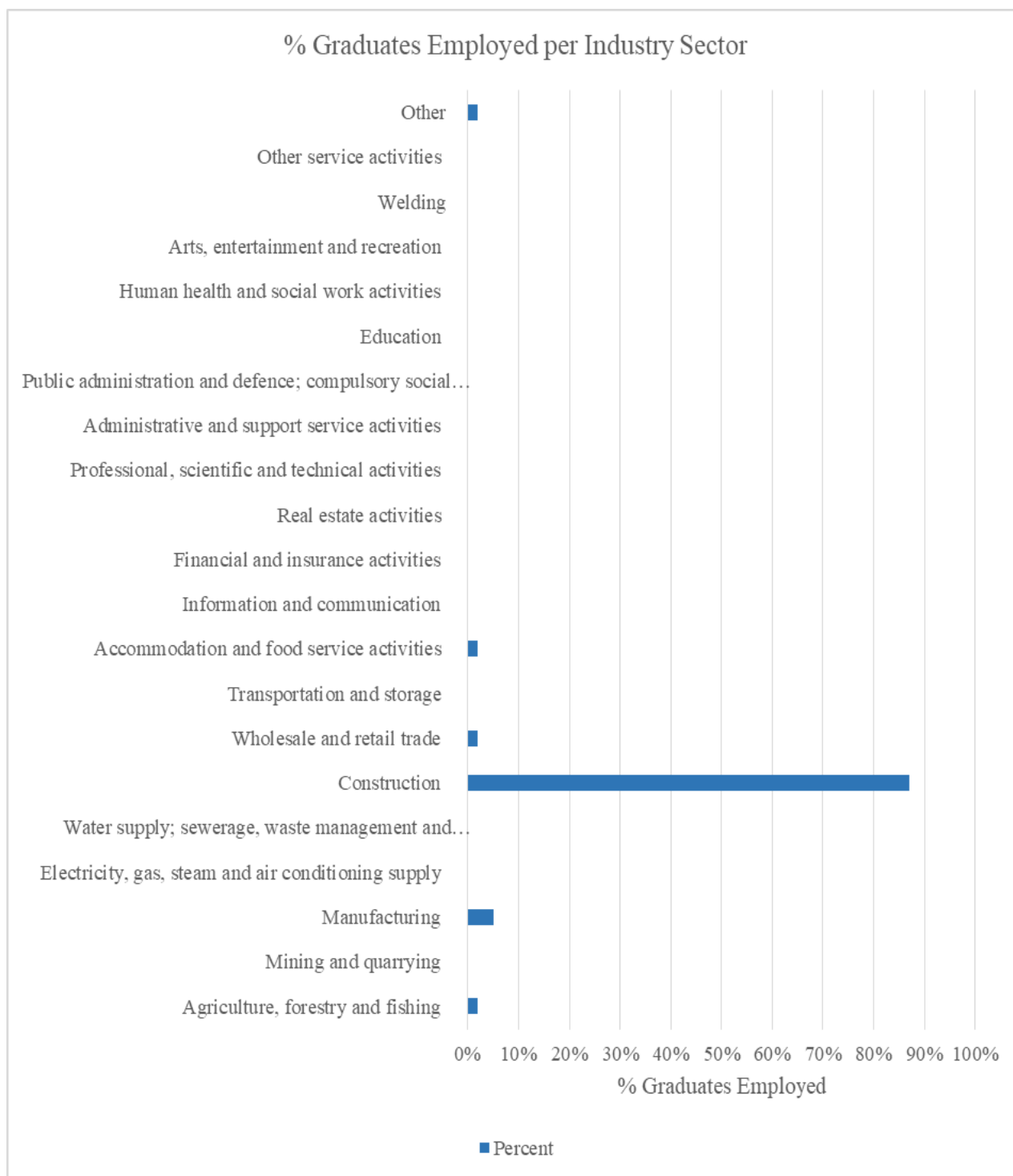
Table 9 summarizes how the traced graduates secured employment in different Industry Sectors after graduating. Out of the 43 responsive graduates to this question; 37 (87 %) graduates are in the construction industry while 6 (13%) graduates are engaged in other industries.

Table 9 Employment of graduates by industry sectors.

EMPLOYMENT OF TVET GRADUATES BY INDUSTRY SECTOR		
Industry Sector	Frequency	Percent
Agriculture, forestry and fishing	1	2%
Mining and quarrying	-	-
Manufacturing	2	5%
Electricity, gas, steam and air conditioning supply	-	-
Water supply; sewerage, waste management and remediation activities	-	-

Construction	37	87%
Wholesale and retail trade	1	2%
Transportation and storage	-	-
Accommodation and food service activities	1	2%
Information and communication	-	-
Financial and insurance activities	-	-
Real estate activities	-	-
Professional, scientific, and technical activities	-	-
Administrative and support service activities	-	-
Public administration and defence; compulsory social security	-	-
Education	-	-
Human health and social work activities	-	-
Arts, entertainment, and recreation	-	-
Welding	-	-
Other service activities	-	-
Other	1	2%
Total	43	100%

Figure 9 Employment of graduates by industry sectors.



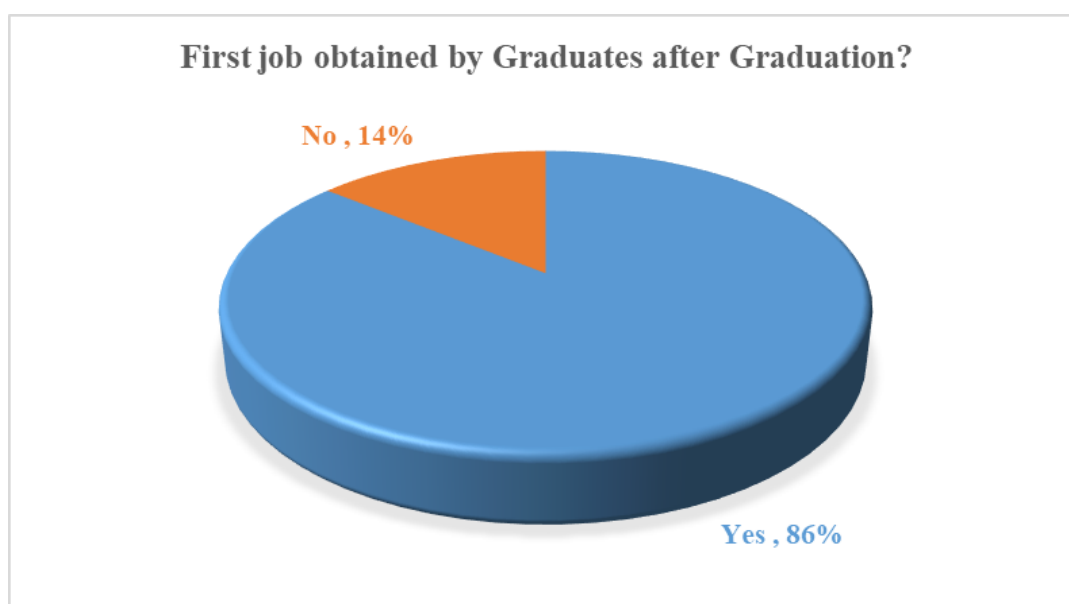
3.2.2.5 First job by graduates traced after graduating.

Table 10 summarizes if this was the first job obtained by graduates traced immediately after graduating. Out of the 44 responsive graduates to this question, out of 38 (86%) graduates confirmed they were still in their first job after graduating compared to (6) 14% percent graduates who have held more than one job since graduation.

Table 10 First job obtained after graduation.

First job after graduating?	Yes	No
Frequency	38	6
Per cent	86%	14%

Figure 10 First job obtained after graduation.



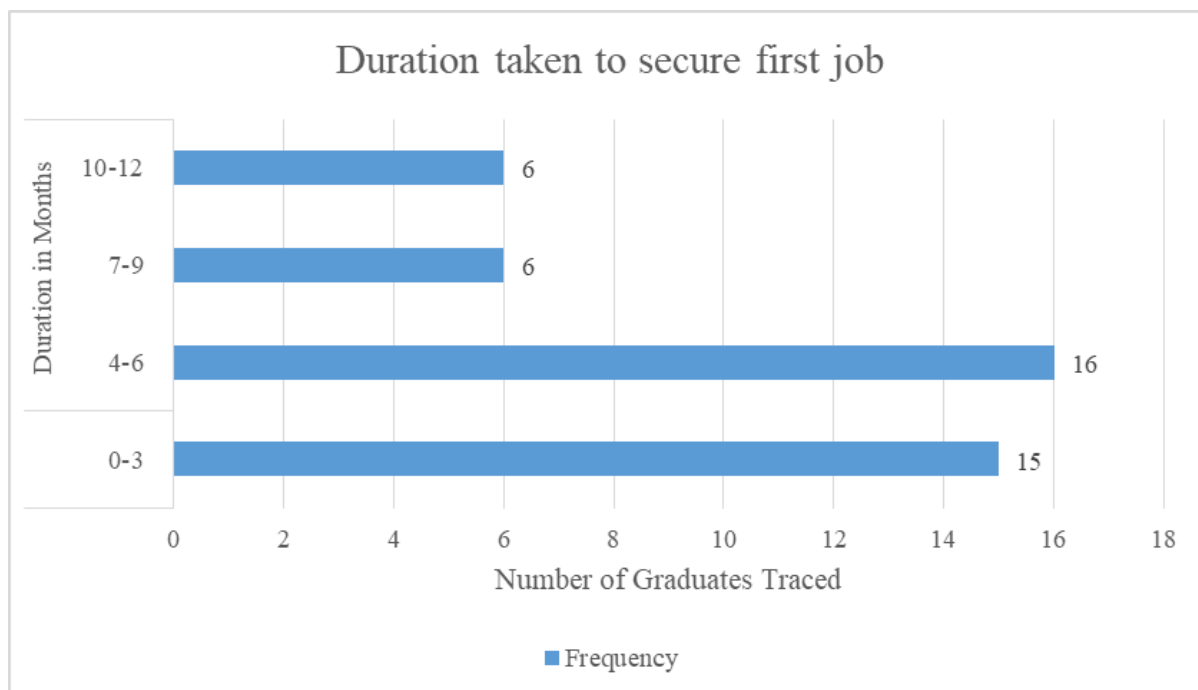
3.2.2.6 Duration Taken to Secure First Job after graduating.

Table 11 captures data on the duration taken to secure the first Job after graduating. Out of 43 responsive graduates to this question, 15 (35%) took Less than 3 Months, 16 (37%) took between 4 and 6 Months, 6 (14%) took between 7 and 9 months and another 6 (14%) took between 10-12 months to secure their first job.

Table 11 Duration taken to secure first job after graduating.

Duration Taken to Secure Present Job	Duration in Months				Total
	0-3	4-6	7-9	10-12	
Frequency	15	16	6	6	43
Percent	35%	37%	14%	14%	100%

Figure 11 Duration taken to secure first job after graduating.



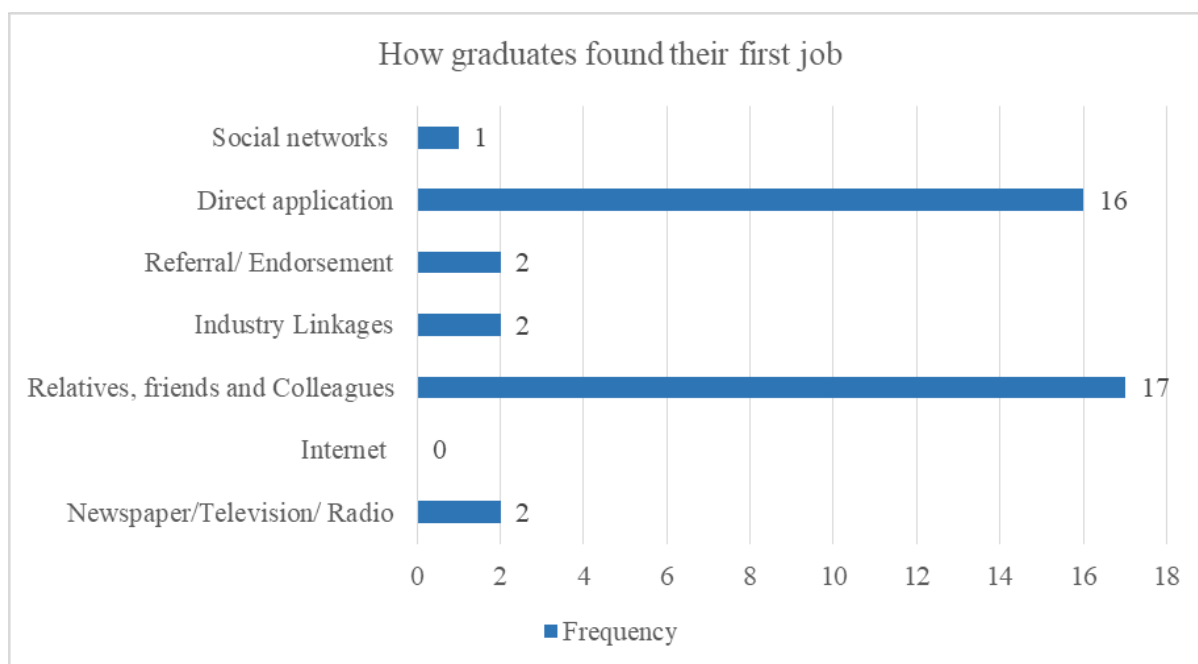
3.2.2.7 How Graduates Found their Jobs.

