

ADDIS ABABA UNIVERSITY  
COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES  
DEPARTMENT OF CURRICULUM AND INSTRUCTION

THE ROLE OF TECHNICAL AND VOCATIONAL EDUCATION  
AND TRAINING IN PREPARING ITS GRADUATES FOR GREEN  
JOBS IN ENTOTO TECHNICAL AND VOCATIONAL EDUCATION  
AND MISRAK POLY-TECHNIQUE COLLEGES

BY  
MEBERAT MELAKU

ADDIS ABABA  
JUNE, 2017

ADDIS ABABA UNIVERSITY  
COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES  
DEPARTMENT OF CURRICULUM AND INSTRUCTION

THE ROLE OF TECHNICAL AND VOCATIONAL EDUCATION  
AND TRAINING IN PREPARING ITS GRADUATES FOR GREEN  
JOBS IN ENTOTO TECHNICAL AND VOCATIONAL AND  
MISRAK POLY-TECHNIQUE COLLEGES

BY  
MEBRAT MELAKU

ADVISOR: GETACHEW ADUGNA (PHD)

ADDIS ABABA  
JUNE, 2017

**ADDIS ABABA UNIVERSITY  
COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES  
DEPARTMENT OF CURRICULUM AND INSTRUCTION**

This is to certify that this thesis is prepared by Mebrat Melaku entitled “The Role of Technical and Vocational Education and Training in preparing its Graduates for Green Jobs in Entoto TVET College and Misrak Poly-technique College.” and submitted in partial fulfillment of the requirement for the Degree of Master of Arts in Management of Vocational Education complies with the regulation of the University and accepted standards with respect to originality and quality.

**APPROVED BY BOARD OF EXAMINERS**

1. _____	_____	_____
Chairman, Department Graduate Committee	Signature	Date
2. <u>Dr. Getachew Adugna</u> (Assistant Professor)	_____	_____
Advisor	Signature	Date
3. <u>Dr. Lema Setegne</u> (Assistant Professor )	_____	_____
Internal Examiner	Signature	Date
4. <u>Dr. Befekadu Zeleke</u> (Associate Professor)	_____	_____
External Examiner	Signature	Date

## **Acknowledgements**

First and foremost, I would like to express my deepest gratitude and appreciation to my advisor, Dr. Getachew Adugan for his devotion in rendering me professional advice, constant encouragement, effective guidance and constructive comments during my research. Without his help, this work could have been difficult, and I am indebted to thank my husband Ato Assefa Adinew, my Children, my friend W/ro Etsubdink Biru and others for their love and moral support, this would not have been successful without their support.

I am also very much obliged to express my special thanks and indebtedness to all those who participated (trainers, trainees, deans, TVET Agency expert) in this research as respondents of the questionnaire and interviews who are found both in Entoto TVET College, Misirak Polytechnic College, and TVET Agency.

<b>Contents</b>	<b>Pages</b>
Acknowledgements .....	I
Table of Contents .....	ii
List of Tables .....	iv
List of Acronyms and Abbreviations .....	v
Abstract.....	vi
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study .....	1
1.2 Statement of the Problem .....	4
1.3. Objectives of the Study .....	6
1.4. Significance of the Study .....	7
1.5. Delimitation of the Study .....	7
1.6. Limitation of the Study.....	8
1.7. Key Definition of Terms .....	8
1.8. Organization of the Study.....	9
<b>Chapter Two: Review of the Related Literature .....</b>	<b>10</b>
2.1. Concept of TVET .....	10
2.2. The Benefits of Skill Training in TVET Program.....	12
2.2.1 Economic Benefits .....	12
2.2.2 Social Benefits.....	14
2.3. Practical Training: Apprenticeship and Internship.....	16
2.4. TVET and Its Future Direction .....	19
2.5. Concept of Green Jobs .....	21
2.6. Driving Factor for Green Economy.....	22
<b>Chapter Three: Research Design and Methodology .....</b>	<b>24</b>
3.1. Research Design .....	24
3.2. Sources of Data.....	24
3.3. Population and Sample .....	24
3.4. Instruments of Data Collection.....	27
3.5. Procedure of Data Collection .....	29

3.6. Methods of Data Analysis .....	30
3.7. Ethical Considerations.....	31
<b>CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND INTERPRETATION.....</b>	<b>32</b>
4.1. Characteristics of Respondents .....	32
4.2. Trainees’ Background Characteristics.....	40
4.4. Trainers’ Perception towards Green Jobs.....	41
4.5. Major Problems in Implementation of Green Jobs .....	44
<b>CHAPTER FIVE: SUMMARY OF MAJOR FINDINGS, CONCLUSIONS, ANDRECOMMENDATIONS.....</b>	<b>48</b>
5.1. Summary of Major Findings .....	48
5.2. Conclusions .....	51
5.3. Recommendations .....	52
<b>References .....</b>	<b>.....</b>

## **Appendices**

Appendix A Questionnaire for Trainers

Appendix B Interview Guide for Addis Ababa TVET Agency and College Deans

Appendix C Questionnaire For Trainees’

Appendix D Reliability Statistics for Trainees’ Questionnaire

Appendix E Reliability Statistics for Trainers Questionnaire

Appendix F Reliability Statistics for Common Items for both Trainers and Trainees

## List of Table

	<b>Pages</b>
Table 1: Distribution of Population and Sample taken from Each College .....	26
Table 2: Background of Trainers' Characteristics .....	32
Table 3: Trainers Rating on the Roles of TVET Agency and Colleges on Facilitating Green Jobs .....	34
Table 4: Trainees' Background Characteristics .....	34
Table 5 Trainees' rating on the Practices of Green Jobs .....	42

## **List of Acronyms and Abbreviations**

**AU:** African Union

**CO<sub>2</sub>e:** Carbon dioxide Equivalent

**CRGE:** Climate-Resilient Green Economy

**EAMI:** Economic Analysis by the Millennium Institute

**GHG:** Greenhouse Gas

**Mt:** Megaton (i.e. million metric tons)

**SPSS:** Statistical Packages for Social Science

**TWh:** Terawatt hour of electricity (tera= one Trillion)

**UNDESD:** United Nations Decade of Education for Sustainable Development

**UNESCO:** United Nations Educational, Scientific, and Cultural Organization

**WCED:** World Commission on Environment and Development

**TVET:** Technical and Vocational Education Training

**FDRE:** Federal Democratic Republic of Ethiopia

**TGE:** Transitional Government of Ethiopia

**CEDEFOP:** European Centre for the Development of Vocational Training

**EU:** European Union

**UNEP:** United Nations Environment Program

**WB:** World Bank

## **Abstract**

*The purpose of this study was to assess the role of Technical and Vocational Education and Training in preparing its graduates for green jobs: at Entoto and Poly-technique colleges and to suggest possible mechanisms to reduce the problem. A descriptive survey research design was employed in this study. The study included 150 trainers, 272 trainees, 4 Deans, and 1 TVET Agency expert. Data were collected using questionnaires, interview, and document analysis. Data obtained through separate questionnaires were analyzed using statistical tools like frequency, percentage, mean, weighted mean and t-test. Moreover, data gathered through interview and document analysis were analyzed in narrative form to complement the quantitative findings. The study found out that inadequate awareness creation, lack of special fund for green jobs, lack of teaching materials, trainers turnover, demotivation of trainers, and low capacity of trainers to adopt and transfer technology. Based on the findings, it was concluded that the Colleges was not strong enough in equipping the trainees with the necessary skills that enhance green jobs. In line with the above findings and conclusion, the colleges should arouse the interest of trainees and trainers by providing incentives at least in the form of recognition certificate for their well practices in green jobs. Moreover, the issue of green job is up to date and global phenomenon. Thus, the Colleges should prepare sound proposals on green jobs and gain financial and expert assistance from national and international nongovernment organizations.*

## **CHAPTER ONE: INTRODUCTION**

This chapter deals with background of the study, statement of the problem, objectives of the study, significance of the study, delimitation of the study, limitation of the study, definition of key terms, and organization of the study. The detail of each is presented hereunder.

### **1.1 Background of the Study**

The development of any nation is directly or indirectly based on education system of that particular society. The existing education system should be strong enough for the human capital development. In relation to this, UNESCO (1999) stated that education is a single most powerful means to improve the quality of life, the most powerful weapon against poverty.

