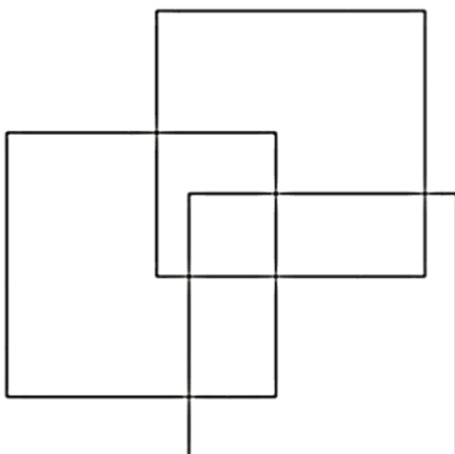




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**A Tracer Study of Technical Vocational Education
and Training Institute Graduates in Khartoum
State**



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Foreword

The importance of the technical vocational education and training (TVET) system in Sudan in preparing graduates with the skills and knowledge for the labour force has dramatically increased since the secession of the South in 2011. Sudan is currently promoting and supporting the diversification of its economy because both its natural resource and suitable lands for agriculture along with husbandry and pastoral activities have been greatly reduced. Therefore, Sudan's determination to diversification of its economy and labour force would help the country meet the needs of a growing population including high youth unemployment rate, which is almost 25 per cent.

The TVET system provides a window of opportunity for young people by learning a trade and entering the labour market. In order to ensure this, however, graduates need to be adequately prepared with the skills and knowledge to fulfill the roles of technicians and artisans in the labour market upon graduation. The International Labour Organization (ILO) recognizes that a sustainable path towards strong economic development is by ensuring that TVET programmes in developing countries are high in quality, accessible to students particularly in rural and underserved areas, internationally recognized, and relevant to the needs of industry. Furthermore, ILO's research and policy guidance seek to improve the quality of apprenticeship training, the recognition of acquired skills, working conditions, and opportunities for youth. Within the TVET system this also includes the necessary skills for graduates to start their own micro-enterprises.

It is against this background that this tracer study of 343 Sudanese TVET graduates from Khartoum State has been undertaken to provide understanding and a benchmark for further research on where skills development needs to be focused to meet Sudan's current labour market demands. Emphasis in the study was placed on the links between the quality of skills obtained by graduates in TVET institutions, and the perception and satisfaction of employers and employees alike. This paper is also part of the ILO Decent Work Team for North Africa's strategy to strengthen social dialogue between government, employers, and workers on ways forward with reforming Sudan's TVET programmes across the nation to create a system that is more responsive to the human resource and labour market needs of the country.



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Contents

	<i>Page</i>
Foreword.....	2
Figures	5
Tables	6
Acronyms and abbreviations.....	7
1. Objectives of the study.....	8
2. Methodology of the study	8
3. Tracer study findings	10
4. Recommendations.....	20
5. Conclusion	21
Annex 1: Questionnaire for graduates	22
Annex 2: Questionnaire for employers	28
Annex 3: Tabulated summary of tracer study findings.....	31

Figures

Figure 1: Age of Graduates, 2013.....	9
Figure 2: Level of Satisfaction of Employers from graduates of different TVET institutes	14
Figure 3: Level of difficulty in finding different types of workers.....	16

Tables

Table 1: The number of traced graduates from the different types of TVET institutes.....	9
Table 2: Level of qualification and number of technical and vocational institutions targeted by the survey.....	10
Table 3: The employment status of the sample graduates.....	11
Table 4: The means and ways through which graduates found their job.....	12
Table 5: Employment of graduates by different sectors.....	13
Table 6: Opinions of the employers on additional training of TVET graduates.....	16
Table 7: Employers' responses to the lack of knowledge and skills of TVET graduates...	17
Table 8: Monthly salaries of employ graduates.....	18
Table 9: Key aspects of job satisfaction for TVET graduates.....	18

Acronyms and abbreviations

ILO	International Labour Organization
TVET	Technical Vocational Education and Training
SPSS	Statistical Package for Social Sciences
ICT	Information and Communications Technology
VTC	Vocational Training Centres
STS	Secondary Technical School

1. Objectives of the study

The objective of this tracer study is to track the effectiveness of the Khartoum State technical vocational education and training (TVET) institutes in equipping Sudanese graduates with the necessary skills to successfully gain employment. To do so, the study traced the whereabouts of graduates from three different types of TVET institutes in Khartoum State and assessed how successful they have been able to integrate into the labour market after completing their learning programmes in 2011. The study was conducted in 2013, two years after the students graduated, and it examines both the perceptions of employers regarding the quality of the employees they recruited from the pool of graduates and the attitudes of the graduates themselves regarding job quality, relevance, and effectiveness of their TVET education in securing employment.

2. Methodology of the study

The tracer study employed both qualitative and quantitative data collection methods as outlined below.

Desk review: A study and analysis of relevant documentation, including, but not limited to, the project document (proposal), past tracer study reports, labour market survey reports, legislation of various Sudanese laws and institutions

Questionnaires: Two closed-ended surveys were designed for the tracer study, one for graduates of 2011 (Annex 1) and one for both public and private enterprise employers (Annexes 2). The questionnaires were translated into Arabic; and were pre-tested and administered through four experienced data collectors. For the most part, the questionnaires were self-administered, however in order to optimize the response rate, four approaches were utilized:

- i. The respondents were requested to complete the questionnaire in the presence of the questionnaire administrator so that it could be collected upon completion.
- ii. Some questionnaires were left with the respondents to be collected at a later date upon completion.
- iii. In the case where a number of graduates were employed at a single enterprise, the distribution and collection of the questionnaires was done through the employer management.
- iv. Some questionnaires were administered through telephone interviews by the data collectors.

Focus group discussions and interviews: A series of focus group discussions were held with both employed and unemployed TVET graduates for this study. Furthermore, a number of structured interviews were carried out with TVET instructors and with a sample of employer representatives.

Observations: Field observations were made of the training environment as well as of working conditions of employed graduates.