Table 12 captures how graduates found their jobs. The results have been taken from the graduates who are presently in employment. Out of 40 graduates who were responsive to this question, 16 (5%) secured employment through newspapers/television/radio, 0 (0%) via the internet searches on government or company websites, 17 (43%) through relatives, friends and colleagues, 2 (5%) through Industry linkages that took place while still undergoing training, 2 (5%) through referral and school endorsement, 16 (40%) through direct applications and 1 (2%) via social networks.

Table 12 How graduates found their present jobs.

How graduates Found their Present Jobs	Newspaper /Television / Radio	Internet	Relatives, friends & Colleagues	Industry Linkages	Referral/ Endorsement	Direct application	Social networks
Frequency	2	0	17	2	2	16	1
Per cent	5%	0%	43%	5%	5%	40%	2%

Figure 12 How graduates found their present jobs.



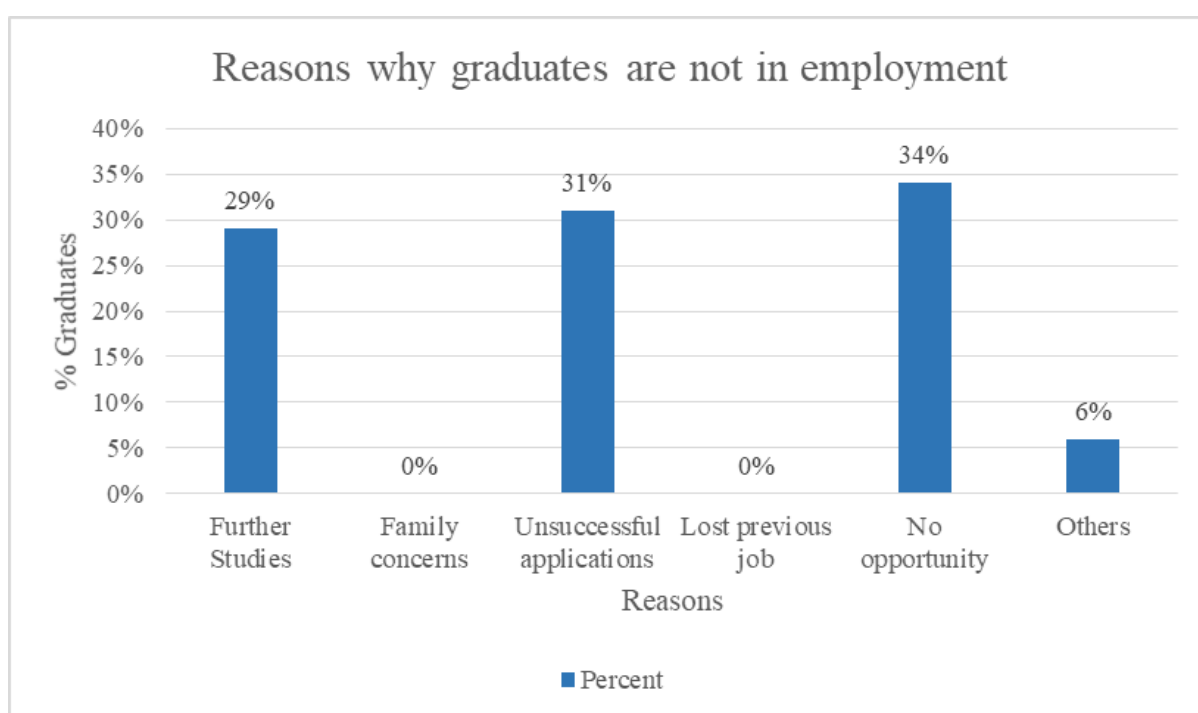
3.2.2.8 Reasons for not Being Employed

Table 13 below captures the reasons why graduates are not in employment. These results have been taken from a sample of 35 graduates who are not in employment. 10 (29 %) went for further studies. 11 (31 %) had unsuccessful job applications; 12 (34%) did not receive job opportunities in the desired field. 2 (6%) respondents did not sit for their final exams.

Table 13 Reasons why graduates are not in employment.

REASONS	Further study	Family concerns	Unsuccessful application	Lost previous job	No opportunity	Others
Frequency	10	0	11	0	12	2
Percent	29%	0%	31%	0%	34%	6%

Figure 13 Reasons why graduates are not in employment.



3.2.2.9 Overall Employment rate

Table 14 shows the overall employment rate of the traced graduates. The study has three (3) categories of graduates that are considered employed; self employed and those pursuing further studies. Out of the 82 respondents: 42 are employed, 5 self employed, 10 is in further studies. Therefore, the graduate employment rate is 70% for this reporting year.

Table 14 Overall employment rate.

Categories of Employment	Frequency
Employed	42
Self Employed	5
Further studies	10
Total Employed graduates	57
Employment Percentage rate	70%

3.2.2.10 Female Employment rate

Table 15 shows the overall employment rate of female graduates. Out of the 26 female respondents: 16 are employed and 2 pursuing further studies. Therefore, the overall female employment rate is 69%.

Table 15 Female employment rate.

Categories of Female in Employment	Frequency
Employed	16
Further studies	2
Total Female	18
Female Employment rate	69%

3.2.3 Relevance of training received by graduates.

In this section the Tracer Study report examines the relevance of training received by traced graduates. It examines the relationship between work and the course followed, the areas of training that are most helpful in performing the present job; details of further training undertaken post-graduating. It also checks if graduates could be interested to attend further training.

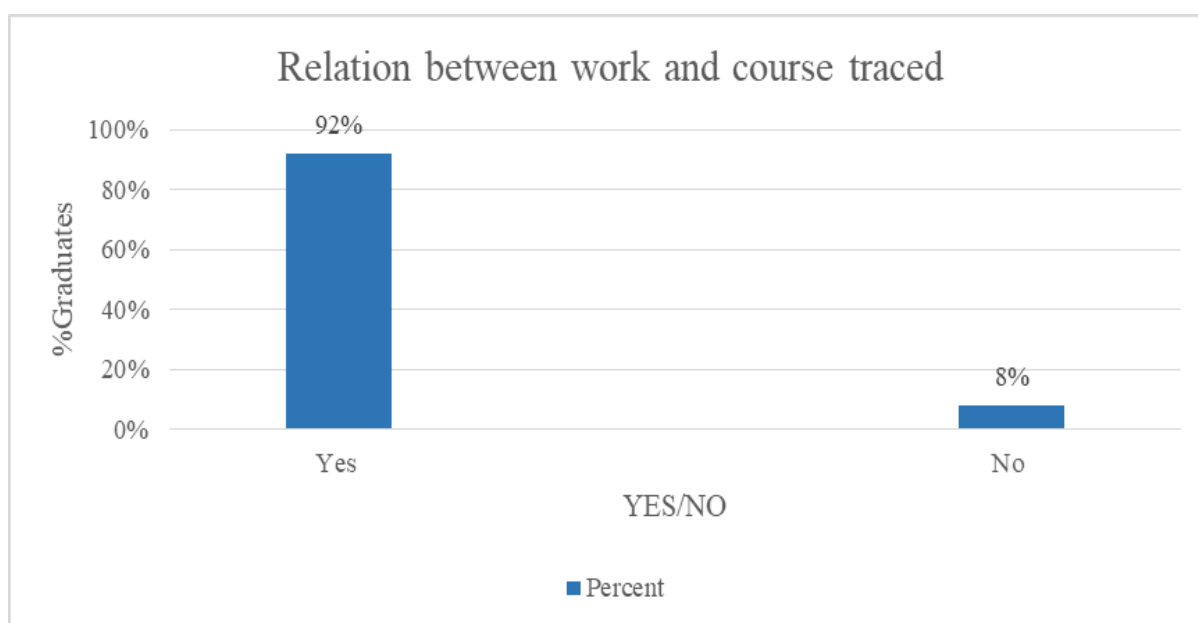
3.2.3.1 Relation between work and the course followed.

Table16 captures Relation between work and the course followed. Results have been taken from 65 respondents. 92% are working in a field related to their area of study. 8% are working in unrelated fields.

Table 16 Relation between work and the course followed.

Relation	Yes	No
Frequency	60	5
Percent	92%	8%

Figure 14 Relation between work and the course followed.



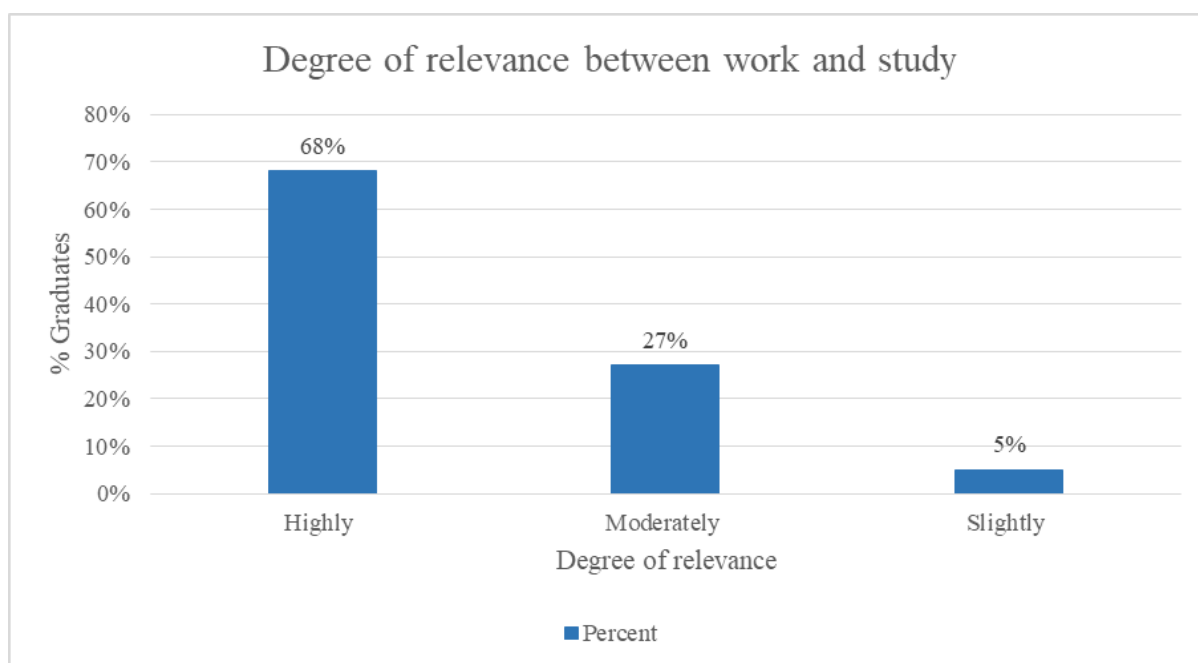
3.2.3.1.1 Degree of Relevance Between Study and Work

Table17 illustrates the degrees of relevance of graduates' studies to their work. Out of 44 traced graduates responsive to this question; 30 (68%) indicated that their work was highly related to their course of study, 12 (27%) indicated a moderate relation while 2 (5%) reported a slight relation between the two.

Table 17 Degree of relevance between study and work.

Degree of Relation	Highly	Moderately	Slightly	Total
Frequency	30	12	2	44
Percent	68%	27%	5%	100%

Figure 15 Degree of relevance between study and work.