Nations should give due emphasis to their education system to be sound in the process of human resource development when they are seeking to improve the welfare of their citizens in a highly competitive and rapidly changing world. In this system of education, schools and training centers play a crucial role. Regarding this, the World Bank (2001) states that schools everywhere are being asked to prepare young people for the jobs of tomorrow and technical and vocational education and training (TVET) has an important role to play in this process. The multidisciplinary nature of TVET and its supposedly close links to the world of work make it one of the educational sector that contributes most to the training of skilled labor and gives both young people and adults the knowledge required to carry out a trade. For many, it is a passport to employment and the possibility of social advancement.

The 1994 Education and Training Policy of Ethiopia lists 15 specific objectives under five broad general objectives applicable to the educational system. Three of these are specifically geared to technical and vocational education. These are (1) satisfying the country's need for skilled manpower, providing training in various skills at different levels; (2) making education a supportive tool for developing traditional technology and for utilizing modern technology; and (3) providing education that promotes the culture of

respect for work, positive work habits and high regard for workmanship (TGE, 1994: 9-10). From this, one can understand that the education and training policy gives high emphasis for the well-functioning of TVET in order to contribute for the nation's development. According to the policy (TGE, 1994: 16-17), parallel to the general education, diversified technical and vocational training will be provided for those who leave school from any level of education. Nevertheless, practically it seems difficult. For instance, for those students who leave grade one, two, or three it is difficult to prepare training because in order to offer any kind of training, students must get the theoretical aspects first. In addition, it is difficult to prepare training for every grade levels because it requires a lot of well-trained experts at each grade levels, a lot of funds and so forth.

Currently, there is a growing global trend among employers, governments, and NGOs to identify and give credit to a category of jobs that can be segregated and discretely defined as “green.” This comes out of growing concern over climate change and global warming, but also concern over the economic consequences of actions to mitigate carbon emissions. The promise of green jobs appears to be a way of addressing two policy issues at once: employment and environmental improvements. Policy-makers can argue that green-job creation will compensate for jobs lost more stringent due to environmental policy (Winterand and Moore, 2013).

Ethiopia is one of the first countries in Africa to develop a green growth strategy. Ethiopia's leadership, and its early attempts through greening its economy to achieve more growth that is inclusive are of real interest for a world in which alternative growth models for long-term sustainable development and social equity have rapidly become a priority in government, business, and civil society (Bass, Wang, Tadele, & Daniel, 2013). In addition to this, the issue of environmental protection is stated in National Technical & Vocational Education and Training Strategy of Ethiopia, MoE (2008) stated that TVET has the potential to create awareness about the environment and to show mechanisms how to use scarce resources.

In Ethiopia Climate-Resilient Green Economy (CRGE) is launched to develop the path to sustainable development. The importance of building Climate-Resilient Green Economy has been stated by FDRE (2011) as follows:

Building climate resilience is a huge and urgent challenge for the country. Ethiopia's weather is likely to become more unpredictable in the coming years, with increased flooding and drought. This will impact on all aspects of Ethiopia's economy, and particularly on the health, transport, agriculture, natural resources, energy, and industry sectors (p. 1).

From FDRE statement, one can understand that the importance of making environment clean and conducive for society. Nowadays, unpredicted weather change issue is global concern that calls for world leaders to discuss on the issue again and again. Moreover, Ethiopia is attempting to implement green economy programs such as national biogas program; national clean cook stove program, wind turbines, protected area management, community forest and development, sustainable land management program, local holistic management, and Addis Ababa in the global C40 program (Bass, Wang, Tadele & Daniel, 2013). From this, we can understand that Ethiopia gave much emphasis on green economy and green job.

As it is reviewed elsewhere in this study, many scholars from abroad and local (such as, African Union, 2007; MoE, 2008; TGE, 1994; UNESCO, 1999; United Nations, 2002; World Bank, 2001) believe that technical and vocational education and training should prepare its graduates to contribute for sustainable development of a given country. Nevertheless, TVETs are not capable of producing competent and enthusiastic citizens that can contribute for sustainable development (AU, 2007; Dereje, 2013; Dubois and Balgobin, 2010; Teklehaimanot, 2002; Wanna, 1998). Therefore, the incompatibility of the theoretical beliefs (what is explained in the literature) and the actual practice of Green Economy in technical and vocational education and training initiated me to conduct this study.

The second reason is that absence of similar studies that investigated the roles of technical and vocational education and training in preparing its graduates for green jobs.

On top of this, currently the issues of climate change and global warming are of high concern at global level. As Ethiopia is part of the world, the country launched its Climate-Resilient Green Economy strategy and there is a promising attempt in implementing the strategies. The glimpse of the attempts is the national biogas program, wind turbines, protected area management, community forest and development, sustainable land management programs etc. Even though, National TVET strategy stated the role of TVET for environmental protection and renewable resources, there is no evidence whether TVET colleges are implementing the strategy that is stipulated by National TVET Strategy. Hence, this study focuses on the role TVET in preparing its graduates for green jobs in selected TVET colleges in Addis Ababa City Government seem timely.

## **1.2 Statement of the Problem**

In 2002, at the Summit on Sustainable Development held in Johannesburg, South Africa, a special United Nations Decade of Education for Sustainable Development (UNDESD) under the leadership of UNESCO was established to run from 2005 to 2014. In other words, at the 2002 World Summit, the participants of the summit unanimously agreed that education for sustainability (EDS) be integrated and be made part and parcel of all levels of the TVET programs under the leadership of UNESCO (United Nations, 2002). However, when UNESCO assessed the extent to which the recommendations from the Seoul Congress of 1999 were being implemented by UNESCO member states in reference to the application of TVET for sustainable development, to the disappointment of the members, it was found that not much progress had been achieved (Dubois and Balgobin, 2010). In Africa in particular, the TVET programs were considered a career path for the less academically advantaged students.

On the other hand, some African governments keep dropout or “lockout” students who are unable to move up the educational ladder, not because of poor grades but because of lack of places at the higher level. In addition, the findings established that many African governments do not have the financial means to finance TVET at a level

that can support quality training. For instance, while Ghana spends only about 1 percent of its educational budget on TVET, our country Ethiopia spends only about 0.5 percent of its education and training budget on TVET (African Union, 2007). In addition to low financing of TVET Colleges in Africa, there are ample problems that inhibit the success of TVET.

In all of Sub-Saharan Africa, formal TVET programs are school-based. With a few exceptions, the socio-economic environment and the contextual framework in which TVET delivery systems currently operate on the continent is generally characterized by weak national economies, high population growth, and a growing labor force; shrinking or stagnant wage employment opportunity especially in the industrial sector; huge numbers of poorly educated, unskilled, and unemployed youth; uncoordinated, unregulated, and fragmented delivery systems; low quality; geographical, gender and economic inequities; poor public perception; weak monitoring and evaluation mechanisms, and inadequate financing, poor management and ill-adapted organizational structures (AU, 2007).

On the other hand, both institutional and non-institutional factors can either positively or negatively influence the training process in TVET institutions. Plant, equipment, financial assets, and human resources are among the important institutional factors. Of these inputs, human resource according to (Milkovich and Boudreau, 1991: 3) is very crucial that human resources provide the creative spark in any organization. People design and produce the goods and services, control quality, market the products, allocate financial resources, and set overall strategies and objectives for the organization. Without effective people, it is simply impossible for an organization to achieve its objectives.

Consistent with the above findings, local researchers asserted that TVET in Ethiopia is characterized by absence of need assessment, no prior awareness for trainees, trainees were not placed based on their interests, the graduates did not get the jobs, low quality of training, lack of qualified trainers, lack of facility and TVET is considered as

the training prepared for intellectually low students (Dereje, 2013; Teklehaimanot, 2002; Wanna: (1998). With this in mind, the study is designed to investigate the role of TVET in preparing its graduates for green jobs in selected sample colleges. In line with this understanding, it has become necessary and timely to see the roles of TVET in preparing its graduates for green jobs. Thus, to achieve the stated objective, the study aims at answering the following research questions

1. What is the level of colleges' practitioners' awareness towards green jobs in Entoto TVET and Misrak Poly Technique Colleges?
2. How do TVET colleges prepare their graduates for green jobs in Entoto TVET and Misrak Poly Technique Colleges?
3. Do trainees have interest towards green jobs in Entoto TVET and Misrak Poly Technique Colleges?
4. What are the major factors that affect the colleges in preparing graduates for green jobs in Entoto TVET and Misrak Poly Technique Colleges?