Data analysis: The nature of data obtained from this study is both quantitative and qualitative. The quantitative data results, which were compiled mainly from self-administered questionnaires, were entered into a database and analyzed using Statistical Package for Social Sciences (SPSS). Qualitative data was coded into themes around the key variables of investigation. A code was placed next to a word or group of words that mentioned these key

variables of investigation. Output from the analysis is presented in both tabular and graphic forms, and also in verbatim qualitative statements.

Sampling strategy: A sample of 350 graduates were randomly selected out of 5922 students who took the 2011 examinations for technical secondary schools, Artisan Institutes, and Vocational Training Centres that were implementing formal apprenticeship programmes. Graduates were identified through admission records of TVET institutions and through snowball sampling techniques. In addition, a total of 70 enterprises were selected to take part in the study by applying a broad criterion of adequate geographical coverage and varied technical specialisations. The three geographical areas of greater Khartoum covered in the study included Khartoum, Omdurman and Khartoum North and consisted of enterprises operating in five selected economic sectors of (i) building and construction (ii) education and training (iii) hotels and tourism, (iv) health, and (v) trade and commerce.

Ethical Considerations

Upon meeting a potential informant/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 and key informants were assured that all information collected would be treated in confidence and only used for the purpose of this tracer study.

Methodological Challenges

The identification of graduates was expected to begin at TVET institutions through the use of admission records. Since admission records often lacked phone numbers or had outdated contact information, identified graduates were expected to help identify other graduates who could participate in the study. Employers were also contacted in order to verify whether they had employed TVET graduates, with the intention of using the identified employees to identify other graduates, and were requested to administer the respondents' questionnaires to minimize disturbance to their production processes. While these approaches were expected to facilitate and increase the response rate, the fieldwork indicated otherwise. The main recorded constraints included the following:

- i. Some TVET institutions did not maintain or update their databases of graduates. Moreover, some institutes were reluctant to release databases to a third party despite the letter of support for the study from official authorities.
- ii. In the case where graduate databases were provided, some graduate contact information had changed, and others refused to be interviewed, particularly those who were unemployed because of social conventions.
- iii. Questionnaires that were left with respondents to be collected at a later date yielded low response rates and were more time consuming since the administrators had to make several follow up calls before the questionnaires were completed.
- iv. Several employers, in particular those from public administration in local authorities, who were approached to administer the questionnaire for their employees proved uncooperative. The questionnaire never reached the target respondents due to the employers' lack of commitment or understanding of the overall objective of the study and its benefits.
- v. It was difficult to reach all graduates of 2011 since they were spread across Sudan's states and this study had a limited number of data collectors.

Despite the above-mentioned challenges, the overall response rate of those approached was 98 per cent. In order 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 which led to an over-reporting of employed graduates. This needs to be taken into account when interpreting the findings of the study. The unemployed graduates were reached through the provided databases and snowballing techniques, and the highest response rates were obtained through face-to-face administrated questionnaires. It is also important to note that no indications were given in the study about the students who decided to pursue further education and attend three-year technical colleges. Students that fall under this category would neither be considered employed or unemployed. However, it would have been interesting to assess the employment opportunities of graduates of these colleges. Furthermore, the study did not take into consideration graduates who decided to pursue self-employment or were working in the informal sector¹.

3. Tracer study findings

In this section of the report, the key findings of the tracer study are outlined with some analysis and reference to the primary issues associated with the skills mismatch in Sudan. First, however, the general features of the study are highlighted.

Table 1 summarizes the distribution of the sample of graduates across the different types of TVET institutes included in the survey².

Table 1: The number of traced graduates from the different types of TVET Institutes

Type of institution	Number of graduates	Per cent (%)
Women's school	2	1
Secondary technical school	77	22
Vocational training centre	218	64
Artisan institute	46	13
Total	343	100

The statistics in Table 1 shows that although the 14 females graduated from the TVET institutes in 2011, it was only possible to trace 2 females. This is due to social constraints associated with tracing and interviewing female candidates.

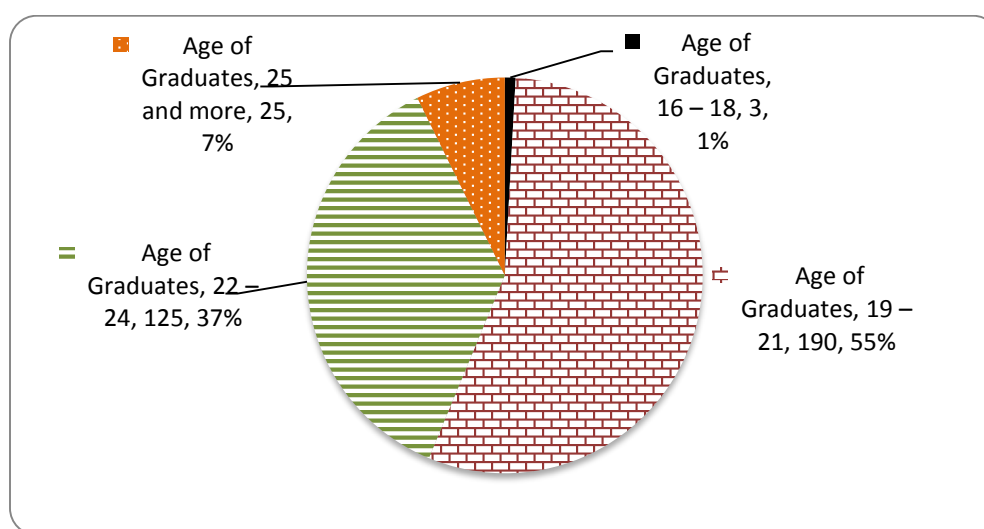
The survey was able to trace 77 graduates (22 per cent) of secondary technical schools, 218 graduates (64 per cent) of vocational training centres, and 46 graduates (13 per cent) of artisan institutes. This sample is not entirely representative in relation to the percentage of these schools as types of TVET institutions at the national level (50 per cent secondary technical schools, 13 per cent of vocational training centres, 32 per cent of artisan institutes and 5 per cent of women's schools).

¹ Although this question of self-employment was asked, it was not analyzed.

² It should be noted that post-secondary technical colleges were not included in the survey.