3.2.3.1.2 Reasons for lack of relationship between Study and Work

About 5 graduates indicated that their present job was not related to the course they studied. 3 cited lacks a job opportunity related to their field of study as their reasons while 2 indicated that they found job opportunities unrelated to the course of study but had better salaries and benefits.

3.2.3.2 Areas of study helping in the performance at present job

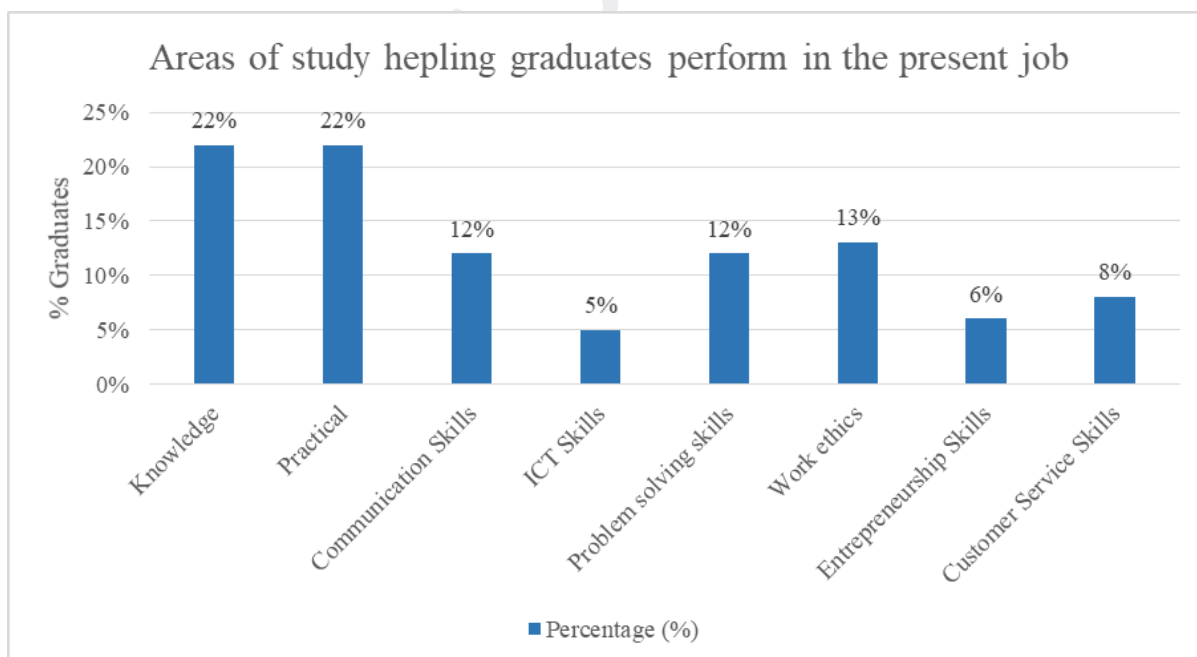
Table 18 captures the areas of study that helped graduates in their performance at work. The statistics show that Knowledge (*theoretical and practical related to my specialization*) and ;Practical job-related skills (*use of tools, equipment and machinery*) were the most helpful in

performing their duties; Communication skills (*spoken and written*); Problem-solving skills (*being able to analyse a problem and find creative solutions*) and Work ethics (*such as, attendance at work, reliability, punctuality, team work*) were reported moderately helpful ; and Customer service skills (*such as, personal presentation, being polite, understanding a customer's needs and being able to meet these*), Entrepreneurship skills (*such as, market research, business planning, financial management, leading others*) and ICT skills (*use of computers*) were indicated to have the least impact.

Table 18 Areas of study helping in the performance at present job.

Areas	Knowledge	Practical	Communication Skills	ICT Skills	Problem Solving Skills	Work Ethics	Entrepreneurship Skills	Customer Service Skills
Frequency	32	32	16	8	18	19	9	12
Percentage (%)	22%	22%	12%	5%	12%	13%	6%	8%

Figure 16 Areas of study helping in the performance at present job.



3.2.3.3 Access to further training

Table 19 indicates the number of graduates who have participated in further training since graduation and the reasons given by those who did not participate in further training. It also indicates the number of graduates interested in pursuing further training in future.

10 No. (23%) of the graduates participated in further training while 33 (77%) did not. 85% cited lack of monetary resources as a hindrance to enrolling into further training, however they expressed interest in further training in future. 15% cited lack of sufficient time, lack of enough guidance on courses to pursue and several others were in the process of enrolling.

Among the type of courses undertaken as part of further training include:

- Diploma in Highway Engineering
- Low volume sealed roads
- Craft Certificate in Road Construction
- Performance Based Contractors Course
- Construction management
- Plant operator course.
- First Aid

Table 19 Participation in further training, Reasons for not participating and likelihood of attending further training courses.

	Have Participated		Reasons for not Participating				Likely to Participate	
	Yes	No	No Course	No Need	No Money	Others	Yes	No
Frequency	10	33	0	0	23	4	32	0
Per cent	23%	77%	0%	0%	85%	15%	100%	0%

Figure 17 Participation in further training after graduation.

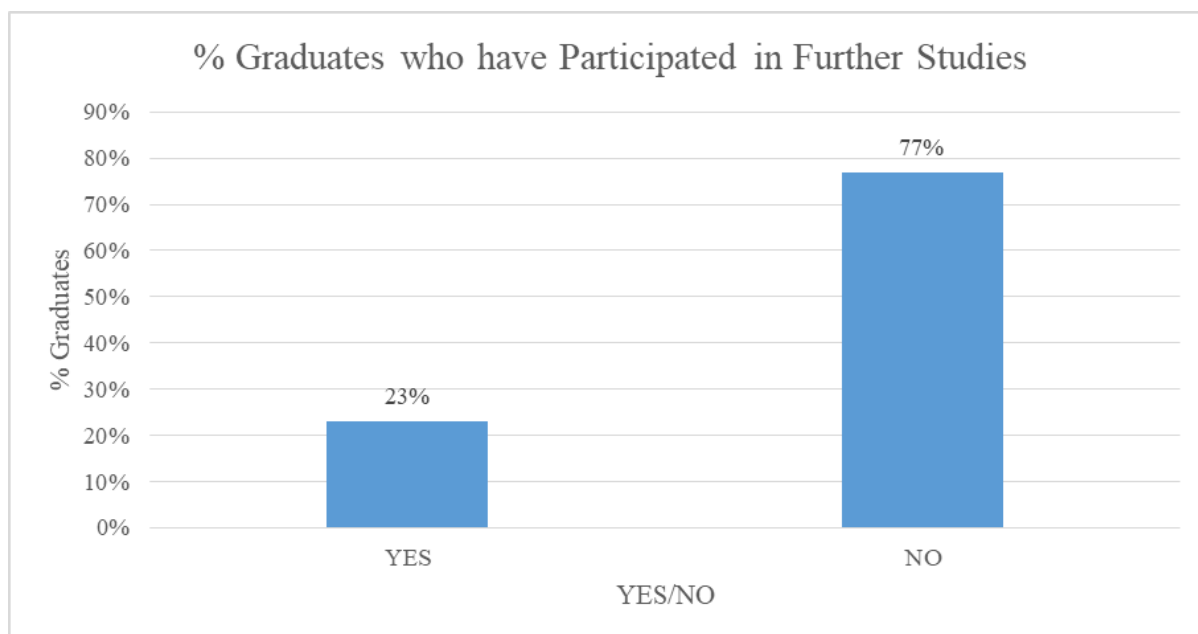


Figure 18 Reasons for not participating in further studies.

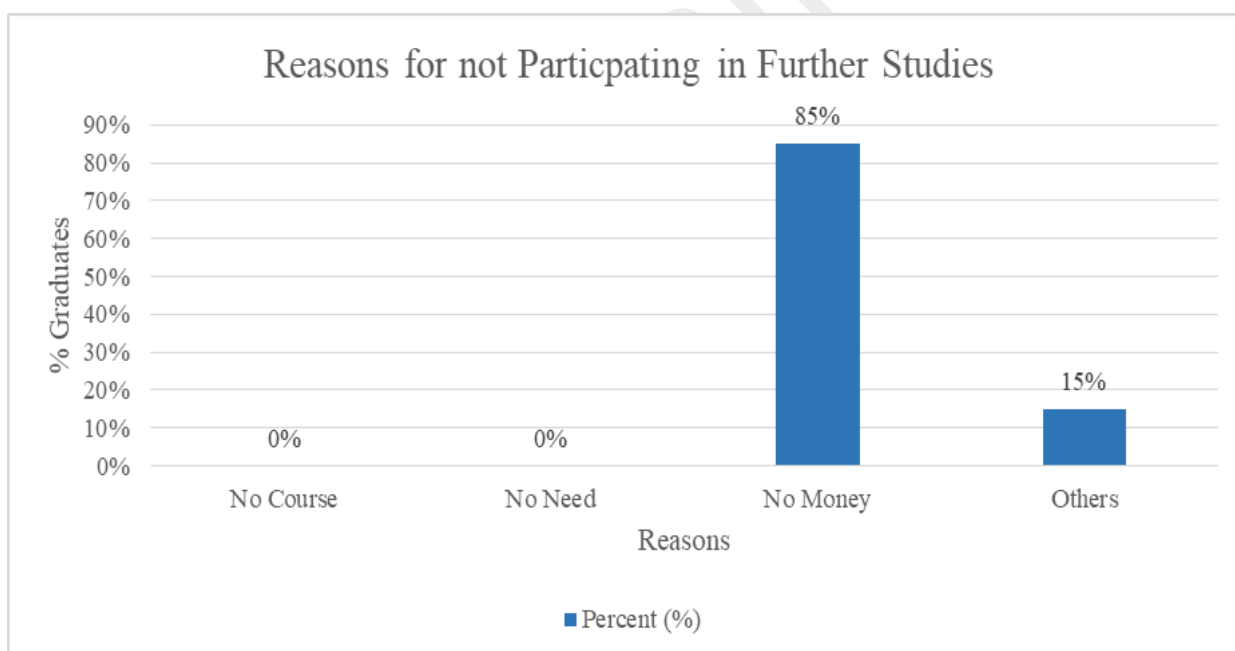
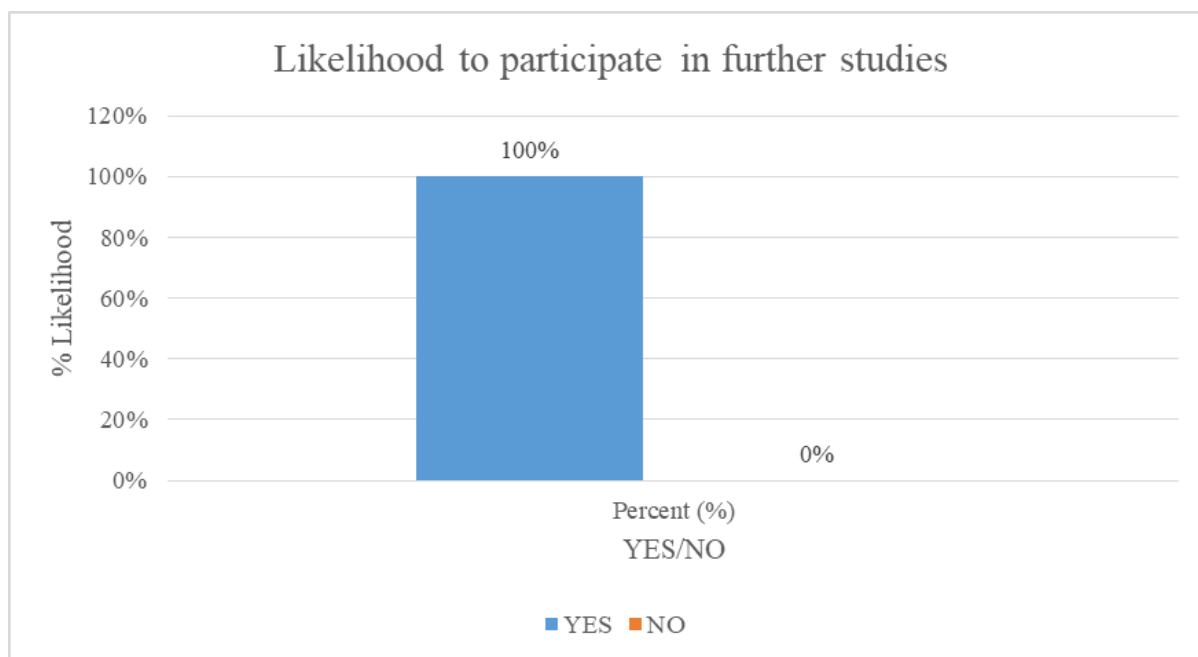


Figure 19 Likelihood of attending further training courses.