### **1.3. Objectives of the Study**

The major objective of the study was to assess the current roles of TVET colleges in preparing their graduates for green jobs while the specific objectives include:

- to examine the existence of colleges' awareness about green jobs in Entoto TVET and Misrak Poly Technique Colleges;
- to identify the TVET roles in preparing its graduates for green jobs in Entoto TVET and Misrak Poly Technique Colleges;
- to identify the motivation and trainees interest towards green jobs in Entoto TVET and Misrak Poly Technique Colleges; and
- to examine the hindering factors about green jobs in Entoto TVET and Misrak Poly Technique Colleges.

### **1.4. Significances of the Study**

Results of this study is very important to create awareness among Addis Ababa TVET Agency and TVET College Deans by indicating what major roles do they lack in

preparing their graduates for green jobs and how should they fill these gaps in order to maintain effectiveness of the Colleges. Thus, the researcher believes that this research report and recommendations would present the following significant contributions:

- it encourages college leaders to review their practices and help them to improve their knowledge and skill base on green job practices adversely working factors, so that they could respond appropriately;
- it may give highlight for those who may develop interests to make further study on similar topics; and
- it can serve as a valuable document for policy makers in the Addis Ababa city Administration during planning.

### **1.5. Delimitation of the Study**

It is important to describe the scope of the study. It is impossible to incorporate the whole TVET that are found in Addis Ababa City Administration because it requires many researchers, a lot of time, and much money. For manageability purpose, this study is delimited to Entoto and Misrak TVET Colleges. Moreover, the study is delimited to regular TVET programs mainly on the roles of TVET in preparing their graduates for green economy that focus on teaching materials, teachers' capacity, methodology of training, colleges' facilities, awareness of green jobs, and students' interest towards green jobs.

### **1.6. Limitations of the Study**

As this research is quite new, there was acute shortage of literature in the area of green jobs and green economy. Thus, the researcher was forced to cite similar author again and again. In addition, this research generalization is in caution because there are about six TVET colleges and 22 middle level institutions in Addis Ababa City Government (Netsanet, 2014).

## 1.7. Definition of Key Terms

**Green Economy-** can be defined as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities, that is to say, it aims for "sustainable development without degrading the environment." <http://www.quora.com/What-is-green-economy> retrieved on December 2017

**Green Job:** - work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality(UNEP,2008). Specifically, but non-exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, material and water consumption through high-efficiency strategies; de-carbonize the economy and minimize or altogether avoid the generation of all forms of waste and pollution.

**Sustainable Development:** a development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987)

**Trainee:** - a person is undergoing training for a particular job or profession (Oxford Dictionary).

**Trainer-** a TVET trainer is an instructor, facilitator, or supervisor who is qualified to facilitate specific occupations (MoE, 2010: 7).

**Training-** technical and vocational education and training provided through formal program leading to certificates of different levels (FDRE, 2004).

## 1.8. Organization of the Study

This study has five chapters. The initial chapter provides background of the study, statement of the problem, objectives of the study, significance of the study, delimitation of the study, limitation of the study, and operational definition of terms. Chapter two devotes to a review of the related literature with concept of TVET, factors hindering TVET practices, concept of green jobs, driving factors for green jobs, and glimpse of green economy in Ethiopia. The third chapter presents research method employed, data

sources, sampling techniques, instruments of data collection, procedures of data collection, methods of data analysis and ethical considerations. The fourth chapter deals with the presentations, analysis, and interpretation of data gathered from respondents through questionnaires, interview and document analysis. Finally, chapter five summarizes the investigation made, reports the findings obtained, the conclusion drawn, and the recommendations made.

## **CHAPTER TWO: REVIEW OF RELATED LITERATURE**

This review of the related literature focuses on concept of TVET, the role of TVET, practical training (apprenticeship and internship), TVET and its future direction, concept of green jobs, driving factor for green economy, TVET in Ethiopia, hindering factors for Ethiopian TVET, and areas of improvement. The detail of each theme is presented hereunder.

### **2.1.The Concept of TVET**

Different scholars define the term technical and vocational education and training (TVET) differently. For instance, some scholars called it as vocational education and training (VET), and others termed as technical and vocational education (TVE), are often used to describe the same thing and defined as an education which is mainly designed to lead participants to acquire the practical skills, know-how and understanding necessary for employment in a particular occupation, trade or group of occupations or trades (World Bank, 2001). In this concept, the word ‘technical’ is tending to give way to the term ‘technological’ since this type of education prepares learners for higher education and the term ‘vocational education’ continues to refer to the acquisition of skills for specific occupations.

On the other hand, TVET is defined differently by various sources. Here, only a few of them are considered. TVET is described as “a comprehensive term referring to those aspects of the educational system involving, in addition to general education, the study of technological and related sciences and the acquisition of practical skills, attitudes understanding and knowledge relating to occupation in various sectors of economic and social life” (UNESCO, 2006: 9). From UNESCO’s conception of TVET, one can understand that TVET is designed to provide practical skills that can help the trainees for the world of works. Unlike to general education, TVET offers more of practical training for their trainees.

TVET is an orientation and exposure to the subject, which give the knowledge and skills up on which the students could build for future career. TVET is an integral part of

the national educational system through which TVET technological knowledge and practical skills are transmitted to persons from all sphere of society (World Bank, 2001). TVET is broadly defined as “education which is mainly to lead participants to acquire the practical skills, knowhow and understanding, and necessary for employment in a particular occupation, trade, or group of occupations” (Atchoarenaand Delluc, 2002). Multiple providers both in the public and in private sectors can provide such practical skills or knowhow in a wide range of settings. As per to AtchoarenaandDelluc’s (2002) definition, in one way or another fundamentally TVET indicate that it is a field of human endeavor that develops practical skills and knowledge in preparation for work and future studies.

UNESCO (2005) attaches TVET on the 3 H, i.e., the head, the heart and the hand and explains that educating the head is important in order to develop a cadre of intelligent workforce; the heart, in order to mold the workforce into good citizens; and, the hand, for a highly skilled workforce in any work that they do. As Gillie (1973) states, technical and vocational education aims at meeting the manpower needs of a society and providing a sequence of educational and training experiences designed to prepare certain people for initial entry into the world of work. For the purpose of this study, the researcher selects the definition of Gillie (1973) because as TVETs are designed to fulfill manpower requirements of a given nation. In order to facilitate developments of a given country, people should get some kind of practical training that helps them to participate in development process.

It is obvious that vocational and technical education in any society should be geared toward jobs available currently and in the near future. There must be a new partnership between education and the world of work to address the need to develop unity between the sectors of education/training and labor market, i.e. various economic sectors. Thus, UNESCO (1999) summarizes the role of technical vocational education in the society, as a bridge to the future i.e. using resources properly without affecting future generation’s benefit.

## **2.2. The Benefits of Skill Training in TVET Program**

Globalization has made transformation of knowledge, especially in the field of information technology. However, globalization by itself cannot bring the desired results in people's lives unless human beings react. People's reaction, on the other hand, can be expressed in various ways. One way of responding to globalization is the use of the opportunities it provides to meet human needs. TVET, in its part, plays its unique role for the success of development by providing skilled workers.

Major research processes on TVET in Europe have shown that it assumed to bring various benefits to countries. These benefits enable us to understand how TVET contributes to career development and how it affects productivity, enterprise performance and competitiveness (CEDEFOP, 2011). These benefits can be broadly categorized as economic and social benefits. The details of each of these benefits are discussed as follows.

### **2.2.1 Economic Benefits**

Turcotte and Rennison (2004) argue that the presence of graduates of high-level skills increase the quality of the goods and services they produce, stimulates innovation, and increases productivity and profitability. This can be realized through practical training of TVET program. Due to this reason, they emphasize on the value to be given to TVET program.

In another research conducted by European Centre for the Development of Vocational Training (CEDEFOP, 2011) in twenty-one European countries, TVET was believed to play economic benefits at micro (in spite of slight variations in benefits regarding individuals), meso (the benefit for enterprise/group) and macro level the benefits for society as a whole. Accordingly, at the micro level, it is believed to secure earnings, create jobs, reduce skill mismatch, and integrate into the labor market with satisfactory wage. It also provides further career development opportunities and professional statuses.