Figure 1 illustrates the age group of the traced sample of TVET graduates. The vast majority of graduate respondents, 315 out of 350 (90 per cent), were within the age bracket of 19 - 24 years at the time of the survey, which represents the early years of the productive age. The variations in the age groups from 16 years to over 25 years old exist because of the different enrolment requirements by the various TVET institutions. For example, a student can start the vocational training centre apprenticeship program at a maximum age of 20 years and will reach the age of 23 upon completing the programme. While the technical schools and artisan institutes require successful completion of basic education at the age of 14.

Figure 1: Age of graduates, 2013



Source: Calculations made by authors

Table 2: Level of qualification and number of technical and vocational institutions targeted by the survey

Level of qualifications	Number of graduates in the sample	Students awarded degree (%)	Per cent in sample (%)
Sudan Technical Certificate	73	95	21.3
Sudan Technical Certificate (Women's School)	1	50	0.3
Apprenticeship Diploma	211	97	61.5
Artisan Diploma	46	100	13.4
Completion certificate (completed the programme but not awarded diploma or technical certificate)	12	0	3.5
Total	343		100

Source: Calculations made by authors

Table 2 shows that among the 77 technical school graduates that were traced in the study, 73 (95 per cent) successfully completed their study and were awarded the Sudan Technical Certificate, while only one of the two girls traced in the study were awarded the same certificate. However, it is important to note that the sample of girls in the study was far too small to provide any statistical significance. Among the 218 vocational training institute graduates, 211 (97 per cent) successfully attained the Apprenticeship Diploma and, of artisan institute graduates, 46 (100 per cent) obtained their diploma.

Furthermore, 12 out of the 343 sample graduates completed their education program without obtaining the required certificate or award. It is interesting to highlight that this percentage is not representative of the national average as indicated in some reports that only 50 per cent succeed in obtaining the studied diploma³. The results presented above also indicate that this study has uncovered findings that are different from many stakeholders and decisions-makers' perceptions. Stakeholders generally assume that artisan institutes would yield the poorest results and thus the planning that is made around this assumption could be contrary to the reality. It should be noted here that artisan institutes resemble the training model of vocational training centres but with more academic subjects which are administrated by the Ministry of Education.

Access to further training

When the surveyed graduates were asked 'If they have the desire to pursue further training upgrading'; 266 (78 per cent) answered: "yes, I need further training", while only 63 (18 per cent) said, "No, I do not need further training". These findings reveal that the overwhelming majority of graduates who took part in the study recognize the importance and need for further skill building for promotion and career development. It is also an indication of their low level satisfaction with the education they recently completed. In terms of whether further training was actually received after graduation, 73 (21 per cent) of the graduates stated they had received further training, while the remaining graduates in the sample 255 (74 per cent) said that they did not. Based on these responses, the authors of the survey conclude that those graduates who have received further training are among the employed graduates (199) of the study. This would indicate that employers provided training for 37 per cent of their newly employed workers within the first two years. The following sections of this report will outline findings of the study with regards to employment issues.

Employment results

In this section the report examines the employment status of the graduates in the sample, the economic sectors they are engaged in, the assessment of employers towards the work and attitudes of their employees, and their salary structure. This section will attempt to highlight where decision makers in Sudan should focus education and employment reform and policies.

Table 3: The employment status of the sample graduates

Institutions	No. of graduates	Employed	Per cent (%)
Secondary technical schools (males)	77	55	71
Artisan institutes	46	27	59
Vocational training centres (VTCs)	218	117	55
Secondary technical schools (females)	2	0	0
Total	343	199	59

Source: Calculations made by authors

With regards to the employment status of the traced graduates, the study revealed that out of the total number of graduates interviewed (343), 199 (59 per cent) were employed in 2013. This rate varies for graduates from one type of TVET institute to the other. According to the sample, male graduates from secondary technical schools had the highest rate of

³ National Council for Technical and Technological Education (NCTTE), Report of Technical and Vocational Education and Training, 2007.

employment since 55 out of the 77 graduates (71 per cent) were found to be employed. Graduates of artisan institutes followed with 27 out of the 46 graduates (59 per cent) were employed. Graduates of the apprenticeship vocational training centres had the lowest employment rate among the graduates in the sample with 177 of the 218 (55 per cent) of traced graduates employed. The two girls traced in the study of the women school were unemployed.

It is interesting to note that these results directly contradict the perceptions of many of the stakeholders who believe that apprenticeship graduates would have better chances of gaining employment upon graduation. It was the general consensus among stakeholders that apprenticeship graduates have the ability to make a quick and easy transition from school to work⁴ due to the practical on-the-job training received during the last year of their studies. It is this type of analysis based on these results and of those of similar tracer studies that are important to inform decision-makers when they decide which type of institutions to expand or reforms to make in order to yield greater impact.

Nevertheless, it is still premature to conclude which type of institution better prepares young people for employment before looking at the assessment of employers of the level of quality of the graduates operating at the work place, which will be explored later in the report.

Table 4 below captures how graduates found their current job. The results are taken from a sample of 180 of the 199 employed graduates.

Table 4: The means and ways through which graduates found their job

Means of finding jobs	Type of institution graduates				
	Secondary technical schools	Vocational training centres	Artisan institutes	Women's schools	Total
Public media	7	17	3	0	27
Internet	0	5	0	0	5
Relatives and friends	34	72	23	0	129
Relations developed during apprenticeship	4	15	0	0	19
Total	45	109	26	0	180

Source: Calculations made by authors

The findings illustrate that the majority of the employed graduates, 72 per cent, found their current job through the assistance of relatives and friends, while 15 per cent of the respondents obtained their current employment through job advertisements in the public media and only 5 graduates found their position online... It is also worth noting that those employed through relationships developed during their apprenticeship program comprised of only 11 per cent of graduates, which is not in line with international norms. According to a separate study conducted in the UK, 74 per cent of employers stated that apprentices are more loyal than non-apprentices and most tend to stay on with the company long-term. This is primarily due to the building of mutual loyalty and trust between employer and apprentice, as well as the firms' strong involvement in training students according to their exact needs⁵.