3.2.4 Assessment of job satisfaction by graduates

The following sections of this tracer study report will outline findings of the study with regards to employment issues. This section examines job satisfaction by the traced graduates. It is an assessment of employees towards their present jobs.

First the general satisfaction is measured on a five-point scale. This is followed with the measurement of eleven parameters on the same scale. The eleven parameters include: interesting work tasks, working with some independence, clear and regulated work tasks, applying what was learned when studying, job security, social status and recognition, putting own ideas into practice, income and benefits, good social climate / work setting, good career advancement prospects and ability to coordinate/ supervise work.

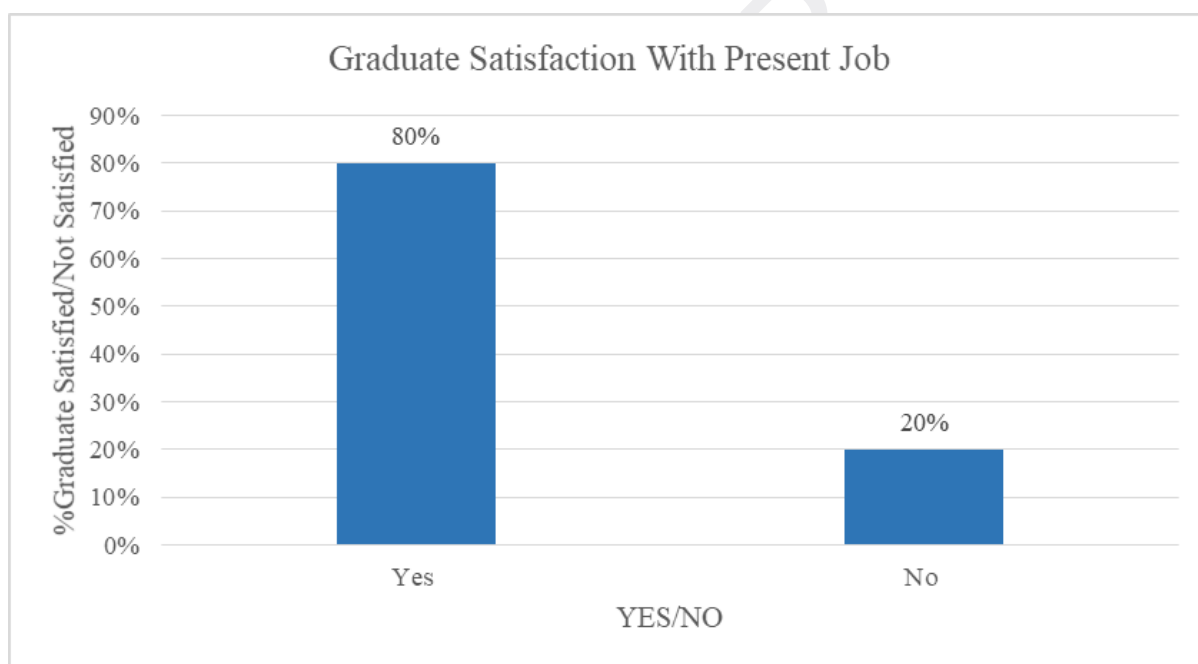
3.2.4.1 Assessment of job satisfaction by graduates

Table 20 captures general satisfaction of the graduates with their present job. Out of 41 traced graduates responsive to this question, 33 (80%) were satisfied with their present jobs while 8 (20%) were not satisfied with their present job.

Table 20 General satisfaction with present job.

SATISFACTION WITH PRESENT JOB			
SATISFACTION	Yes	No	Total
Frequency	33	8	41
Per cent	80%	20%	100%

Figure 20 General satisfaction with present job.



3.2.4.2 Degree of job satisfaction alongside 11 individual job parameters

The degree of satisfaction alongside 11 individual job parameters is measured on a five-point Likert scale as shown in Table 21 below.

The results are analysed based on the level of satisfaction on individual job parameters among the graduates.

This level of satisfaction has been defined as either not satisfied (1 - 1.4), least satisfied (1.5 - 2.4), moderately satisfied (2.5 - 3.4), satisfied (3.5 - 4.4) and very satisfied (4.5 - 5.0).

Table 21 Interpretation of level of job satisfaction.

INTERPRETATION OF THE LEVEL OF SATISFACTION					
Scale of satisfaction	1 – 1.4	1.5 – 2.4	2.5 – 3.4	3.5 – 4.4	4.5 – 5.0
Level of satisfaction	Not satisfied	Least Satisfied	Moderately Satisfied	Satisfied	Very Satisfied
Colour Code					

Table 22 below indicates that graduates are very satisfied with a mean satisfaction level of 4.7-5.0 by the fact that they apply what they learned, are assigned interesting work tasks that are clear and regulated and they can work with some independence.

Graduates were satisfied with a mean satisfaction level of 3.6-4.4 because they can coordinate/supervise work, have good career advancement prospects, they enjoy a good social climate / work setting and the job gives them social status and recognition.

Additionally, they expressed a moderate mean satisfaction level of 3.1-3.3 due to job security, income, and benefits.

Table 22 Measurement of satisfaction along individual job parameters.

Job parameters (a)	Job Satisfaction (b)					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Interesting work tasks	0	1	6	17	15	4	1.03	4.9
Being able to work with some independence	0	3	8	9	20	5	0.95	4.7
Clear and regulated work tasks	1	0	8	13	17	5	1.09	4.8

Job parameters (a)	Job Satisfaction (b)					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Possibilities for applying what you learned when studying	1	0	3	12	21	5	1.05	5.0
Job security	4	8	10	9	8	3	1.27	3.3
Social status and recognition	2	5	10	14	7	4	1.02	3.6
Possibilities to put your own ideas into practice	3	0	7	8	21	5	1.18	4.1
Income and benefits	6	7	10	8	8	3	1.34	3.1
Good social climate / work setting	2	5	11	6	14	5	1.25	3.7
Good career advancement prospects	3	0	8	11	17	5	1.15	4.0
Being able to coordinate/supervise work	1	1	4	9	24	5	0.95	4.4

3.2.5 Relationship between study and employment

In this section the report examines the teaching/learning conditions and provisions experienced by the 42 responsive traced graduates.

3.2.5.1 Teaching-learning conditions and provisions experienced at KIHBT.

The measurement of the teaching/learning conditions and provisions uses 27 parameters on a five-point Likert scale as shown below.

The results were analysed based on the level of satisfaction on teaching/learning conditions and provisions among the graduates.

This scale of satisfaction has been defined as either not satisfied (1 - 1.4), least satisfied (1.5 - 2.4), moderately satisfied (2.5 - 3.4), satisfied (3.5 - 4.4) and very satisfied (4.5 - 5.0).

Table 23 Interpretation of level of satisfaction with teaching/learning conditions and provisions.

INTERPRETATION OF THE LEVEL OF SATISFACTION					
Level of satisfaction	1 – 1.4	1.5 – 2.4	2.5 – 3.4	3.5 – 4.4	4.5 – 5.0
Satisfaction	Not satisfied	Least Satisfied	Moderately Satisfied	Satisfied	Very Satisfied
Colour Code					

Table 24 Rating the teaching-learning conditions and provisions experienced at KIHBT.

Teaching-learning Conditions and Provisions	Job Satisfaction					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Theoretical training related to the occupation	1	1	8	9	23	5	0.99	4.2
Practical use of computers	5	3	13	10	11	3	1.28	3.5
Practical use of working tools	2	1	11	9	19	5	1.11	4.0
Practical use of machines and equipment	1	4	9	10	17	5	1.11	3.9
Practical use of materials and parts	2	1	6	13	17	5	1.07	4.1
Theory and practice of equipment maintenance	3	2	8	8	18	5	1.25	3.9

Teaching-learning Conditions and Provisions	Job Satisfaction					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Understanding and producing drawings	2	3	9	12	16	5	1.14	3.9
Doing measurements at work	2	1	4	11	24	5	1.05	4.3
Use of written instructions and working guides	0	2	4	14	22	5	0.84	4.3
Communication	0	1	6	7	28	5	1.21	4.3
Working with other people	0	1	3	8	30	5	0.73	4.4
Knowledge of Construction laws	3	1	7	11	20	5	1.17	4.1
How to work in a safe way	1	2	4	8	27	5	1.0	4.4
How to do high quality work	0	2	2	10	28	5	1.04	4.4
Discipline and accuracy at work	0	0	4	8	29	5	0.96	4.5
How to start a business	0	3	6	17	14	4	1.08	4.0
General education subjects	1	2	8	12	17	5	1.02	4.1
Management of the institution	0	2	8	10	19	5	1.13	4.1
Standard of buildings, classrooms, and workshops/labs	2	3	10	11	16	5	1.1	3.9
Recreational activities	4	7	9	14	8	4	1.23	3.4
Support from teachers	0	2	10	7	22	5	0.97	4.2

Teaching-learning Conditions and Provisions	Job Satisfaction					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Competence of teachers	0	1	10	8	23	5	0.90	4.3
Teachers' experience of industry	0	1	9	10	22	5	0.87	4.3
Careers advice	0	1	8	10	23	5	0.86	4.3
Providing internship/industry-based training	7	6	9	11	9	3 and 5	1.37	3.2
Help in finding a job	10	5	15	7	4	3	1.26	2.8
Extent of satisfaction with studies in general	1	3	5	9	24	5	1.06	4.2

Regarding teaching-learning conditions and provisions at KIHBT, the graduates were very satisfied with a mean satisfaction level of 4.5 with the discipline and the accuracy they acquired while studying. Out of graduates traced, 89% indicated 'satisfied' as a mean satisfaction level of 3.5-4.4 while 7% were moderately satisfied with a mean of 2.5-3.4 by recreational activities, providing internship /industry-based training and help in finding a job.

3.2.6 Comments and recommendations by graduates

In this section, traced graduates shared their opinions on areas they would recommend to be improved in the programs offered by the Institute. Essentially these are areas that require professional attention to apply knowledge and skills to perform the job perfectly and efficiently. They also gave their comments and suggestions regarding the survey.

3.2.6.1 Graduates Comments and suggestions regarding this survey

Table 25 summarizes the important changes recommended for the Institute's program of study by the graduates. The findings indicate that the most common changes recommended are:

- 1) Enhance practical teaching.
- 2) Enhance quality and quantity of teachers.
- 3) Improve the facility and equip.

4) Enhance Job placement and career guidance.

Table 25 Important changes recommended for the program of study.

IMPORTANT CHANGES RECOMMENDED BY GRADUATES ON THE PROGRAMS	
Themes	Recommended Changes
Attachment	<ul style="list-style-type: none"> ● The institution to structure a way that the students can get attachment, internship and even job opportunities to enable skills development and placement of these students to the society. ● Longer attachment period
Internship	<ul style="list-style-type: none"> ● Request KIHBT as a leading TVET institute to connect Highway students with parastatals like KeNHA, KERRA, KURA and KRB ● Progress internships to job opportunities ● KIHBT to provide internships for graduates. ● The institution should liaise with any organisation or companies to offer benefits like retention. ● The institution should broadly link students with upcoming projects either domestically or externally for earlier preparations. ● Help students look for internships and jobs
Practicals	<ul style="list-style-type: none"> ● Training should be more practical oriented. ● Offer training projects. ● Equip the institution with more equipment for practical work. ● Highway Engineering students to have more practical lessons and more site visits to familiarize with what they study
Quality of Teachers	<ul style="list-style-type: none"> ● Training by more professional engineers ● Congratulations to the management and the highly skilled lecturers who willingly come to the aid of the students
Curriculum	<ul style="list-style-type: none"> ● Enhance drawing lessons on ArchiCAD, AutoCAD and Civil 3D. ● The institute should enhance training on total station machine and the Real Time Kinematic
Administration	<ul style="list-style-type: none"> ● Offer scholarships to needy students. ● Enable access to government loans to students through the Ministry of Education ● Sponsor graduates for Capacity building courses like PBC and Contract Management Course offered at KIHBT. ● Institution to allow flexible fee payment
Facilities	<ul style="list-style-type: none"> ● Construct a well-equipped material testing lab for Highway Engineering students. ● Construct a well-equipped computer laboratory for students. ● Improve the Wifi network in the whole institution beyond the library

Job Opportunities	<ul style="list-style-type: none"> ● Help graduates find job opportunities
--------------------------	-------------------------------------------------------------------------------------------

3.2.6.2 Graduates comments and suggestions regarding this survey

Table 26 below summarizes comments and suggestions made by graduates traced regarding this survey. These comments were captured under three themes:

- 1) Good survey: where the graduates commended the Institute for doing a postgraduate follow up.
- 2) Administration: where graduates are looking forward to an improved KIHBT
- 3) Job Opportunities: Graduates recommended the Institute to consider them for job placement.