At meso level, TVET is thought to increase employees' productivity to contribute for profit and firms' innovativeness. Moreover, at the macro level, it has the power to increase public and private investment in terms of profitability and economic growth. It also reduces unemployment and inequality in labor market (CEDEFOP, 2011). However, this kind of research (the role of TVET in economic benefit) is susceptible to criticism because economic benefits, which are more tangible in quantitative terms, may seem less difficult to measure in terms of outcome.

In a similar research conducted by UNESCO (1992), the following economic advantages of TVET were also cited. First, economic policies providing incentives for investment and employment creation are central to providing jobs for graduates of schools and training centers. Second, adopting the right objectives for TVET is important. TVET works best when focused on existing or future employment and skill needs. Demand-driven TVET is responsive to market needs. It is less effective when addressing supply-driven objectives. Finally, where skill training for specific occupations or jobs is involved, the evidence favors enterprise-based training.

On the other hand, the economic advantage of TVET for African countries is taken to be important as it can play major role in reducing poverty. Evidently, poverty is a challenge for all sectors of development in most of the African nations. This challenge can be alleviated by producing technical skilled human resource for the various economic sectors in an entrepreneurial skill (AU, 2007).

From policy point of view, TVET is also considered as a tool that seeks to provide solutions to the practical problems seen in relation to the shortage of competent workers. This kind of approach contributes to the economic and social development of a country (MoE, 2008). This can be realized by producing skillful persons. In line with this, the issue of climate change has currently brought to the attention of governments, political leaders, NGOs, researchers, etc. all over the world. Various solutions are suggested and strategies are designed to mitigate the environmental challenges. The issue has gained clear understanding among governments how to identify skill needs for jobs in low

carbon economy. Therefore, it can be argued that TVET can play a unique role in the development of skills for green jobs (CEDEFOP, 2010).

Being part of the fight against environmental challenges, TVET institutions were expected to respond to policies by producing skills for jobs in low carbon economy. Even in some EU countries, there were practices to catch the attention of trainees and apprentices to work in low carbon economy. In relation to this, TVET providers were expected to develop links with enterprises in order to make demonstration facilities more attractive for the apprentices (CEDEFOP, 2010).

### **2.2.2 Social Benefits**

Along with family, the education system is also a primary means for socialization. Occupational socialization is one important way in which TVET, in particular, can contribute for the inclusion and cohesion within societies. Initially, TVET contributes to the formation of occupational identities and develops a sense of belonging to a community of practice. In conjunction with this, continuing TVET systems contribute to the further development of personal, social and professional identities. It is true that poor or inadequate skills can lead to lifelong poverty. As a result, the social returns from good education and lifelong learning opportunities will increase (CEDEFOP, 2009).

Despite its social benefits, the perception of TVET is low as compared to the general education. This fact can be confirmed by wide literature that the number of enrollees in TVET in the various countries across the world. However, it promotes social cohesion by improving the employment and career prospects of people from the most highly skilled to those with low levels of qualification (CEDEFOP, 2010).

There is a consensus in the role that TVET should play in the socialization of people. So far, little has been written along this line. The process of socialization in TVET can be perceived by its effect. TVET enhances social inclusion by enhancing employability through entry into work or by simply establishing professional socialization. The concept of social cohesion is more popular and can be applied to society as a whole. It may be enhanced through higher rates of employment. Social

cohesion also implies levels of intercommunity cooperation and social solidarity across communities and social groups which are likely to be enhanced by relative equality of incomes, strong social institutions (involved in welfare provision such as health and education) and the prevalence of societal attitudes of trust and tolerance(CEDEFOP, 2009).

The social benefits of TVET can also be perceived at the micro, meso and macro levels. Thus, at micro level its benefits are measured by the quality of life for individuals and effects on personal development, attitudes and motivation. At meso level, its importance can be seen in the inclusion of disadvantaged or marginalized groups through education and TVET. Its advantage at the macro level is a bit wider since it includes family impacts on skills development, supports health service of a nation, contributes to social cohesion, establishes formal and informal networking, gives low grade of social polarization and reduces delinquency and criminal acts in a society (CEDEFOP, 2011). Similar argument was also established in a research conducted by UNESCO (1992) when the results reflected the views of governments and donor agencies with regard to TVET as a means of achieving a range of social objectives. Among these objectives, supplying workers to stimulate growth by avoiding skill bottlenecks, improving the employability of the disadvantaged, providing a path to wage employment especially for women, and diverting youth from aspirations for white-collar employment and higher education are the ones.

### **2.3. Practical Training: Apprenticeship and Internship**

TVET is an educational program that mainly focuses on the practical delivery system. In this delivery system, it is particularly needed to relate with apprenticeship and internship program. As Husen and Postlethwaite (1975) state, the concept of apprenticeship originates from the training of master craftsmen developed by the medieval guilds. It is conducted on the basis of imitative learning way, therefore, justifiably be regarded as the prototype of preindustrial vocational training. The system has provided a means of support for the poor as an apprentice received food, shelter, and

clothing from the employer. Thus, the early apprenticeship did provide both social and economic solutions for several groups of those days and for the new generation of today. Apprenticeship is basically a process of transmitting knowledge and skills in the context of the real world of work. It has also been taken as one element of TVET. Venn (1984) cites that apprenticeship involves a formal agreement covering a definite period of time, which binds the employer to provide training in return for the work of the apprentice. Most apprenticeship runs between two to four years though this duration varies from craft to craft and place to place. A UNESCO publication (1984) also states that technical apprenticeship is at the same time social relationship. Education and teaching would depend not only on the skill to be transmitted but also on the social classes in which they operate. The training relationship would be obviously inseparable from the social relationship. Stressing on its significance, GTZ (2000) and MoE (2002) cite that apprenticeship helps the trainee to apply the concept learned in the class through practice on actual job so as to enhance his/her skills for employment or set and employment.

Emphasizing apprenticeship value, Vicinay (2000) writes that apprenticeship is more efficient than vocational schools in overcoming the difficulty of matching youths technical capacities and firms' needs. Accordingly, apprenticeship program can foster the quality of training practical experience in the real world of work. The TVET in the dual system of Germany, for example, refers out of training time 30 percent in government schools (providing trade theory and first practical exercises) and 70 percent in companies conducting apprenticeship based on occupational standards and following curriculum guides. Although apprenticeship is a successful system in countries such as Germany, in some other countries of the world the program was considered as insufficient to provide the desired skilled workers (UNESCO, 2008).

As Workforce Information Center (2009) in their policy consortium states good teaching/training and learning is just that – nothing more or less, wherever it takes place. The only significant area of difference that emerged was the context in which the learning took place. In the vocational context, applied learning is the order of the day that is,

learning involving real life, practical, hands-on experiences. Clearly, learning an emergency evacuation procedure for an aircraft or plastering a wall is more effective in simulated or real environments. The learner's experience is directly related to the effectiveness of their learning and the context is central to their learning.

As stated in MoE (2008) international experiences show that successful TVET systems are built on strong and well-defined partnerships between government and the non-government sector. Both public and non-public actors are currently involved in TVET. Accordingly, the non-public sector needs to play a decisive role. It already contributes significantly through in-company TVET schemes and, in particular, through widespread traditional apprenticeship training provided in the micro and small business sector. However, the quality of this TVET is often low and requires increased attention and support. In addition to these employer-based TVET schemes, non-government TVET institutions will become an increasingly important pillar of the overall TVET supply.

The cooperative training system refers to mode of training delivery of technical and vocational education and training that combines training in the enterprise and institution based on a training plan collaboratively designed and implemented by industries and respective TVET institutions. Under this system, the industries/companies and the TVET institutions share the responsibility of providing the trainee with the best possible job qualifications, the former essentially through practical training, and the latter by securing an adequate level of specific, general, and occupation-related basic competency. The word "cooperative" refers to the two parties providing training: the concept "system" means that the two parties do not operate independently of one another, but rather coordinate their efforts. The guiding principle is that as all parties involved, namely: the industry, the trainees, and TVET institutions will gain immediate and long-lasting benefit (MoE, 2010).