The results obtained through this tracer study can potentially reveal a number of crucial issues for review in the implementation of the apprenticeship model in Sudan. For instance, the small number of graduates in this sample finding employment through their apprenticeship programme can be related to the short duration and lack of consistency of the industrial attachments. It can also reflect that employers may not take the process of apprenticeships

⁴ It should be noted here that the sample used and the difficulties mentioned earlier in relation to reaching unemployed graduates due to not getting updated contact information may have slightly distorted the results but it is still an important indication on the employment prospects of graduates of the different type of TVET institutes.

⁵ British Council, Egyptian Modern Apprenticeship Scheme (EMAS) - The Concept, 2012

seriously enough or do not train students in occupations related to their study. Furthermore, it can also be related to the awareness of the students and of employers themselves of the long-term options open to both parties.

It is also interesting to highlight that Table 4 shows that 3 per cent of graduates from vocational training centres gained employment through advertisements on the internet indicating that some graduates possess computer skills. These soft skills are becoming increasingly important in today's labour market and must be enhanced further as young people become more virtually connected. The findings also indicate the non-existent role of public employment service offices which are expected to take a leading role in assisting job seekers.

The findings in Table 5 demonstrate that the building and construction sector is the largest employer of TVET institution graduates and provides employment to more than 80 per cent of the traced sample of employed graduates. Following this, the trade and clerical sector provides jobs for more than 10 per cent of the graduates followed by the education and training sector, which employs 7.5 per cent of the graduates in the sample.

Further inference into how many of the sample graduates worked in sectors other than their field of study is required in order to determine the relevance of the above-mentioned sectors in education and employment strategies. The survey found that 78 per cent of the graduates stated that they worked in an occupation which was not relevant to their field of initial study/training. This is reflective in the weak life-long career guidance process available to students as well as the TVET institute's disconnect with the labour market in advising students and supporting them through the transition from school to work. This finding can also suggest that the TVET institutes are offering programs for students in geographical locations that are not in demand by local employers, thus underlining a current mismatch. This is particularly evident when the majority of VTCs (approximately 70 per cent) are located in Khartoum while the other states are underserved.

Table 5: Employment of graduates by different sectors

Sector of employment	Type of institutions					Total	Per cent
	Secondary technical schools	Vocational training centres	Artisan institutes	Women's schools			
Building construction	54	91	16	0	161	81	
Education and training	0	14	1	0	15	7	
Trade and clerical jobs	0	15	6	0	21	10	
Hotel and tourism	0	1	0	0	1	1	
Health	0	1	0	0	1	1	
Total	54	122	23	0	199	100	

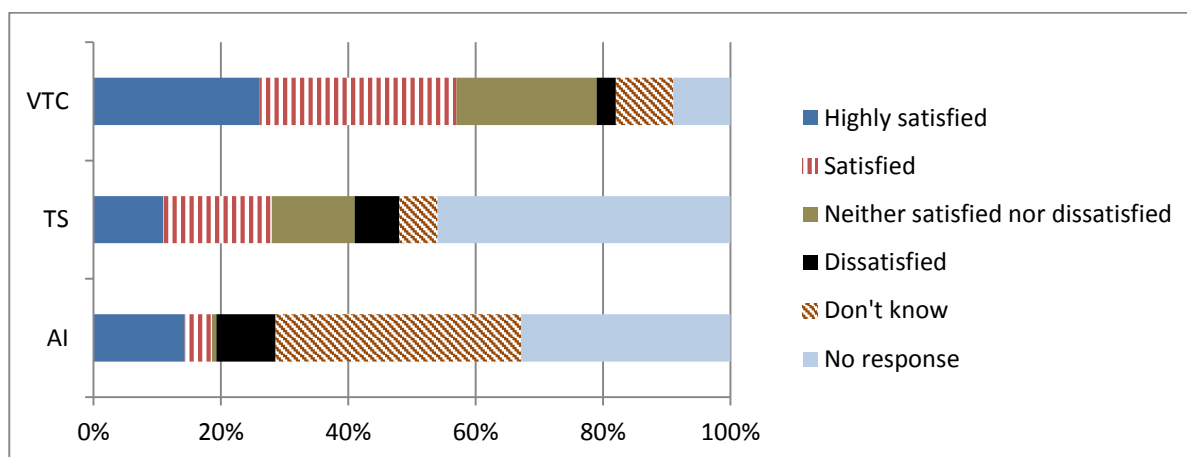
Source: Calculations made by authors

Employers' assessment findings

The findings of the tracer study will now examine the employers' assessments of their employees who graduated from the different TVET institutes included in this tracer study. It is important to note that a large percentage of the employers (up to 46 per cent) who took part in the study failed to respond to questions related to their satisfaction of the level of skills quality possessed by the graduates. This can be attributed to cultural reasons, as some of the respondents did not feel comfortable expressing negative views about the job performance and characteristics of the graduates. Furthermore, many of the respondents did not want their dissatisfaction or criticism on the outputs of government institutes to be documented. This undoubtedly distorted the results; however, the data from the surveyed sample does provide an indication on the general level of satisfaction. Awareness campaigns by the government are required to encourage more employers to express their honest views on the skills quality of graduates and their level of satisfaction with the education system and related programs. Such campaigns will help stress the importance of further studies similar to this one and the importance of employers to be open and accurate when completing surveys. Comprehensive and complete answers to these surveys by employers are crucial for the planning process for education reform to be effective.

Figure 2 illustrates the level of employer satisfaction with employed graduates from different institutes.

Figure 2: Level of satisfaction of employers from graduates of different TVET institutes in %



Source: Calculations made by authors

When employers were asked about their level of satisfaction with the graduates' quality of training, the highest reported rate of satisfaction was for graduates of apprenticeship of vocational training centres, where 26 per cent said that they were very satisfied with the skills of those graduates possessed and 31 per cent indicated that they are generally satisfied with these graduates. Therefore, a total of 57 per cent of employers in the sample were satisfied with the graduates' technical abilities. The findings also revealed that approximately 22 per cent of the surveyed employers reported that they were indifferent, neither satisfied nor dissatisfied. Finally, 3 per cent of the surveyed employers revealed they were dissatisfied with the quality of education of vocational training centre graduates. A total of 9 per cent of employers did not respond.