Table 26 Graduates comments and suggestions regarding this survey.

Themes	Comments and Suggestions
Good survey	<ul style="list-style-type: none"> ● It's good to do the survey because it encourages the students to do more of the works and maintain the skills we were taught. ● It is of much importance since it enables the school to do follow up on their students. ● It's very noble sense of idea since the student feels some sense of connection and care from the institution, staff, and management. ● The survey was good. Since it enabled the students understand how the training helped them during the time of study and what I gained from the organization they were attached to ● The survey was perfect it gives students motivation that KIHBT cares after students are done with schooling. ● The program is positive to KIHBT alumni because it ensures good relation between the school and former students. ● Helps in identifying the progress of trainees making them feel supported in the field of study. ● It's a good step to follow up on how the past graduates and fairing on and I really commend you on that. ● Good survey and much better upon implementing the successful outcomes. ● Excellent students follow up. ● Well, done. ● The survey is well conducted and will help improve the institution. ● Satisfied with the survey. ● Encourages the institute to visit as many students as possible. ● Hope it improves the student's learning experience. ● Helpful ● It is good and encouraging to conduct such a survey and follow up for students.

	<ul style="list-style-type: none"> ● The survey was fantastic. ● The survey plays a major role in changing the graduate's career path. ● Thank you very much. Follow up appreciated. ● Give ample advance notice for preparation before visitation. ● Craft Certificate in road construction is one of the best courses that offers best knowledge in road construction therefore let it be improved to be better to the students. ● Sensational
Administration	<ul style="list-style-type: none"> ● Looking forward to a changed KIHBT
Job Opportunities	<ul style="list-style-type: none"> ● Help unemployed graduates to secure jobs. ● Offer contracts to the unemployed graduates. ● Assist the students to secure internships and attachments

EASTRIP

3.3 EMPLOYERS' FINDINGS AT THE KENYA INSTITUTE OF HIGHWAY & BUILDING TECHNOLOGY

This section presents the Employers' views on graduates' performance at work enabling the Institute to evaluate the effectiveness of its current curricula and identify areas of improvement on it to meet the market/industry demands. This was achieved by assessing how the Employers conduct their recruitment procedures in their organisation, if the training prepared the graduates adequately and if graduates can apply knowledge and skills acquired at KIHBT.

The survey aimed to highlight education and employment reforms and policies where decision makers in the Institute should focus on.

3.3.1 Organisation's Information

Section 3.3.1. captures the organisation's information by the industry sectors they are in and the role/position of the respondent.

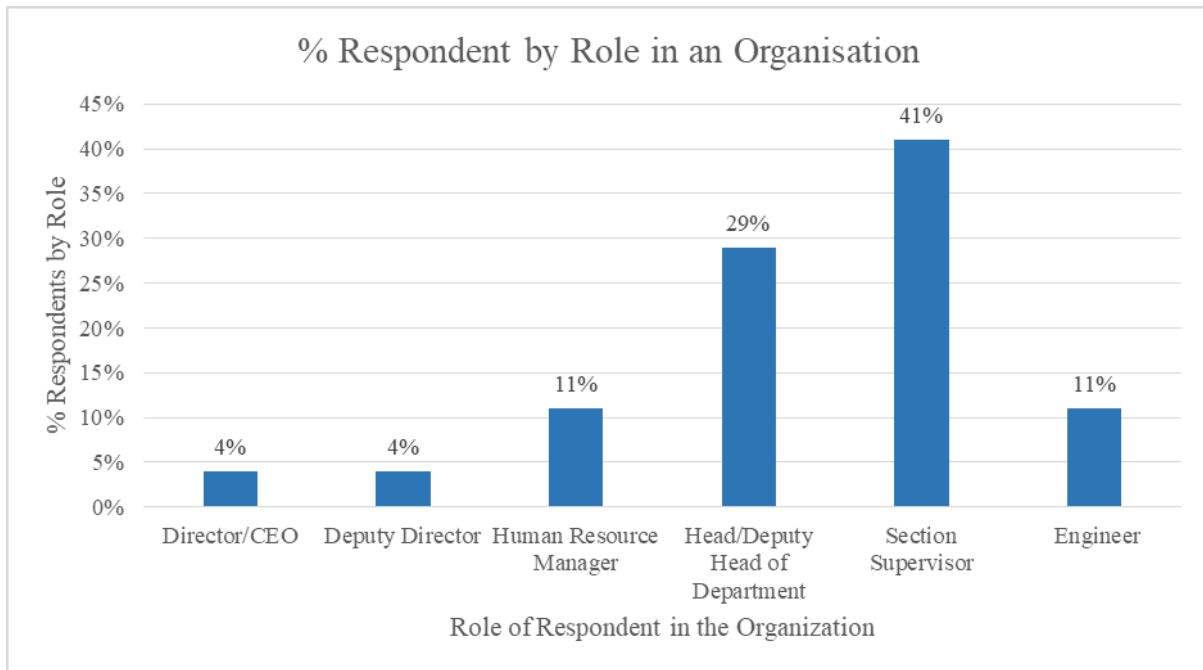
3.3.1.1 Role/Position of traced Employers

The survey was able to trace 27 employers in total. The statistics in Table 27 indicates that out of the Employers traced; about 4% were Directors, 4% were Deputy Directors, 11% were Human Resource Managers, 29% were Heads of Department, 41% were section Supervisors and 11 % were Engineers in charge of the projects.

Table 27 The role/position of traced employers

THE NUMBER OF EMPLOYERS AND THEIR ROLE/POSITION						
	Role/Position					
	Director/CEO	Deputy Director	Human Resource Manager	Head/Deputy Head of Department	Section Supervisor	Engineer
Frequency	1	1	3	8	11	3
Per cent	4%	4%	11%	29%	41%	11%

Figure 21 The role/position of traced employers.



3.3.1.2 Traced Employers of Graduates by Industry Sector

The industry sectors were grouped to adequately accommodate all sampled employers.

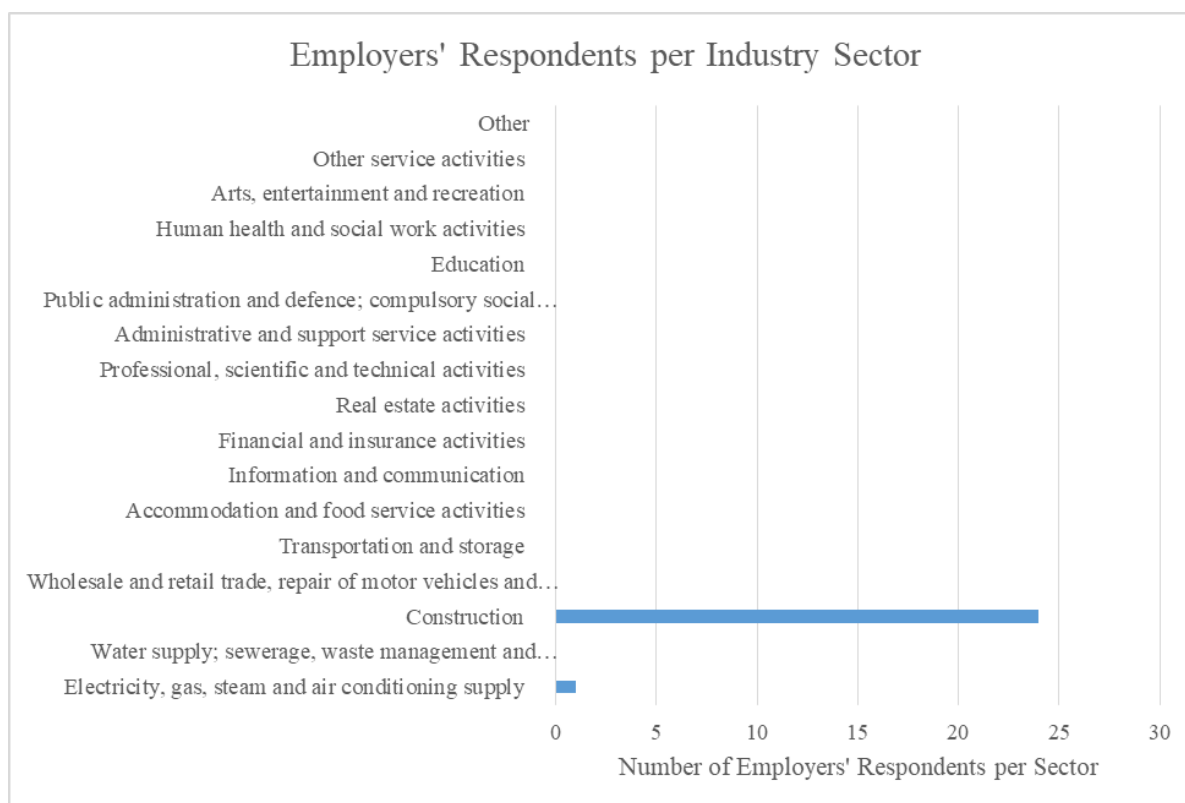
Table 26 summarizes how the traced employers spread across different industry sectors. The statistics indicate that of the 27 employers traced, 24 (88%) were from the Construction sector and 3 were each from Agriculture, forestry and fishing, Manufacturing and Electricity, gas, steam and Air conditioning supply.

Table 28 Employers of graduates by industry sectors.

EMPLOYERS OF GRADUATES BY INDUSTRY SECTOR		
Industry Sector	Frequency	Per cent
Agriculture, forestry and fishing	1	4%
Mining and quarrying	-	-
Manufacturing	1	4%
Electricity, gas, steam and air conditioning supply	1	4%
Water supply; sewerage, waste management and remediation activities	-	-
Construction	24	88%

EMPLOYERS OF GRADUATES BY INDUSTRY SECTOR		
Wholesale and retail trade, repair of motor vehicles and motorcycles	-	-
Transportation and storage	-	-
Accommodation and food service activities	-	-
Information and communication	-	-
Financial and insurance activities	-	-
Real estate activities	-	-
Professional, scientific and technical activities	-	-
Administrative and support service activities	-	-
Public administration and defence; compulsory social security	-	-
Education	-	-
Human health and social work activities	-	-
Arts, entertainment, and recreation	-	-
Other service activities	-	-
Other	-	-
Total	27	100%

Figure 22 Employer of graduates industry sector.