Cooperative TVET in the formal TVET programs conducted in the form of workplace internships of several months. This represents an important step forward in making the TVET system more relevant. However, cooperative training should be

deepened to fully utilize its advantages for the TVET system. To this end, maximum flexibility is given to TVET providers to negotiate and develop relationships with individual employers, groups of employers or business/sector associations about the organization of cooperative delivery schemes. TVET providers will also be encouraged to venture into more agreements with small companies and the micro enterprise sector as these companies represent the target labor market for a large group of trainees. As a rule TVET providers will have the freedom to develop cooperative TVET programs in accordance with specific needs and potentials of companies and trainees, as long as the training is oriented on the occupational standards and will enable trainees to achieve the necessary competencies of a qualification or part of a qualification (MoE, 2010).

As stated in Edukans Foundation (2009), through Micro and Small Business Development Offices, TVET graduates trained in construction areas are assisted to engage in self-employment ventures, such as building construction material supply, sub-contracting for installation of electrical and plumbing systems in government initiated condominium housing development projects in major urban centers. Nevertheless, now the critical challenge with regard to TVET training is the lack of opportunity for Practicum. There are no adequate number of factories, production units and other opportunities for attachment. Even the existing institutions are not willing to provide attachment opportunities.

#### **2.4. TVET and Its Future Direction**

The meaning and the practice of work in knowledge economies and in globalized networks of production and trade are changing. The need for a highly skilled and productive workforce is shaping economies all over the world. To increase their chances for employability, young people and adults need skill that are flexible and relevant to the demands of today's societies, where individuals must possess a combination of knowledge, practical and social skills, and positive attitudes, as well as the ability to think and act independently, creatively and responsibly (UNESCO, 2008).

This idea is to indicate the key role of TVET in Globalized World. Thus, the ultimate aim of vocational training is adapting the productive force to the situation. Therefore, TVET programs are needed to link the skill to the job market. In this way, the socioeconomic relevance of TVET can be enhanced. Regarding this, UNESCO and ILO, (2002: 2) also indicated that:

Education and training can help an individual to escape poverty. Knowledge and skills are the engine of economic growth and social development of every country; therefore, providing knowledge and skills help the individuals to raise their output and generate income. It assures the sustainability of individuals as well as countrywide prosperity.

From the above argument, one can understand that the importance of knowledge and skills for the world of work. This can be achieved through quality TVET systems. Even, the current TVET system is expected to produce job creators rather than job seekers. Nevertheless, the actual practice deviates from the assumption i.e. the graduates are job seekers.

Moreover, MoE (2010) states the main objective of the TVET sub-sector as it is, to train middle level human power and transfer demanded technologies, and by doing so, to contribute to poverty reduction and sustainable development. As MoE (2010) intention, this will involve implementing an outcome based training system dedicated to promote trust and cooperation among stakeholders, as well as strengthening the role of the TVET system in becoming an agent in technology acquisition, accumulation, and transfer. With this in mind, the TVET system is expected to fully contribute to Ethiopia's vision to become a middle-income country by the year 2025.

## 2.5. Concept of Green Jobs

Different authors define the term green jobs differently. As a result, there is no uniform definition. For example, WIC (2009: 10) defined the term green jobs as:

A green job is one in which the work is essential to products or services that improve energy efficiency, expand the use of renewable energy, or support environmental sustainability. The job involves work in any of these green economic categories: renewable energy and alternative fuels; energy efficiency and conservation; pollution, waste, and greenhouse gas management, prevention, and reduction; environmental cleanup, remediation, and waste cleanup and mitigation; sustainable agriculture and natural resource conservation; education, regulation, compliance, public awareness, and training and energy trading.

From the above definition, one can understand that green job seems a broad term that includes all of the issues which can save the environments from hazards. The aim of the green job for the researcher is using natural resources wisely without causing negative effects for future generations. In relation to this, Bureau of Labor Statistics cited in Center on Education and the Workforce (2010: 36) defined the phrase as " Green jobs are either: A. Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources; B. Jobs in which workers' duties involve making their production processes more environmentally friendly or use fewer natural resources." In supporting the above definitions, UNEP (2008: 55) defines 'green' jobs as "Work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality." From this definition, we can see that UNEP attempts to incorporate aspects of job content as well as the characteristics of industrial goods and services. Moreover, green jobs can be defined as loosely or broadly. In a loose sense, 'green' jobs can be regarded as those associated with environmental objectives and policies (WB, 2012). In this definition, it implies that any objectives and policies that improve the existing environment can be seen as green jobs.

On the other hand, green jobs can be broadly defined as "Jobs that involve protecting wildlife or ecosystems, reducing pollution or waste, or reducing energy usage

and lowering carbon emissions" (Cleary and Kopicki, 2009: 2). From this definition, one can understand that green job is the wise use of natural resources, energy, wildlife, and so forth to balance the ecosystems. It seems that it is fair to do such because as resources are scarce it is difficult to renew once it is destroyed. The authors further stated that green jobs workers will include construction workers, cost estimators, financial analysts, computer technicians, accountants, manufacturing workers, truck drivers, salespersons, scientists, engineers, and many others — as long as their jobs have something to do with energy conservation or increasing the supply of renewable or clean energy sources. In terms of green jobs being newness or oldness, Cleary and Kopicki (2009) stated the majority of green jobs in the nation's energy sector will not be new occupations in the immediate future, but rather traditional occupations that may require an additional layer of green skills and knowledge.

In general, green jobs are kind of any occupation such as waste water management, protection of biodiversity, protection against radiation, management of waters, waste management, management of forest resources, management of energy resources, noise and vibration abatement. By doing so, the existing nations can live better life without compromising the future generation i.e. using the existing resources with proper manner.

## **2.6. Driving Factor for Green Economy**

The driving factors for green economy are different between developed countries and developing countries. In relation to this, GIZ (2009) stated that the driving forces as follows. In developing countries, changing environmental conditions, national environmental policies, and corresponding legislation are the most important factors for driving demand for green skills. The 2011 ILO-CEDEFOP report identified four key driving factors that have changed skills requirements: "(1) Changes in the physical environment itself (2) changes induced by government regulations; (3) more efficient technologies and (4) changes in consumer demand" (ILO-CEDEFOP, 2011: xvii). These drivers of transformation are interrelated. However, the study showed that their relative

importance differs among countries. While consumer behavior and market forces are the most important drivers for change and consequently changed skills requirements in industrialized countries, the most important factors in developing countries are environmental changes, policies and regulations (ILO-CEDEFOP, 2011).

### **Chapter Summary**

The review of the related literature was built around the concept of TVET, the benefits of skill training in TVET program, practical training: apprenticeship and internship, concepts of green jobs and driving factors in green economy.

In the wide literature, the concept of TVET is defined differently by different scholars. Even, some equate TVET with Vocational Education and Training (VET) and others call it as Technical and Vocational Education (TVE). Coming to the benefit of TVET, broadly it has two benefits—economic benefit and social benefit.

The need of practical training is underscored in the literature. The experiences of successful TVET do show the need for apprenticeship and internship programs. Successful TVET systems are built on strong and well defined partnership between government and the non-government sectors.

Finally, green job is also defined differently by different scholars. Anyway, those definitions are around the wise use of natural resources, energy, wildlife and so forth to balance the ecosystem i.e. the existing nation can use the scarce resources without compromising the future generations. The driving force for green jobs are change in physical environment, changes in customer demands, changes induced by government regulations, more efficient technologies and national environmental policies.

## **CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY**

This chapter deals with research design, sources of data, sample and population, instruments of data collection, procedures of data collection, methods of data analysis and ethical considerations. The detail of each sub-section is presented hereunder.

### **3.1. Research Design**

The current study employed the mixed-method approach. This approach helps generate comprehensive data using different kind of information from different sources. In this approach, quantitative data that can be gathered through questionnaire and qualitative information can be collected by interview and document analysis. In relation to this, Creswell (2003) asserts that a mixed method design is useful to capture the best of both quantitative and qualitative approaches. The researcher selects the mixed method approach as it permits the collection of both qualitative and quantitative data concurrently and provides the researcher with multiple perspectives from which a problem and represents an effective method for triangulating data (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2003).