The second highest level of employer satisfaction was with graduates from secondary technical schools. The sample indicates that 11 per cent of employers were very satisfied with the skills of those graduates while 17 per cent were satisfied. Together, there was a total satisfaction rate of 28 per cent among employers with those graduated from secondary

technical schools. These percentages are less than half the satisfaction rate reported by employers regarding graduates from vocational training centre. Roughly 13 per cent of the surveyed employers said they were indifferent, neither satisfied nor dissatisfied with the skills of graduates from secondary technical schools. Finally, 7 per cent of the surveyed were dissatisfied with the quality of education of secondary technical school graduates. It must be noted here that an overwhelming 45 per cent of employers did not respond to questions concerning the level of satisfaction with graduates from Secondary Technical Schools.

The lowest level of satisfaction recorded from employers was obtained for graduates of artisan institutes⁶ where only 6 per cent of employers said that they were very satisfied with the skills of those graduates, and 9 per cent indicated that they were satisfied. Hence, a total of 15 per cent of employers reported satisfaction for artisan institute graduates. This represents almost half the satisfaction rate of graduates from secondary technical schools. Approximately 20 per cent of the surveyed employers said they were indifferent, neither satisfied nor dissatisfied with the graduates. Finally, 6 per cent of the employers surveyed stated that they were dissatisfied of the quality of education of artisan institute graduates.

Cross tabulation

The findings obtained from the level of employer satisfaction of the quality of education and skills possessed by graduates of different types of TVET institutes reveal some interesting observations that require careful interpretation amongst decision-makers, training and education providers, and employers in Sudan. This is because the findings here indicate that the level of employer satisfaction is negatively correlated to the actual employment rates and prospects of graduates of these institutions found in this study. As noted earlier, graduates from artisan institutes were found to have the highest employment rates, followed by secondary technical school graduates and vocational training centre graduates. These findings are in direct contrast with the reported levels of employer satisfaction with the quality of graduates from the same institutions. According to the survey conducted, employers demonstrated the highest level of satisfaction with graduates from vocational training centres, followed by those from secondary technical schools and finally graduates from artisan institutes. These findings reflect the possible disconnect between training education institutions and the labour market, emphasizing a critical mismatch between the supply and demand of skills.

The following are some reasons that could have led to this imbalance between quality as perceived by employers and the actual employment rates of graduates:

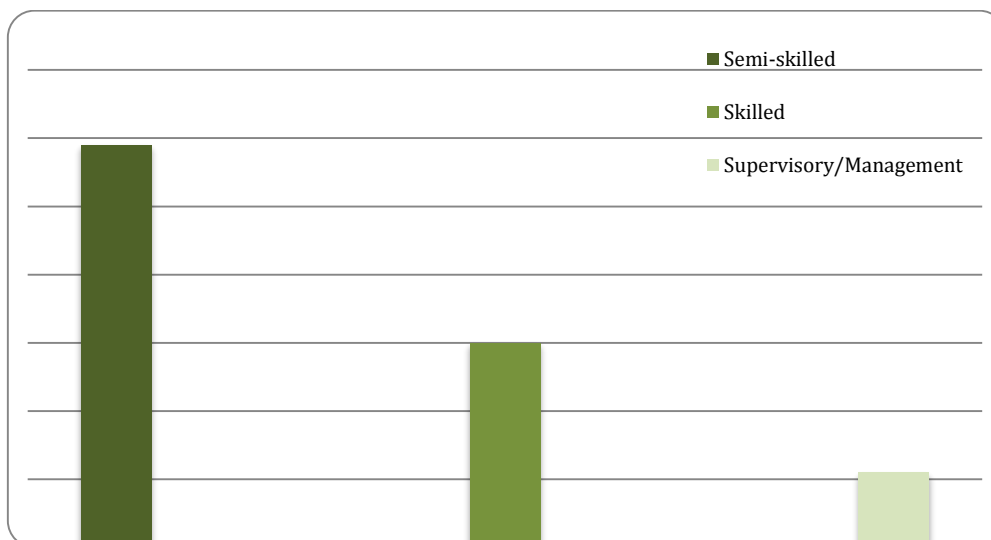
- i. Employers may not be engaged enough with the TVET institutes to convey their satisfaction or disfections.
- ii. TVET institutions are not aligned with the labour market and do not conduct regular tracer studies in order to understand the quality and effectiveness of their outputs.
- iii. Employment agencies are not performing their role by providing information and analysis to employers, students and TVET institutes.
- iv. The recruitment process of employers needs to be improved to yield better results.

According to the tracer study, the majority of employers experienced difficulties in finding the required workers with the skills they needed. Around 86 per cent of employers interviewed stated that they occasionally or frequently experienced difficulty in recruiting

⁶ It should be emphasised here that 45 per cent of employers failed to respond to questions concerning graduates of artisan institutes.

workers, while only 14 per cent said they never experienced problems in recruiting skilled workers at the level of quality they required. Figure 3 indicates that semi-skilled workers are the most difficult to find, followed by skilled workers and then workers for supervisory or management positions.

Figure 3: Level of difficulty in finding different types of workers



Source: Calculations made by authors

Consistent with the above findings, the study revealed that less than 10 per cent of interviewed employers acknowledged that TVET institute graduates are generally prepared to assume their work responsibilities upon graduation without further training. This obviously varies from one type of institution to the other. According to the employers surveyed, graduates of vocational training centres (7 per cent) were the most prepared followed by secondary technical schools (3 per cent) and then graduates from artisan institutes (1 per cent). Around a quarter of employers stated that graduates required additional skills across the different types of institutions.

Table 6 summarizes the employers' views of the extent of additional training required by graduates from TVET institutes. The findings indicate the extent of the mismatch between the supply of and demand for skills.