3.3.2 Recruitment Procedures and Criteria

The survey examined the procedures and criteria applied by Employers during recruitment as follows:

- Recruitment Procedures
- The number of KIHBT graduates employed.
- Gender preference
- Important aspects for recruitment of TVET graduates
- Satisfaction with quality of training received by TVET graduates.
- Satisfaction with demonstration of knowledge and skills
- Training gap
- Skills shortage

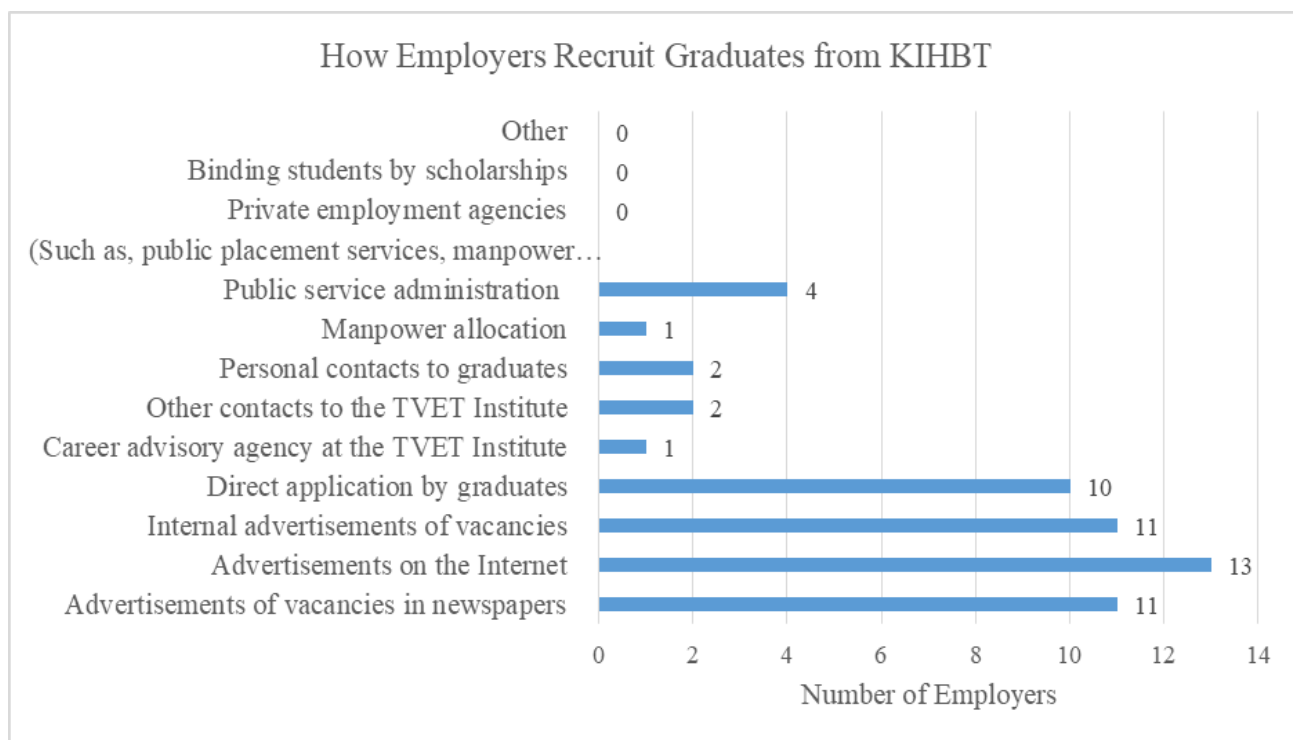
3.3.2.1 How Employers Recruit KIHBT Graduates

Table 29 captures the means and ways with which employers recruit graduates. 23% of the traced employers recruit graduates through Advertisements of vacancies on the internet, 20% on newspapers 20% through internal advertisement, and 18% through direct application.

Table 29: How employers recruit graduates.

How Employers Recruit Graduates	Frequency	Per cent
Advertisements of vacancies in newspapers <i>(Such as, daily papers, special periodicals)</i>	11	20%
Advertisements on the Internet	13	23%
Internal advertisements of vacancies	11	20%
Direct application by graduates	10	18%
Career advisory agency at the TVET Institute	1	2%
Other contacts to the TVET Institute	2	4%
Personal contacts to graduates	2	4%
Manpower allocation	1	2%
Public service administration <i>(Such as, public placement services, manpower allocation system)</i>	4	7%
Private employment agencies	-	-
Binding students by scholarships	-	-
Other	-	-
Total		100

Figure 23 How Employers recruit KIHBT graduates.



3.3.2.2 Statistics of Graduates in Employment

The statistics in Table 30 shows that the traced employers have engaged **57%** male and **43%** female graduates from TVET.

Table 30 Number of Graduates in Employment.

KENYA INSTITUTE OF HIGHWAY AND BUILDING TECHNOLOGY GRADUATES IN EMPLOYMENT BY GENDER			
	Male	Female	Total
Total	48	36	84
Per cent	57%	43%	100%

3.3.2.3. Aspects Considered in the recruitment of TVET Graduates

Employers were asked to rate the degree of importance for each of the eleven (11) aspects they consider during recruitment of TVET Graduates. The degree of importance for each aspect is represented using a five-point Likert scale as shown below.

Table 31 below captures the degree of importance for each of the aspects considered when recruiting TVET Graduates. Results have been taken from a sample of 26 Employers who

presently employ TVET graduates. This scale of Importance has been defined as either not satisfied (1 - 1.4), least satisfied (1.5 - 2.4), moderately satisfied (2.5 - 3.4), satisfied (3.5 - 4.4) and very satisfied (4.5 - 5.0).

Table 31 Interpretation of degree of importance.

INTERPRETATION OF THE DEGREE OF IMPORTANCE					
Scale of Importance	1 – 1.4	1.5 – 2.4	2.5 – 3.4	3.5 – 4.4	4.5 – 5.0
Level of Importance	Not important	Less Important	Moderately Important	Important	Very Important
Colour Code					

Regarding the degree of importance of these recruitment aspects, Employers consider the reputation of the Institute as the most important recruitment aspect, with a mean score of 5.0.

Personality and behaviour, personal presentation, communication skills, area of specialization, and field of study are also considered very important, with mean scores of 4.5-4.8.

Practical experience during study, exam grades, the candidate's worldview, recommendations/references, and recruitment test results are considered important aspects, with mean scores of 4.2-4.4.

Table 32 Importance of aspects for the recruitment of graduates.

Recruitment Aspects	Degree of Importance					Mode (Most frequent level of importance)	Standard Deviation	Mean Importance Score
	1	2	3	4	5			
Field of study	0	0	1	10	15	5	1.16	4.5
Main focus of subject area/specialization	0	0	5	12	10	4	0.83	4.6
Grades of examinations at the TVET Institute	0	0	3	16	10	4	0.63	4.3
Practical experience acquired during course of study	0	1	2	6	16	5	0.81	4.4
Reputation of TVET Institute	0	0	0	9	17	5	0.143	5.0
Recommendations/references from third persons	0	0	3	13	8	4	0.64	4.2
Results of recruitments tests	0	0	3	14	8	4	0.63	4.2
Communication skills	0	0	1	8	17	5	0.56	4.6
Personal presentation	0	0	1	6	18	5	0.55	4.7
Personality and behaviour	0	0	0	6	19	5	0.43	4.8
Candidate's own world view	0	0	4	9	12	5	0.73	4.3

3.3.2.4 Employers' Satisfaction with quality of training received by graduates.

Employers measured their degree of satisfaction with the training received by the Graduates using a five-point Likert scale. This scale of satisfaction has been defined as either not satisfied (1 - 1.4),

least satisfied (1.5 - 2.4), moderately satisfied (2.5 - 3.4), satisfied (3.5 - 4.4) and very satisfied (4.5 - 5.0).

Table 33 Interpretation of level of satisfaction with the quality of training.

Interpretation of level of satisfaction					
Range	1 -1.4	1.5-2.4	2.5-3.4	3.5-4.4	4.5-5.0
Satisfaction	Not satisfied	Least satisfied	Moderately Satisfied	Satisfied	Very Satisfied
Colour Code					

Table34 captures the employer’s degree of satisfaction with the quality of training received by graduates. Results taken from a sample of 27 employers of TVET graduates indicate that they were very satisfied with a mean satisfaction level of 4.8.

Table 34 Employers’ satisfaction with quality of training received by graduates.

Satisfaction	Satisfaction with Quality of Training					Mode (Most frequent satisfaction level)	Standard Deviation	Mean Satisfaction Score
	1	2	3	4	5			
Frequency	0	0	0	6	21	5	0.42	4.8

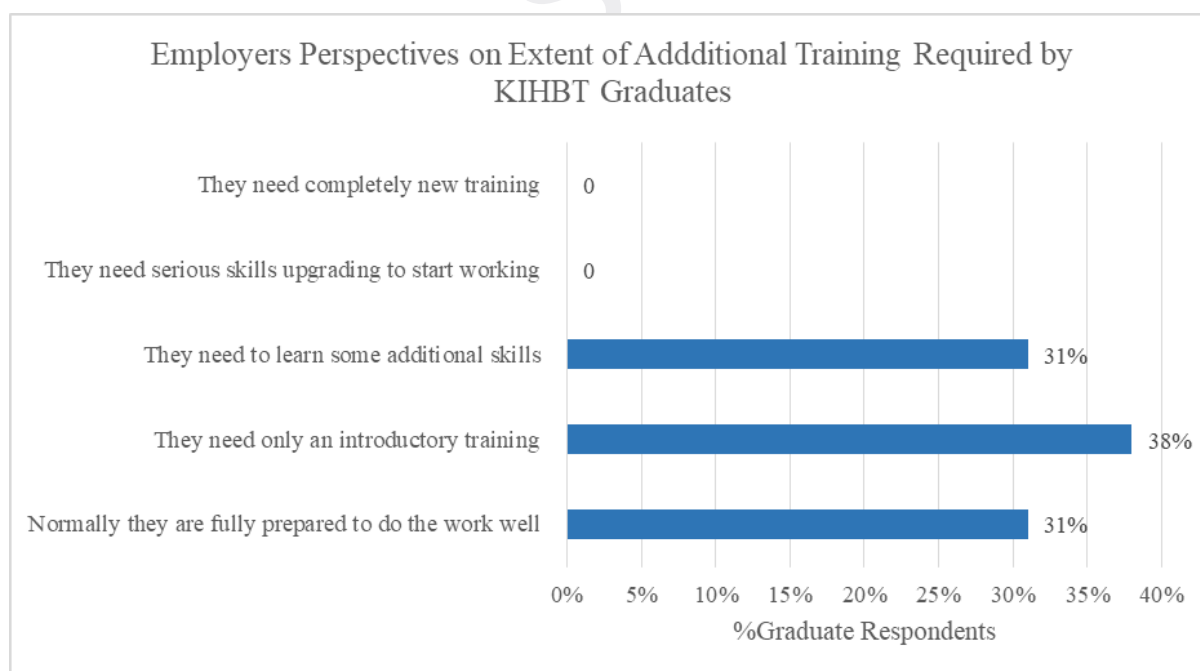
3.3.2.5 The need for additional training of TVET graduates

Table35 summarizes the employers’ views on the extent of additional training required by graduates from TVET institutes. The statistics shows that the traced Employers indicated that 31% of the graduates they have employed are normally fully prepared to learn, 38% need an introductory training while only 31% need to learn additional skills to enable them to perform at the workplace as shown in Figure 3.25 below.

Table 35 Employers opinions on the need for additional training of graduates.

EMPLOYERS' PERSPECTIVE ON EXTENT OF ADDITIONAL TRAINING REQUIRED BY KENYA INSTITUTE OF HIGHWAY & BUILDING TECHNOLOGY GRADUATES		
	Frequency	Per cent
Normally they are fully prepared to do the work well	9	31%
They need only an introductory training	11	38%
They need to learn some additional skills	9	31%
They need serious skills upgrading to start working	0	-
They need completely new training	0	-
Total	29	100%

Figure 24 Employers' Opinions on the need for additional training of graduates.



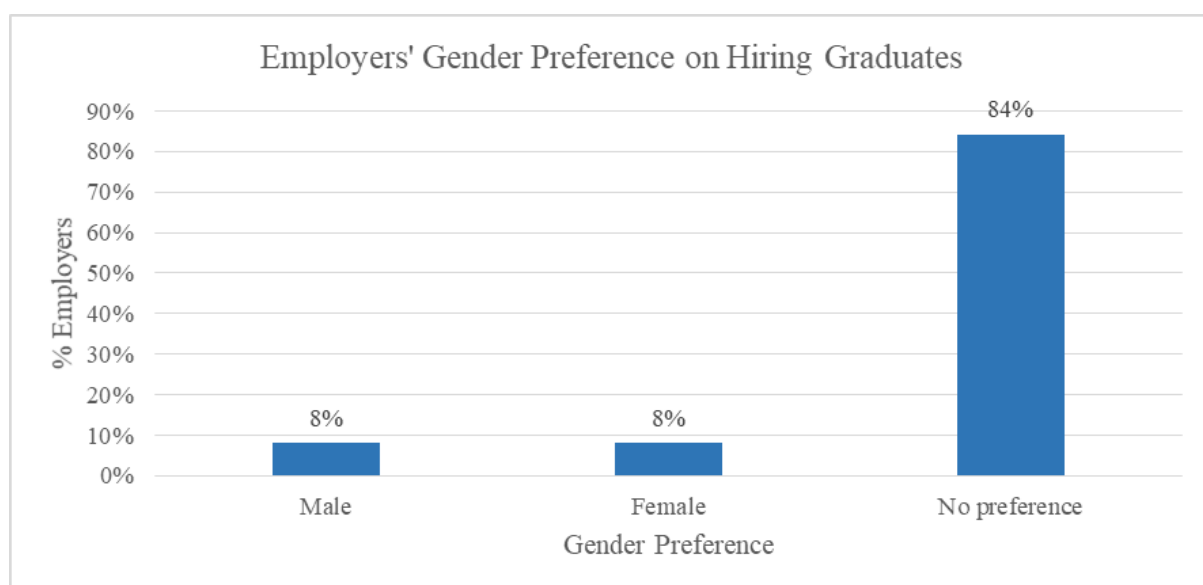
3.3.2.6 Employer's preference regarding gender of graduates

Table 36 indicates the gender of graduates that the employer's prefer during recruitment. 84% of the employers have no gender preference while 16% of the employers preferred either male or female employees.