Specifically, this study employed descriptive survey design on the ground that it is found to be helpful to obtain reliable and relevant information from a variety of groups on the actual practices. Strengthening this assumption, Sharma, (2000, p. 186) states that “Descriptive research design makes objective description of status of phenomenon at a particular time without value judgment and with no effort to describe what underlies to happen that way”. These justifications made appropriate to apply mixed method and descriptive survey design.

### **3.2. Sources of Data**

This study employed a combination of primary and secondary sources of data. The researcher obtained primary data from the responses of TVET Agency, college deans, trainers, and trainees. Secondary sources were from journal articles, internet and so forth.

### 3.3. Population and Sampling Size

Once the study area was selected, it is crucial to specify the study population, because improper specification of the population may affect decision made on the type, sample, and resources to be used. In connection to this, Cohn and Manion's (1995) suggest that it is logical to determine the sample and its size depending on the purpose of the study and nature of the study group. Thus, the researcher included Addis Ababa TVET Agency head, college deans, trainers, and trainees in this study. There were 2773 trainees and 433 trainers in the two colleges. Thus, the researcher picked up trainee samples from each college by using the Slovin formula:

$$n = \frac{N}{1 + N(e)^2}$$

$$(1 + N(e)^2)$$

n = sample size

N = population

e = margin of error (5%)

$$n = \frac{2773}{1 + (2773 * (0.05)^2)}$$

$$(1 + (2773 * (0.05)^2))$$

$$n = \frac{2773}{1 + (2773 * 0.0025)}$$

$$(1 + (2773 * 0.0025))$$

$$= \frac{2773}{1 + 6.93}$$

$$1 + 6.93$$

Thus, n = 350

The conventional levels of 95% have been used to ensure to a more truthful result. To be clearer, the researcher summarized sample of the trainees and their proportion in the following table 1.

**Table 1: Distribution of Population and Sample Taken from each College**

College	Number of trainees in the college	Numbers of trainees in specific college *no of samples divided by total no of trainees in both colleges	Sample size (n) from each college
Entoto	1287	$(1287*350)/2773$	162
Misrak	1486	$(1486*350)/2773$	188
Total	2773		350

*Source: Entoto and Misrak poly-technique (2017) documents.*

After determining samples by using the formula, the researcher employed systematic random sampling technique as it offers equal chance of being selected as a sample. To that end, the researcher cut 10 pieces of paper and wrote numbers 1-10 on them (pieces of papers). For example, 1 on one piece of paper, 2 on another piece of paper... after doing similar manner for all pieces of papers, the researcher folded each piece of papers and put them together on flat surface and asked another person to pick one of them through lottery method and he picked up number 7. Thus, the researcher picked up 7 intervals from 2773 trainees list i.e. 7, 14, 21, 28... was picked up until the desired samples (350) was fulfilled.

By using similar formula, the researcher selected trainers from two colleges (Entoto and Misrak colleges). In both colleges, there were 433 trainers. By applying similar formula, 208 trainers were selected as a sample by using systematic random sampling technique and followed similar procedure to the selection of trainees' samples. On the other hand, college deans and TVET Agency head were selected using purposeful sampling technique because the number of the deans and TVET Agency heads are too small and manageable. The reason to choose deans and TVET Agency heads was as they were the primary responsible person to ensure the roles of TVET in preparing graduates for green jobs.

### 3.4. Instruments of Data Collection

In an attempt to collect data, the researcher used questionnaire, interview, and document analysis. The researcher constructed questionnaire as the main source of data gathering instrument.

**Questionnaire:** is less expensive, offers greater anonymity of respondents and appropriate for collecting information (Kumar, 1999). A questionnaire that was distributed to trainer and trainees is made up of both open-ended and close-ended questions. Close-ended question is used for its ease in tabulation, objectivity, and suitability to keep respondents on the subject of discussion. Moreover, properly set, close-ended questions are preferred for they provide uniform set of responses easy for analysis and interpretation (Cohn and Manion, 1995). To that end, the researcher developed questionnaire that can assess the role of TVET in preparing graduates for green jobs.

The researcher used self-developed questionnaire in this study. While developing the questionnaire, the researcher gave due emphasis on principles of questionnaire construction (for example, uses natural and familiar language, avoid double negatives, understand the research participants, and so forth) (Johnson and Christensen, 2008). Based on the principles of questionnaire construction, the researcher developed questionnaire on the roles of TVET in preparing its graduates for green jobs. The researcher ranked the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Two sets of questionnaires were prepared and distributed for trainers and trainees. To that end, the content of questionnaires for both groups was different and similar to some extent. This is because there might be some aspects of green jobs that are vague for trainees and might be clear for trainers. For example, trainees might not have an idea about the TVET agency's effort to offer training on green jobs, whether college allocated enough budget for green jobs, whether the college included green jobs in curriculum, whether TVET Agency often come and visit green job practices. If such issues are there, trainers have more information. On the other hand, trainees were asked about provision

of awareness about green jobs for them, provision of training about green jobs for them and the attitude towards green jobs and the like.

Alternatively, both groups were asked to show their level of arguments on similar items that focuses on major factors that hinder the practices of colleges. Accordingly, 208 trainers were asked to rate 19 items independently and 350 trainees were asked to rate 10 items independently and both groups were asked to rate 21 similar items. After constructing the questionnaire, the researcher asked two classmates who have relatively good experiences on research to see and comment the researcher's questionnaire and they saw and gave me feedback. As per their comments, the researcher improved some ambiguous terms and submitted to the advisor. Even, in the principles of questionnaire construction, (Johnson and Christensen, 2008) stated that "Always pilot test your questionnaire even though, Professors and classmates commented on it." The researcher corrected it for it for was important to pilot test the survey questionnaire because there may be knowledge gap between the researcher and respondents. The researcher pilot tested the questionnaire at Tegibareid TVET College. To this end, the researcher distributed ten-draft questionnaire to five trainers and five trainees. Based on the pilot test, the researcher calculated the internal consistency of the instruments using Cronbach's Alpha as it is appropriate to test the reliability of Lickert questions (five-point scales). Test results of 0.65 and above are reliable for attitude, opinion, and perception question items (Yalew, 2011). Because of pilot tests, some of the question items, which are not properly set, were adjusted and some terminologies were simplified. To that end, the results of Cronbach alpha show that 0.85 (see appendix E) for trainers' questionnaires, 0.82 (see appendix D) for trainees' questionnaires, and 0.87 (see appendix F) for common variables for both trainers and trainees.

**Interview:** Semi-structured interview questions were prepared and administrated to college deans and TVET Agency head. To support and crosscheck the findings from the questionnaire, the researcher employed semi-structured interview. The reason for this is that semi-structured items leave much more interpretation to the respondent. In addition

to this, the researcher has the room for probing the responses by asking different questions (Wiersma and Jurs, 2009).

**Review of College Documents:** Initially, the researcher intended to review documents which focus on minutes and records of the colleges that show the practices of green jobs. Nevertheless, it was difficult to find such documents in the college as the practices were insignificant in the colleges. In the current study, trainers' and trainees' lists were used as document review.

### **3.5. Procedure of Data Collection**

Before distributing the questionnaire and conducting interview, firstly the researcher requested the Department of Curriculum and Instruction of Addis Ababa University to write a letter of cooperation for Entoto and Misrak Poly-technique Colleges.

Secondly, the researcher communicated the deans in the colleges, described objectives of the research to them, and asked their cooperation to gather data.

Thirdly, prior to distributing the questionnaire and enter directly to the process of data collection, the researcher made necessary clarifications of the research information to target group of the study by the researcher.

Fourthly, the researcher distributed questionnaires to trainers and trainees in the colleges' compound. Two days were given to the respondents to contemplate on the implication and meanings of the items so that they can provide accurate information.

With regard to interview, the researcher contacted the participants to obtain their permission to participate in the interview and it was held in their offices. Moreover, interview was conducted in Amharic because the researcher believes that the participants may understand the gist of information more in Amharic than in English.

### **3.6. Methods of Data Analysis**

Both descriptive (frequency, percentages, mean, and standard deviation) and inferential statistic such as t-test were employed based on the basic questions stated and on the nature of the data collected. Consequently, the researcher analyzed the data as follows:

The data gathered through questionnaire was checked, coded, and classified with respect to the respondents' category. Following this, the coded data were entered to SPSS 20 programs. Mean and standard deviation were applied for organizing and summarizing sets of numerical data collected through questionnaires. These measures of central tendency and measure of variability was selected because they are generally considered as the best measure to provide a good description of how members of a sample scored on a particular measure (Best and Khan, 2004).