Table 6: Opinions of the employers on additional training of TVET graduates

Opinion of employers additional training	Vocational training (per cent)	Secondary technical (per cent)	Artisan institutes (per cent)
Normally they are fully prepared to do the work well	7	3	1
They need only an introductory training	33	13	12
They need to learn additional skills	21	24	24
They need serious skills upgrading to start working	17	6	6
They need completely new training	6	6	7
Total responses	84	51	50
No responses from employers	16	48	50

Source: Calculations made by authors

Table 7 illustrates the areas and specific types of knowledge and skills that TVET graduates lack according to the employers interviewed. The employers stated that graduates lacked skills in (i) performing at a high quality and better paid work (14 per cent) (ii) the practical use of machines and equipment (11 per cent) (iii) the practical use of computers (10.5 per cent) and (iv) the practical use of working tools (almost 10 per cent).

The lack of skills demonstrated by graduates in operating machines, computers and tools related to their work responsibilities indicates that the graduates may have lacked exposure to practical training during their years of study which employers consider to be important skills. The areas were employers felt that graduates were adequate was in communication skills and working with other people as well as the use of written instructions and working guides.

While employers usually focus on practical skills that serve their immediate or sector needs, educationalists should aim to create a balance between specific technical skills and more cross-functional employable skills like interpersonal skills, languages, computer skills, health and safety and work ethics. These are the skills that will support graduates to adapt to a variety of occupations depending on market needs.

Table 7: Employers' responses to the lack of knowledge and skills of TVET graduates

Areas where knowledge and skills are lacking in TVET graduates	Number of respondents	Per cent
Theoretical training related to the occupation	16	5.7
Practical use of computers	29.3	10.5
Practical use of working tools	26.7	9.5
Practical use of machines and equipment	30.7	10.9
Practical use of materials and parts	12	4.3
Theory and practice of equipment maintenance	16	5.7
Understanding and producing drawings	14.6	5.2
Doing measurements at work	13.3	4.8
Use of written instructions and working guides	2.6	0.9
Communication and working with other people	1.4	0.5
Knowledge of national laws	17.4	6.2
How to do your work in a safe way	21.3	7.6
How to do high quality and (better paid) work	40	14.4
Discipline and accuracy at work	17.4	6.2
How to start my own business	12	4.3
Other	9.3	3.3
Total	280	100

Source: Calculations made by authors

In terms of income earned by the graduates in the sample, the information in Table 8 shows that half (50 per cent) of the employed graduates earned less than 500 SDG per month⁷, while 30 per cent of earned between 500 and 1000 SDG a month, and 12 per cent earned between 1000 and 1499 SDG per month.

According to the tracer study only 7 per cent of graduates earned a monthly salary of more than 1500 SDG. It is worth mentioning that vocational training centre graduates earned more compared to other graduates. For instance among those graduates who earn more than 1500 SDG per month, 11 out of 14 (78 per cent) are among the VTCs graduates. It should also be noted that the majority of artisan institute graduates (71 per cent) earned less than 500 SDG compared to 51 per cent of vocational training centre graduates and 37.5 per cent of secondary technical school graduates. Hence, the majority of secondary technical school graduates (59 per cent) earned between 500 and 1500 SDG compared to 39.5 per cent of vocational training

⁷ At the time of writing, the minimum wage is 450 SDG per month.

centre graduates and 25 per cent of artisan institute graduates. These findings may shed light on why artisan institute graduates have the highest employment rate in the study, because they appear to be the least costly to hire and the least qualified, according to the employers interviewed. This further illustrates the labour market deficiency and the lack of employer awareness on training and education investments.

Table 8: Monthly salaries of employed graduates

Monthly salary in SDG	Graduates institution type				
	Secondary technical schools	Vocational training centres	Artisan institutes	Total	Per cent
Less than 500	21	64	20	105	50
500 - 999	24	33	6	63	30
1000 - 1499	9	16	1	26	13
More than 1500	2	11	1	14	7
Total	56	124	28	208	100

Source: Calculations made by authors

Table 9 summarizes the graduates' responses of what they identify to be the most important aspects that influence job satisfaction. When TVET graduates were asked about the most important aspects that determine job satisfaction for them, income was by far the most important (32.5 per cent) followed by unspecified aspects (17.6 per cent) and working hours (15.6 per cent). The possibility of acquiring new skills and knowledge (13 per cent) was identified as the fourth most important, while the least important aspects were career prospects from the job (4.7 per cent) and the type of tasks they are required to perform (4 per cent).

These results perhaps reflect several important aspects of the TVET system where motivation and self-esteem of graduates may be low, and graduates only wish to earn money, job security and have decent working hours. However, some of the graduates surveyed in the study appeared to want to gain further skills that they did not acquire in the TVET system. Overall, the results to these questions reflect the lack of awareness about prospects in the system that is perhaps due to a lack of career guidance and employer engagement in terms of long-term career paths and expectations.

Table 9: Key aspects of job satisfaction for TVET graduates

Aspects for job satisfaction for TVET graduates	Number of responses for top three aspects	Per cent
Income	208	32.5
Working hours	100	15.6
Possibility of using acquired knowledge and skills	83	13
Social climate / work setting	42	6.5
Management	38	6
Career prospect e.g. (chances for promotion, and professional development)	30	4.7
Type of tasks	25	4
Other	114	17.7
Total	640	100

Source: Calculations made by authors

4. Recommendations

The findings of this tracer study provide some valuable insights that can be used as a benchmark towards further research and work towards improving the responsiveness of the TVET system in Sudan's labour market and upgrading the quality of technical skills and knowledge provided to students. Based on this tracer study, the preliminary recommendations include:

(i) The essentiality of an efficient labour market information system in Sudan that can inform of labour market demands by economic sectors. This system assist in informing and ensuring that TVET institutes are enabling graduates with the skills they need to succeed in the work place.

(ii) The need to implement quality monitoring and evaluation mechanisms that trace the progress of graduates into the labour market and also allow employers to anonymously convey their satisfactions/dissatisfactions with TVET institutions.

(iii) The need to upgrade the apprenticeship system in Sudan in order to make it more efficient, modern and promote the upward mobility and professional development of apprentices after graduation.

(iv) The application of technology and the integration of ICT and other important soft skills into the TVET curriculum. This will assist graduates to meet the demands of globalization and the changing skills needs in the labour market.