Table 36 Employer's preference regarding gender of graduates.

Gender	Male	Female	No preference
Frequency	2	2	22
Percent (%)	8%	8%	84%

Figure 25 Employer's preference regarding gender of graduates.



Reasons for 'No gender preference' by Employers

- i. All human beings have a right to employment and better life and all genders have their own area of speciality.
- ii. We are an equal employer.
- iii. Encourage gender balanced recruitment.
- iv. The organization abides by government regulations on a third($\frac{1}{3}$) rule for gender.
- v. Everyone deserves a fair chance; equality is much needed in a normal functioning society.
- vi. They value both genders.
- vii. All gender is able.

- viii. We always consider both gender like now we have new graders and rollers, so we employ either gender.
- ix. Everyone is capable irrespective of the gender on the success of the organization.
- x. In the engineering field we test the candidate's knowledge about the scope of the works. Either gender gets an equal opportunity
- xi. We base our recruitment methodology on individual practical experience.
- xii. Recruitment is based on personal qualifications.
- xiii. Qualified personal with good working experience and ready to meet company expectations.

3.3.2.7 Employers’ responses to the importance of knowledge and skills of graduates

Employers measured their level of satisfaction with the knowledge and skills of the graduates using a five-point Likert scale. This scale of level satisfaction has been defined as either not satisfied (1 - 1.4), least satisfied (1.5 - 2.4), moderately satisfied (2.5 - 3.4), satisfied (3.5 - 4.4) and very satisfied (4.5 - 5.0).

Table 37 Interpretation of level of satisfaction on the importance of knowledge and skills.

Range	1-1.4	1.5-2.4	2.5-3.4	3.5-4.4	4.5-5
Satisfaction level	Not at all Satisfied	Somewhat not Satisfied	Neither Satisfied Nor Dissatisfied	Satisfied	Very Satisfied
Colour Code					

Table 38 illustrates employers' satisfaction with the knowledge and skills of graduates. Employers report very high satisfaction (mean level 4.5-4.7) with graduates' abilities to work with others, perform measurements, follow written instructions and guides, work safely, and maintain discipline and accuracy.

They report satisfaction (mean level 3.9-4.4) with graduates' practical use of tools, communication skills, work quality, practical use of machines and materials, industry knowledge, equipment maintenance theory and practice, research and innovation, computer

proficiency, entrepreneurial skills, understanding and producing drawings, general education subjects, and the overall quality of graduates.

Table 38 Employers' level of satisfaction with the knowledge and skills of graduates.

EMPLOYERS' LEVEL OF SATISFACTION WITH THE KNOWLEDGE AND SKILLS OF GRADUATES								
Knowledge and Skills Aspects	Level of General importance					Mode	Standard Deviation	Mean level of satisfaction
	1	2	3	4	5			
Theoretical training related to the occupation	0	0	4	13	9	4	0.68	4.2
Practical use of computers	1	0	4	14	7	4	0.88	4.0
Practical use of working tools	0	0	4	8	14	5	0.74	4.4
Practical use of machines and equipment	0	0	3	12	10	4	0.67	4.3
Practical use of materials and parts	0	0	2	14	10	4	0.56	4.3
Theory and practice of equipment maintenance	0	0	3	16	5	4	0.57	4.1
Understanding and producing drawings	0	0	5	15	11	4	0.69	4.2
Doing measurements at work	0	0	2	10	14	5	0.63	4.5
Use of written instructions and working guides	0	0	2	9	15	5	0.63	4.5
Communication	0	1	3	6	17	5	0.83	4.4
Working with other people	0	0	0	7	20	5	0.44	4.7

EMPLOYERS' LEVEL OF SATISFACTION WITH THE KNOWLEDGE AND SKILLS OF GRADUATES								
Knowledge and Skills Aspects	Level of General importance					Mode	Standard Deviation	Mean level of satisfaction
	1	2	3	4	5			
Knowledge of the industry	0	0	3	14	10	4	0.64	4.3
How to work in a safe way	0	0	2	10	15	5	0.63	4.5
How to do high quality work	0	0	1	13	12	4	0.57	4.4
Discipline and accuracy at work	0	1	0	10	16	5	0.69	4.5
How to start a business	0	0	9	13	5	4	0.70	3.9
General education subjects	0	0	4	15	8	4	0.65	4.2
Research and innovation	0	1	6	11	10	4	0.84	4.1
The quality of the TVET graduates in general	0	0	1	13	13	4 and 5	0.57	4.4

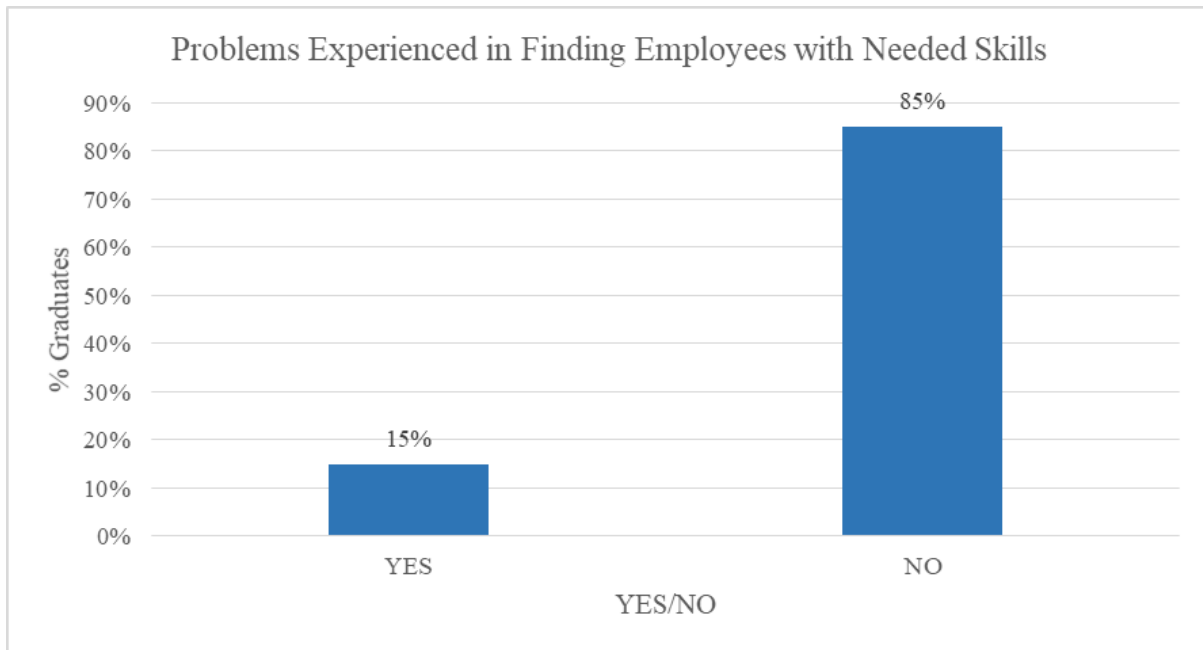
3.3.2.8 Employers' Perspective on Problems finding employees with the needed skills.

Table39 summarizes the responses from employers on their experience in finding employees with the needed skills. Out of the 27 employers,85 % have not experienced challenges finding employees with the needed skills while 15% have experienced some challenges finding employees with the needed skills as shown in Figure 3.27 below.

Table 39 Problems experienced in finding employees with the needed skills.

PROBLEMS EXPERIENCED IN FINDING EMPLOYEES WITH THE NEEDED SKILLS		
YES/NO	Yes	No
Frequency	4	23
Per cent	15%	85%

Figure 26 Problems Experienced in finding employees with needed skills.



3.3.2.9 Severity of the skills shortages

Employers measured their level of severity on the skills shortages using a five-point Likert scale. This scale of level of severity on the skills shortages has been defined as either very severe (1 - 1.4), severe (1.5 - 2.4), moderately severe (2.5 - 3.4), adequate (3.5 - 4.4) and very adequate (4.5 - 5.0).

Table 40 Interpretation of level of severity on the skills shortages.

Range	1-1.4	1.5-2.4	2.5-3.4	3.5-4.4	4.5-5.0
Verbalisation	Very Severe	Severe	Moderately severe	Adequate	Very adequate
Colour Code					

Table 41 Summarizes the Employers' views on the extent of severity of the skills shortages. The Employer's report severity in getting skilled supervisors with a mean level of severity of 2.3. the skill shortage for semi-skilled, skilled workers and technical/engineers was moderately severe.

Table 41 Severity of the skills shortages

	Frequency					Mean Level of severity
	1	2	3	4	5	
Semi-skilled	1	1	1	1	0	2.5
Skilled worker	1	1	1	0	1	2.8
Technician/engineer	0	1	2	1	0	3.0
Supervisory/management	0	3	1	0	0	2.3

3.3.3 Comments and Recommendations

The traced employers gave their recommendations in regard to equipping graduates with additional skills that would enable them to perform their job efficiently. They also gave their comments and suggestions regarding this survey.

3.3.3.1 Programs recommended by Employers.

Table 42 summarizes the various training programs recommended for adoption at the Institute by Employers. The analysis indicates that the most common recommendations for the Institute's program is the need to introduce more practical work for learners and programs that are responsive to the current trends in the industry.

Table 42 Important changes recommended for the programme of study.

PROGRAMS OF STUDY RECOMMENDED BY EMPLOYERS	
1	First aid training
2	CAD Design Drafting (Civil 3D and AutoCAD)
3	Offer more practicals on survey equipment
4	More practicals for better understanding of the theoretical aspects
5	ICT skills training
6	Supervisory Management Course
7	Record management
8	Safety Operation Procedures
9	Field work for inspectorate works
10	Low Volume seal roads
11	Entrepreneurship skills. Be trained on change of attitude from employment jobs to entrepreneur since there exists Uwezo fund for groups and youth
12	Material testing and drawing training
13	Monitoring and Evaluation
14	Project planning and management
15	Emphasis on Life Skills for change of attitude, consultation, public participation programs and public speaking
16	Performance Based Contractors course

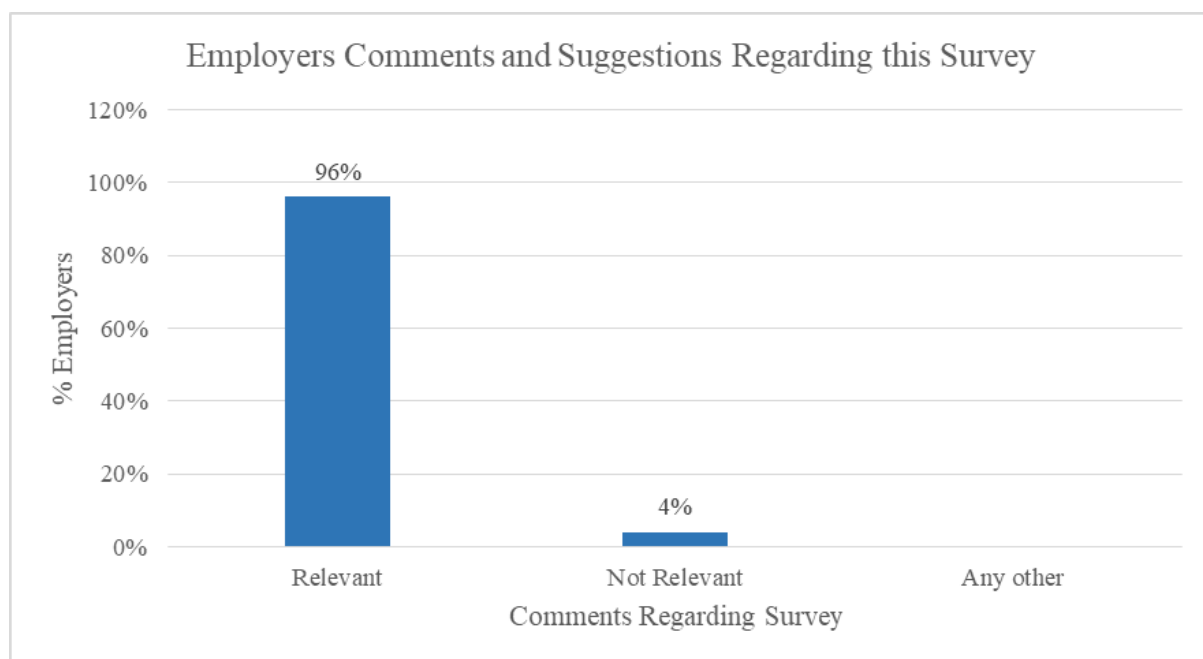
3.3.3.2 Employers' Comments and suggestions regarding this survey

Table 43 summarizes the comments and suggestions regarding this survey as made by employers. 96% of the employers traced in this report indicate that the survey was relevant while 4% did not find the survey relevant.