As mentioned before, data were collected from two sets of questionnaires (questionnaire for trainers and questionnaires for trainees). To that end, trainers were asked to rate 19 items independently whereas, trainees were asked to show their level of agreement on 10 items independently and both groups were asked to show their level agreement on 21 items. Thus, trainers' response was analyzed initially and independently. Then, trainees' responses were analyzed independently. Finally, the responses of both trainers and trainees were analyzed together as they have similar 21 items together.

T-test was applied to test the significance difference of the score among the groups (trainers and trainees) of the respondents of the questionnaires. Finally, the qualitative data that were collected through interviews and document reviews were reported through narrative description to complement the quantitative data (data gathered through questionnaires).

### **3.7. Ethical Considerations**

Efforts were made to make the research process professional and ethical. To this end, the researcher tried to clearly inform to the respondents about the purpose of the study i.e. purely for academic as the researcher introduced her purpose in the introduction

part of questionnaire and interview guide to the respondents and confirmed that subjects confidentiality. In addition to this, they were informed that their participation in the study was be based on their consents. In addition, the researcher did not personalize any of the response of the respondents during data presentations, analysis, and interpretation. Furthermore, all the materials that were used for this research were acknowledged.

## CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

This chapter deals with the presentation, analysis, and interpretation of data collected through questionnaire, interview, and document analysis. The data obtained from Addis Ababa TVET Agency, deans, trainers, and trainees were analyzed and interpreted.

### 4.1. Characteristics of Respondents

Description of the characteristics of respondents, give some basic information about the sample involved in the study. Therefore, the following table was constructed to show the general features of trainers’/ respondents involved in the study.

**Table 2: Background of Trainers’ Characteristics**

No	Characteristics	Variables	Trainers	
			Frequency	Percent
1	Sex	Male	98	65.5
		Female	52	34.5
		<b>Total</b>	<b>150</b>	<b>100</b>
2	Age	20-30	70	46.4
		31-40	42	28.2
		41-50	38	25.4
		51 & above	-	-
		<b>Total</b>	<b>150</b>	<b>100</b>
3	Experience	Less than 6 years	27	18.2
		6-10	46	30.9
		11-15	14	9.1
		16-20	25	16.4
		Greater than 20	38	25.4
		<b>Total</b>	<b>150</b>	<b>100</b>
4	Qualification	Diploma	48	31.8
		Degree	75	50.0
		Second Degree	27	18.2
		Other	-	-
		<b>Total</b>	<b>150</b>	<b>100</b>
5	Level of teaching	3 <sup>rd</sup>	55	36.4
		4 <sup>th</sup>	37	24.5
		5 <sup>th</sup>	20	13.6
		Other	38	25.5
		<b>Total</b>	<b>150</b>	<b>100</b>

As indicated in the table 2 above, 98 (65.5%) of the respondents were male and the remaining 52 (34.5%) of them were female trainers. From this, one can understand that gender disparity was also prevalent in Entoto and Misrak Poly-technique colleges. Coming to the respondents' age, 112(74.6%) of the respondents have 40 and below years and the remaining 38(25.4%) of them have 41 and above years.

With regard to their teaching experiences, 73(49.1%) of the respondents served for 10 years and below while the remaining 77(50.9%) of them served for 11 years and above. From this, one can infer that majority of the respondents have high years of experience that might help them to adopt new technologies that can enhance green job practices.

With regards to the qualifications of respondents, 48(31.8%) of them were Diploma holders, 75 (50%) of them were first Degree holders, 27(18.2%) of them were second Degree holders. From this, one can understand that almost one third of trainers were diploma holders and that might contribute to low quality of training with regard to green jobs.

Concerning to their levels of teaching, 55 (36.4%) of the respondents have been teaching 3<sup>rd</sup> level students, 37 (24.5%) of them have been teaching 4<sup>th</sup> level students, 20 (13.6%) of them have been teaching 5<sup>th</sup> level students, and the remaining 38 (25.5%) of them have been teaching others i.e. some of them have been teaching level 1 and 2, level 3 and 4, level 3, 4, and 5. As it is indicated in the table above, the data were collected from diverse and appropriate groups, who might have sufficient information about the issue under study.

#### **4.2. The Role of TVET in Enhancing Green Jobs**

In order to facilitate green jobs, the TVET Agency and Entoto and Misrak colleges were expected to accomplish different tasks. To judge whether the Agency and colleges did or did not do their roles, 18 items were forwarded to trainer respondents. The following table depicts their levels of agreement on each item.

**Table 3: Trainers' Rating on the Roles of TVET Agency and Colleges on Facilitating Green Jobs**

No	Item	n	Mean	Standard Deviation
1	Green jobs are included in TVET curriculum	150	3.08	1.204
2	Green jobs' awareness is given to the college community	150	4.15	0.940
3	Special budget is granted to green jobs	150	2.99	1.237
4	TVET agency offered training on green jobs.	150	2.86	0.943
5	Different countries' experiences of green jobs are shared with the college community	150	3.88	0.601
6	The Dean of the college gives due emphasis for green jobs.	150	3.44	0.959
7	TVET Agency visits the college to over-see the practice of green jobs	150	3.40	0.437
8	The work of green jobs done by trainers is encouraged.	150	3.37	0.702
9	The work of green jobs done by trainees is encouraged.	150	3.39	1.117
10	Our college shares the experiences of green jobs with different colleges.	150	2.26	0.973
11	Our college bought additional tools that facilitate green jobs	150	2.39	1.101
12	Trainers were sent to attend workshops about green jobs in other countries.	150	2.50	0.864
13	Trainers were sent to attend workshops about green jobs within a country	150	2.45	0.821
14	Relevant service rendering organizations are available for green job practices	150	3.26	1.080
15	The college has sufficient lecturing spaces to accommodate students	150	2.75	0.978
16	The college does evaluation periodically	150	2.88	1.554
17	Latest books or journals on green jobs are available in the college's library	150	2.00	0.716
18	Trainers have access to internet	150	2.38	1.233
19	Trainees have access to internet	150	2.31	1.205

Source: Field Survey

From Table3above, respondents were asked to rate whether green jobs are included in TVET curriculum. The result depicted that the respondents were not in a position to agree or disagree (undecided) with the item. The item has the mean score of 3.08 and standard deviation of 1.204. From this, one can infer that the trainers did not participate in curriculum modification or the curriculum considered green jobs, yet it (green jobs) might not be applicable.

As indicated in Table 3 of item 2 above, the respondents were asked to rate whether their college has given awareness creation about green jobs to the college

community. Respondents agreed that the item has shown a mean score of 4.15 and standard deviation of 0.940. In order to triangulate data, the researcher interviewed Addis Ababa TVET Agency and college deans about awareness creation of green jobs. The interviewees agreed with the prevalence of awareness creation. Further, TVET Agency replied the following:

Yes, we offered awareness creation to colleges communities. As all we know the environment is changing from time to time. In order to cope up with the changing environment, we have to give proper care for the environment. In coming years, the Agency want to send trainees to abroad in order to equip them the necessary experience that can enhance green jobs.

From the above, one can understand that there was awareness creation in TVET colleges.

The mean score of 2.99 and standard deviation of 1.237 of respondents in item 3 of Table 3 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether there was special budget granted to green jobs. It can be infer that the financial aspects of TVET might not be clear for trainers in the college. The interview guide conducted with TVET Agency and college deans about the prevalence of special budget for green jobs. Both TVET agency and deans replied that they have no special budget for the green jobs. However, the colleges have the right to allocate budgets for green jobs.

As indicated in Table 3 of item 4 above, the respondents were asked to rate whether Addis Ababa TVET agency offered training on green jobs. Respondents were not in a position to agree or to disagree with the item as shown of the mean score of 2.86 and standard deviation of 0.943. From this, one can infer that Addis Ababa TVET Agency might have been offering training on different issues. If there was training and the contents of training was not disclosed to trainers it is difficult to say there was no training on green jobs or there was training on green jobs.

As indicated in Table 3 of item 5 above, the respondents were asked to rate whether different countries experiences of green jobs were shared with the college community. Respondents agreed the item as shown of the mean score of 3.88 and standard deviation of 0.601.