(v) The implementation of best practices that incorporate gender, equity and access dimensions into on-the-job and off-the-job skills and knowledge development

(vi) The improvement of the quality of services offered by employment offices to include career guidance, and enhanced matching for both employers and job seekers, ensuring the right employees are hired.

(vii) The enhancement of the status and perception of blue-collar jobs through greater media and public awareness and by all stakeholders working together to promote the image.

5. Conclusion

This study serves to improve the provision of technical vocational skills and education development in Sudan, as well as provide policymakers with preliminary research for the capacity development of TVET institutions in the country. This study is also beneficial for international organizations and development agencies, as it provides an insight into the perceived quality of training offered by the TVET programmes in Sudan and whether the skills acquired by graduates are relevant to the current labour market demands.

A common sentiment expressed by both employers and graduates in the study is that TVET institutions fail to adequately prepare graduates for the labour market, and that further training is usually required after graduation. The study further highlights the importance of soft skills being mainstreamed into TVET institutions to meet labour market demands. These include computer, communication and interpersonal skills.

The findings also illustrate that there may be a mismatch between the skills that graduates possess and the areas of available work, with many of the employed graduates stating that they were not working in the field of their study. This further suggests that the curriculum offered to students in TVET institutions may not be aligned to labour market demands. More so, the findings point to the need of strengthening employer engagement, improving Sudan's labour market information system, and providing enhanced career guidance and counselling to youth. In addition, the study finds that the skill mismatch found among graduates from TVET institutions indicates that it is not only the result of a deficiency on the supply side or at the government level, but the responsibility also lies with employers, particularly in the private sector. Improving this will require coordinated efforts between several sectors and society at large to address the present imbalance and enforce the creation of decent jobs with clear career pathways and fair contracts for TVET graduates.

Finally, further research is required in this area in order to provide a more accurate analysis of the school-to-work transition of TVET graduates in Sudan. To do so, this will not only require governmental backing, but also a more comprehensive geographical analysis and the support and assistance of TVET institutions in providing information as well as employer's participation.

Annex 1: Questionnaire for graduates

KHARTOUM STATE

TRACER STUDY QUESTIONNAIRE FOR GRADUATES

For Secondary Technical Schools, federal VTCs, private VTC (apprenticeship program), and Artisan institutes in Khartoum

Supported by the International Labour Organization

Dear graduate,

We would like to know your current situation in terms of your employment status, relevance of technical education training in your present careers including job satisfaction. The information that will be generated from this survey will serve as major inputs in the curriculum development and other educational interventions. We will treat your information confidentially. Please feel free to ask anytime if you do not understand a question. Thank you for your cooperation.

QUESTIONNAIRE

Direction: Please check the box that corresponds to your answer.

PART I –

1) DEMOGRAPHIC INFORMATION

Name: (Optional) _____ Age: _____ Gender: Male Female

Civil Status: Single Married

Residential address (optional): _____

Email address: _____ City/Province: _____

Name of school/institute: _____

Year of Graduation: **2011**

2) **Type of School/institute:** Girls Tech Industrial Agriculture
Commercial VTC Artisan

Area of Specialization: -----

Level of Qualification Attained During High School:

STS Certificate Completion of STS VTC Diploma Artisan DIP

Further training or skills at Present: Specify

Training Skills (communications or ICT)

Others, please specify _____

PART II - EMPLOYMENT STATUS

1. Are you presently:

- a) Employed
- b) Self-employed with employees without employees
- c) Neither employed nor self-employed (**proceed to Q 8**)

2. If **you are employed**, what is the status of your employment?

- Part-time Job order Contractual Temporary Permanent
State number of working hours _____

2.1. Do have medical insurance? Yes NO

2.2. Do you have social insurance? Yes NO

3. What is the name of your current employer? _____

4. In what industry sector are you working in?

- a) Education and training
- b) Construction trades, craft, trade and industrial
- c) Commercial, clerical business and public administration
- d) Agriculture, forestry and fisheries
- e) Health and health related
- g) Hospitality and tourism
- f) ICT
- h) Other, please specify: _____

5. Is this your first job after graduating?

- Yes (go to Q 5a) No (go to Q 5b)

5.a. How long did it take you to find your present job?

- 0-6 months 7-9 months 10-12 months

If more than one (1) year, please specify how long _____

5.b How long did it take you to find your first job after graduating?

- 0-6 months 7-9 months 10-12 months

If more than one (1) year, please specify how long _____

6. How much is your first salary (per month) of your present job?

- Below SDG 500 SDG 500 – 999 SDG 1000 – 1499 SDG 1500 and above

7. In what way did you find your job? (Check all that applies)

- Newspaper /Television/Radio
 Internet (e.g. government websites, company websites)
 Relatives, friends or/and colleagues
 Industry Linkages during training (e.g. apprenticeship, On the Job Training)
 Referral/School Endorsement

8. If not employed, please check (/) the reason (s): (Check all that applies)

- Further study, please specify field of study
 Family concerns and decided not to find a job Maybe better: Opted not to look for a job
Unsuccessful application, please state the reasons _____
 Lost previous job,
 No job opportunity in the desired field
Other reasons, please specify _____

PART III - RELEVANCE OF TRAINING

1. Is your present work, or, in case you are unemployed, the last job you held since graduation, related to your area of specialization?

- Yes No

If YES, to what degree of application?

- Highly Related
 Moderately Related
 Slightly Related

If NO, check the reason/s why

- No job opportunity related to my specialization
 Offer better salary and benefits
 Health Related Reason
 Proximity of the workplace to residence

Others, please specify _____

2. Which of the following skills helped you perform in your present job? (Check all that applies)

- Knowledge (theoretical and practical related to my specialization)

- Communication skills (oral and written)
- ICT skills
- Problem-solving skills (creativity and initiative)
- Work ethics (team work)
- Entrepreneurship skills (leadership, decision making, time management)

3. Did you participate in further training (university, evening classes, short courses) since you graduated?

- Yes
- No

Please describe the type of course: _____

If NO, why not?