Table 43 Employers' comments and suggestions regarding this survey.

Comment regarding survey	Frequency	Percent (%)
Relevant	26	96%
Not Relevant	1	4%
Any other	0	0%

Figure 27 Employers comments and suggestions regarding relevance of the survey.



4. SUMMARY OF FINDINGS AND THE CORRESPONDING RECOMMENDATIONS

This tracer study report provides specific and general findings regarding graduate employability and employer's feedback on quality of programs based on aspects of curricula that match job tasks for graduate employees. The findings presented herein were derived through analysis of quantitative and qualitative data and information obtained through a sample survey administered to graduates and employers in the highway engineering and construction sector. This report highlights findings from Graduates of Highway Engineering related programs such as Diploma in Highway Engineering and Craft Certificate in Road Construction (CCRC) at KIHBT. It also captures highlights of literature review of relevant studies and policy documents. This section covers a summary of findings and the corresponding recommendations of the tracer study.

4.1. GENERAL FINDINGS

4.1.1. Graduate database management

Finding: The Institute has performed relatively well on management of the graduate database especially in Highway Engineering related programs. Considering the experiences learnt during the previous studies, the data has consistently been acquired in the same methods and form as in the previous years.

Recommendation: To sustain a robust graduate database management system, KIHBT should adopt an integrated digital platform and centralized database upon which graduate employment and employer feedback can be stored and managed for future improvement. Online surveys and other methods such as return post mail can be introduced using student mails registered using the school account and domain.

It is recommended that the already established alumni associations could assist in updating the database of the employees.

Finding: Most graduates found their jobs within the first three months upon graduating

Recommendation: Create industry linkages to improve graduate employment rates

Collaboration with road sector agencies mandated to plan, develop, and maintain national roads will improve linkage opportunities in areas such as internship, employment and practical training in industry.

4.1.2 Summary of Recommendations of the Tracer Study

In summary, this report recommends that KIHBT needs to enhance practical training, enhance quality and quality of teachers, improve facilities and equipment, enable job placement, and career guidance and enhance competency-based curriculum implementation across all TVET programs to improve quality of graduates whose skills match the latest demand in the labour market. The Institute should continuously pursue targeted collaborations through industry linkages and graduate internship programs aimed at improving employability rate.

4.2. MAJOR SPECIFIC FINDINGS OF THE TRACER STUDY

4.2.1. KIHBT Graduates

4.2.1.1 Gender Balance

Finding: 68% respondents were male while 32% were female. This reflects the need to implement efforts to improve gender balance within the Road Construction Sector.

Recommendation: Sensitization of technical courses and specifically Highway courses to female students in High Schools and affirmative action on accommodation of female students.

4.2.1.2 Graduate Employment Rate

Finding: 50% of the respondents were employed within six months of graduating. A further 8% were self-employed, 12% were in further academic training while 30% were neither employed nor self-employed

Finding: The overall graduate employment rate is at **70%** compared to **66%** last year. In addition, this employment rate was disaggregated in terms of gender, indicating that the female employment rate is **69%** which represents an overall improvement from **67%** employability in the previous tracer study.

4.2.1.3 Media of employment

Finding: About 43% graduates found their present job through relatives, friends & colleagues compared to 40% who obtained their employment through direct applications.

The results obtained through this tracer study can potentially reveal several crucial issues for review in the implementation of the apprenticeship model and enhancement of industry linkages.

Furthermore, it is also interesting to highlight that 5% of graduates traced secured employment via Newspaper, TV, and Radio, 5% by industry linkages and referrals or endorsements and 2% by social media.

Recommendation: Enhance industry linkages that will promote access to job opportunities through professional networks such as Institute of Engineers of Kenya, Kenya Technicians Registration Board, Road and Civil Engineering Contractors Association, Kenya Federation of Master Builders (KFMB) and industry stakeholders such as the National Construction Authority (NCA), Kenya Roads Board, Kenya Rural Roads Authority (KeRRA), Kenya National Highways Authority (KeNHA) and Kenya Urban Roads Authority (KURA) amongst graduates to increase access to job placement/vacancies notices on a regular basis.

4.2.1.4 Reasons for lack of employment

Finding: 34% of graduates were unable to secure job opportunities arguing that there were no opportunities available in the market that were related to the subject areas they trained in. However, 29% were pursuing further studies.

Recommendations: It is recommended that the Institute organizes more career fairs and conferences to bring industry stakeholders closer to graduating students. This will increase uptake of graduates through attachments and internships which would give them exposure or perhaps transition into a job. The Institute may consider fast tracking access to training roads through collaboration with the agencies in the state department for roads.

Finding: 31% percent of unemployed graduates traced stated that they had “Unsuccessful Job Applications”. This could largely be attributed to shortage of job opportunities in the prevailing economic sector where most road projects have stalled.

This confirms that under circumstances where there are shortages of jobs in the labour market, graduates find it difficult to secure jobs.

Recommendations: The Institute may formulate an internal policy for Graduates Internship Programme (GIP) which incorporates industry partners in public and private sectors. In this policy, areas of collaboration can include but are not limited to providing capacity building at a subsidized rate to partner industry organizations in return for graduate internship opportunities, cooperative training programs for a minimum of three months before graduating to acquire on the job experience as well as partnership in research an innovation for technical skills relevant to the road sector in Kenya. Additionally, this policy may necessitate budget allocation for the successful implementation of the graduate internship program at the institute.

4.2.1.5 Relationship between Work and Course Followed

Finding: The study revealed that 92% of all graduate respondents indicated that there is a relationship between the work they do and the programs they pursued at the Institute. In comparison, about 8% of all graduate respondents indicated that there is no relationship between the work they do and the programs they pursued at the Institute. The main “Reasons for lack of relationship between Study and Work” is that graduates did not find job opportunities that are related to their course of study. About 22% of graduates indicated that knowledge and practical skills are key requirements towards acquiring and performing your tasks.

Recommendations: Increase the number of hours for practical sessions (about 70% of total contact hours) to enable the transfer of necessary competencies to graduates which will eventually help them to obtain the right jobs in industry and perform in their duties.

Recommendations: Establish a Career’s Guidance and Counselling unit in the Industry Liaison Department in every campus to initiate and implement career mentorship programs. Involve staff and students to participate in career fairs and symposiums to enable linkages and partnerships.

4.2.1.6 Participation in Further Training

Finding: About 23% of graduate respondents are currently participating in further training compared to 77% graduates who are not participating in further training. About 85% of graduate respondents indicated that the main reason for not participating in further training was that they don't have money to pay for further training. However, 100% of graduate respondents indicated likelihood of participating in further training.

Recommendation: One of the remedies suggested by the graduates is to consider offering scholarships to high performing students. Since all graduate respondents indicated a high likelihood of pursuing further training, the study recognized the importance and need for upskilling to promote career development. The Institute needs a policy for rewarding best performing students through scholarships of various categories including subject specific, course specific or industry specific awards. This policy could also extend to tap on alumni support and industry support by establishing an award and scholarship policy in the institute.

4.2.1.7 Satisfaction with Present Job

Finding: A mean satisfaction of 4.7-5.0 by the graduate respondents indicated they were “very satisfied” with their present job while a mean satisfaction of 3.6-4.4 indicated ‘satisfied’ with their present jobs.

Measure of satisfaction against 11 individual parameters on a five-point scale indicated that graduates were “very satisfied” with their jobs since they can apply what they learned, are assigned interesting work tasks that are clear and regulated and they can work with some independence.

Graduates were “satisfied” with the ability to coordinate/supervise work, career advancement prospects, a good social climate/work setting and the social status and recognition that comes along with their jobs. A “moderate satisfaction” on job security, income and benefit was expressed.

Recommendation: Trade unions and Professional bodies to further action on fair remuneration of the technicians.

4.2.1.8 Teaching-learning conditions and provisions

Finding: Out of the graduate traced a mean satisfaction level of 4.5 translating to “very satisfied” with the discipline and the accuracy they acquired while studying was indicated. 89% indicated ‘satisfied’ as a mean satisfaction level of 3.5-4.4 while 7% were moderately satisfied with a mean of 2.5-3.4 by recreational activities, providing internship /industry-based training and help in finding a job.

Recommendations: Increase support to graduates in finding jobs in the market through internships and training roads. Enable a robust industry collaboration in training and job creation to facilitate uptake of graduates.

4.2.2. Employers’ perspectives

4.2.2.1 Recruitment of KIHBT graduates

Finding: The study found out that 23% of Employers recruited graduates from KIHBT through adverts and internet, 20% through newspapers and 20% through internal adverts and vacancies

Recommendations: KIHBT to improve the visibility of Employers in the Institutes website through adding industry partners logos and web address to enhance the awareness of graduates regarding its partners.

4.2.2.2 Additional Training

Finding: On the need for additional training of KIHBT graduates’ 50 percent of the Employers believed the KIHBT Graduates should learn some additional skills so that they are more equipped to handle work tasks.

Recommendations: There is a need to regularly liaise with employers to reduce the gap between level of training at TVET level and the requirement by employers.

4.2.2.3 Knowledge and skills

Finding: On a five-point scale showing the level of satisfaction with the knowledge and skills of graduates two of the most important drivers for employers' Level of satisfaction was Discipline and accuracy at work and the quality of the KIHBT graduates in general. The least drivers for employers' level of satisfaction with the knowledge and skills demonstrated by graduates was practical use of working tools.

Recommendations: The Institute should enhance practical use of computers and equipment and tools as these are important to employers.

4.2.2.4 Other findings based on Employers Perspectives

Finding: Employers respondents' roles in their organization indicated in 29% as Head/Deputy Head of Department and 41% as Section Supervisors.

Recommendation: It is recommended that target respondents to this tracer study survey remain as immediate supervisors of graduates employed within an organization.

Finding: 88% of Employers of graduates are in the construction sector

Recommendation: Graduates should explore other opportunities in energy, software development, transport engineering and road safety. Upgrading digital skills amongst graduates can increase likelihood of securing job opportunities in the industry.

Finding: 53% Employers responded that they have employed male graduates compared to 43% Employers who have currently employed female graduates from KIHBT

Recommendation: Female graduates need to be motivated to take up job opportunities in the industry and this could be intensified at the Institute through alumni activities.

Finding: Employers considered personality and behaviour, personal presentation, communication skills, area of specialization and field of study as the most important aspects of their recruitment at a mean level 4.0.

Recommendation: Personality and behaviour, presentation, communication skills should be emphasised in the training curricula to enhance employability rates amongst graduates.

Finding: 84% of Employers indicated that they have no preference regarding gender of graduates during recruitment, 8% indicated preference to male graduates while 8% indicated preference to female graduates.

Recommendation: Graduates should approach all employers as they are generally impartial to gender.

Finding: 96% of Employers agreed that the survey is relevant.

Recommendation: Tracer study methodology through survey is adequate and should be maintained by the Institute at least annually.

Finding: There is a moderately severe shortage of Skilled Semi-skilled Workers and Technicians in the sector.

Recommendation: Implement competency-based curricula which puts more weight on practical skills and not only on knowledge.

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REFERENCES

1. Filled graduate questionnaires.
2. Filled employer questionnaires.

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