- No relevant course available
- No need for further training
- No money to pay for training
- Other _____

4. Would you like to attend further training courses?

- Yes
- No

PART IV - JOB SATISFACTION

1. Are you satisfied with your present job?

- Yes
- No

2 How satisfied are you with the following aspects

Job security

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Income and benefits

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Career prospects (e.g. promotion and professional development opportunity)

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

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Possibility of pursuing further studies

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Social recognition and status

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Possibility of using acquired knowledge and skills

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Good social climate / work setting

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Tasks

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Management

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Chance of doing something useful for society

1: Not at all	2: not really	3: somewhat	4: quite	5: absolutely

Other, please specify _____

Which aspects are most important for job satisfaction for your (check the **three** most important

- Income
- Career prospect e.g. (low chances for promotion, and professional development)
- Working hours
- Management

- Type of tasks
- Possibility of using acquired knowledge and skills
- Social climate / work setting
- Other, please specify _____

PART V - COMMENTS/SUGGESTIONS

Based on your present work, what do you suggest to improve in the implementation of the Technical Education/Vocational training? (Check all that applies)

Theoretical training related to the occupation

- Practical use of computers
- Practical use of working tools
- Practical use of machines and equipment
- Practical use of materials and parts
- Theory and practice of equipment maintenance
- Understanding and producing drawings
- Doing measurements at work
- Use of written instructions and working guides
- Communication and working with other people
- Knowledge of national laws
- How to do your work in a safe way
- How to do high quality and (better paid) work
- Discipline and accuracy at work
- How to start my own business
- General education subjects

Other, please specify

Thank you for your cooperation

Annex 2: Questionnaire for employers

KHARTOUM STATE

TRACER STUDY QUESTIONNAIRE FOR EMPLOYERS

For Secondary Technical Schools, federal VTCs, private VTC (apprenticeship program), and Artisan institutes in Khartoum

Supported by the International Labour Organization

International Labour Organization is carrying out a survey of employability of graduates from vocational training centres in **Khartoum State**. This questionnaire aims to survey the current employment status of training graduates as well as their opinions of the quality and relevance of the skills training received in **Secondary Technical Schools, federal VTCs, private VTC (apprenticeship program), and Artisan institutes in Khartoum State**

Identification of the enterprise

Locality _____

Name of the enterprise _____

Street address _____ Telephone _____

Q1: Name of your enterprise: -----

Q2: Please provide data on employment of skilled and unskilled workers in your enterprise:

Average total number of all the workers (both permanent and contract)	Number of all the workers whom you consider as skilled (both, permanent and contract)	Number of <i>skilled workers</i> employed by your company in the last 3 years	Number of VTC, STS and Art institutions graduates employed in the last 3 years		
			VTC	STS	Artisan .Inst.

Q3. If you employ graduates of technical education and vocational training, how satisfied are you with the quality of training received by them? (tick only one box)

	Highly satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Highly dissatisfied	Don't know or not applicable
	1	2	3	4	5	6
Vocational Training						
Secondary Tech. Sch.						
Artisan Inst.						

Q4: Do graduates of technical education and vocational training need additional training to do their work well in your company? (tick only one box)

	Normally they are fully prepared to do the work well	They need only an introductory training	They need to learn additional skills	They need serious skills upgrading to start working	They need completely new training
	1	2	3	4	5
Vocational Training					
Secondary Tech. Sch.					
Artisan Inst.					

Q5: If you employ graduates of technical education schools, institutes or vocational training centres, what knowledge and skills do they usually lack?

	Areas where improvement of training is needed	Tick any number of answers below
1.	Theoretical training related to the occupation	
2.	Practical use of computers	
3.	Practical use of working tools	
4.	Practical use of machines and equipment	
5.	Practical use of materials and parts	
6.	Theory and practice of equipment maintenance	
7.	Understanding and producing drawings	
8.	Doing measurements at work	
9.	Use of written instructions and working guides	
10.	Communication and working with other people	
11.	Knowledge of national laws	
12.	How to do your work in a safe way	
13.	How to do high quality and (better paid) work	
14.	Discipline and accuracy at work	
15.	How to start my own business	
16.	General education	
17.	Other (specify)	

Q6: Has your company ever experienced problems finding employees with the skills that you need?

- (1) Never _____
- (2) Occasionally _____
- (3) Frequently _____

Q7: At what level are these skills shortages (if any) most severe?

- (1) Semi-skilled _____
- (2) Skilled worker _____
- (3) Technician/engineer _____
- (4) Supervisory/management _____

Q8: Shortages of which occupations do you commonly experience?

- (a) _____ (b) _____ (c) _____ (d) _____

Thank you very much for completing this questionnaire. Your responses will lead to future improvements in skills training at technical education schools, institutes and vocational centres in Khartoum state

Annex 3: Tabulated summary of tracer study findings

Main findings	Weak employer engagement	No occupational standards	Unreliable labour market information	No lifelong career guidance and counseling
Employers are reluctant to provide information concerning their employees to labour market researchers	✓		✓	
Almost all TVET institutions are found to lack proper information system to trace graduates			✓	
Statistics on female TVET graduates is very limited			✓	
The enrolment of women in TVET institution is very low			✓	✓
78 per cent of the graduates stated that they need further training and their education did not adequately prepare them for work	✓	✓	✓	✓
59 per cent of the graduate sample were employed after 2 years of graduation	✓		✓	✓
The highest employment rates are among secondary technical school and artisan institute graduates which yield the least quality outputs according to employers	✓	✓	✓	
Most graduates found their job through friends and relatives and not through specialised adverts and industry attachments	✓		✓	✓
Many of the graduates were not working in the field of their study or in a field related to it	✓	✓	✓	✓
Employers are more satisfied by graduates of VTCs yet they employ the least of these graduates.	✓	✓	✓	
86 per cent of interviewed employers stated that they occasionally or frequently experience difficulty in recruiting workers with the required skills	✓	✓	✓	✓
Less than 10 per cent of the interviewed employers acknowledged that TVET institute graduates are generally prepared to assume their work upon graduation without further training	✓	✓	✓	✓
Both employers and graduates stated that upon TVET graduation young people lacked the required practical skills	✓	✓	✓	✓
Salaries were highest among VTC graduates, and income was the most stated reason for graduates' work satisfaction as opposed to future career opportunities	✓	✓	✓	✓