The mean score of 3.44 and standard deviation of 0.959 of respondents in item 6 of Table3 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether the dean of the college gave due emphasis for green jobs. In relation to this, the deans were asked about the importance and practices of green jobs in their respective colleges. Both deans from respective college believe the importance of green jobs. One of the deans further stated the following:

Nowadays, things are going from bad to worst. The weather is changing from time to time. There has been global warming that has been affecting nations in the globe. Thus, it is very important to enhance green job practices in TVET colleges. Even, I am very happy if the practices of green jobs are not limited to TVET. However, coming to its practice in our college, its practices were hindered by various problems. For instance, lack of budget, training materials and so forth.

It can be inferred that the deans understand the importance of green jobs. However; there were ample problems that hindered the practice such as shortage of times, non-prevalence of budgets for green jobs and so forth.

As indicated in Table 3 of item 7 above, the respondents were asked to rate whether TVET Agency often visits the college to over-see the practice of green jobs. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 3.40 and standard deviation of 0.437. In order to triangulate this data, the researcher interviewed both TVET Agency and deans. All interviewees agreed with the prevalence of TVET Agency's supervision to the colleges. TVET Agency said that:

Sometimes we visit the colleges about the whole practices of colleges and how well it is going. In fact, we supervise colleges not for sole purpose to see the practices of colleges about green jobs. We have checklist that also include green job practices. We (TVET Agency and Colleges) often

communicate with the reports i.e. colleges often write reports to the agency.

The mean score of 3.37 and standard deviation of 0.702 of respondents in item 8 of Table3 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether the work of green jobs done by trainers was encouraged by the college. Here again, to check the reliability of the data, the researcher interviewed TVET Agency and deans about the encouragement of the practices of green jobs. The interviewees said that they were encouraging trainers and trainees while there were green jobs practices. They further stated that because of absence of additional budgets for the work of green jobs, they forced to stop incentives for the trainers as well as for the trainees.

From this, one can infer that for the practices of green jobs there was no adequate encouragement or incentives at the expected manner. Nevertheless, encouragement or incentives can be in the form of money, material or recognition. Though there were budget shortages in colleges, it is possible to offer a kind of certificate that recognized trainers' and trainees' practices on green jobs.

As indicated in Table 3 of item 9 above, the respondents were asked to rate whether the work of green jobs done by trainees was encouraged. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 3.39 and standard deviation of 1.117. The inference on item 9 is similar with the inferences of item 8.

The mean score of 2.26 and standard deviation of 0.97 of respondents in item 10 of Table3 showed that they were in disagree with the item that asks whether their college shares the experiences of green jobs with different colleges. To triangulate the data, the researcher interviewed college deans about the prevalence of experience sharing about green job practices among colleges. They said that they have no strong experience sharing about the practices of green jobs. As this issue is not well practiced in the

colleges, they have no room for sharing experiences. From this, one can infer that there was no experience sharing about the practices of green jobs.

As indicated in Table 3 of item 11 above, the respondents were asked to rate whether their colleges bought additional tools that can facilitate green jobs. Respondents were disagreed with the item. The item has mean score of 2.39 and standard deviation of 1.101. From this, one can infer that college have been bought new equipment and machines from time to time but the trainers might not know whether the machines were bought to facilitate green jobs or not. As a result, on such condition, it is difficult to agree or disagree with the item.

The mean score of 2.50 and standard deviation of 0.864 of respondents in item 12 of Table3 showed that they were not in a position to say agree or disagree (undecided) with the item that asks whether trainers were sent to attend workshops about green jobs in other countries. From this, one can infer that trainers might be sent to abroad to get some kind of training yet the content of training might not be disclosed for trainers. At this time, it is difficult to say agree or disagree with the item.

As indicated in Table 3 of item 13 above, the respondents were asked to rate whether trainers were sent to attend workshops about green jobs within the country. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.45 and standard deviation of 0.821. Item 13 might share similar inferences with item 12.

As indicated in Table 3 of item 14 above, the respondents were asked to rate whether relevant service rendering organizations were available for green job practices. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 3.26 and standard deviation of 1.080. From this, one can infer that because of the practices were not implementing at the expected level, it might be difficult for them to say agree or disagree.

The mean score of 2.75 and standard deviation of 0.978 of respondents in item 15 of Table 3 showed that they were not in a position to say agree or disagree (undecided) with the item that asks whether their college has sufficient lecturing spaces to accommodate students. From this, one can infer that the trainers might not say the space is enough or not enough if they do not know the standards of the spaces.

As indicated in Table 3 of item 16 above, the respondents were asked to rate whether their college did evaluation periodically. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.88 and standard deviation of 1.554. From this, we can infer that there were evaluations. However; the trainers did not know the frequency of evaluation. Because of this, it is difficult to agree or disagree with the item.

The mean score of 2.00 and standard deviation of 0.716 of respondents in item 17 of Table 3 showed that they disagreed to the item that asks whether their college has latest books or journals on green jobs.

As indicated in Table 3 of item 18 above, the respondents were asked to rate whether trainers had access to internet. Respondents disagreed to the item. The item has mean score of 2.38 and standard deviation of 1.233. To triangulated data, the researcher interviewed college deans about the availability of internet access to trainers. The deans said that it is difficult to say that they have fast internet connections. They further stated that they have been working to improve internet access for both trainers and trainees. For the time being, there was an internet connection problem. From this one can infer that there were problems of internet connections in the TVET colleges.

The mean score of 2.31 and standard deviation of 1.205 of respondents in item 19 of Table 3 showed that they disagreed to the item that asks whether trainers have access to internet. This item also shares the inferences from item 18.

## 4.2. Trainees' Background Characteristics

It is worthwhile to know the general information of trainees who participated in this study. Thus, respondents (trainees) sex, age, and their levels of training is presented in table4below.

**Table 4: Trainees' Background Characteristics**

No	Characteristics	Variables	Trainees	
			Frequency	Percent
1	Number of trainee respondents in respective college	Entoto	104	38.2
		Misirak	168	61.9
		<b>Total</b>	<b>272</b>	<b>100</b>
2	Sex	Male	152	55.9
		Female	120	44.1
		<b>Total</b>	<b>272</b>	<b>100</b>
3	Age	16-20	174	64
		21-25	66	24.3
		26-30	27	9.9
		31 and more	5	1.8
		<b>Total</b>	<b>272</b>	<b>100</b>
4	Level of students' training	3 <sup>rd</sup>	100	36.8
		4 <sup>th</sup>	158	58.1
		5 <sup>th</sup>	9	3.3
		<b>Total</b>	<b>272</b>	<b>100</b>

Source: Field Survey

Regarding to the number of trainees who involved in the study, 104 (38.2%) of the respondents were from Entoto TVET College whereas the remaining 168 (61.9%) of them were from Misirak Polytechnic College.

Coming to the sex of students, 152 (55.9%) of them were male trainees whereas 120 (44.1%) of them were female trainees. From this, one can infer that as usual there is also trainees' gender disparity in TVET colleges.

With regard to age of trainees, 174 (64%) of the respondents were between 16-20 years, 66 (24.3%) of them were between 21-25 years, 27 (9.9%) of them were between 26-30 years and 5 (1.8%) of them were 31 and above years. From the above data one can infer that 88.3 percent of the respondents were in between 16-25 year of age.

Coming to the last item (levels of trainees' training), 105 (38.6%) of respondents have been attending 3<sup>rd</sup> level training, 158 (58.1%) of respondents have been attending 4<sup>th</sup> level training, and the remaining 14 (5.1%) of respondents have been attending 5<sup>th</sup> level training. The above characteristics of the trainees' respondents show that the data were collected from those who can represent the target group.

#### **4.3. Trainers' Perception towards Green Jobs**

It is expected that if there were green job practices in the colleges, since students were one of stakeholders to accomplish green jobs goal. Thus, 12 items were developed and forwarded for trainees. Their level of agreement is presented hereunder.

**Table 5: Trainees' Rating on the Practices of Green Jobs**

No	Item	n	Mean	Standard Deviation
1	Green jobs awareness creation was given for trainees	272	2.50	1.235
2	Green jobs training was given for trainees	272	2.40	1.177
3	The motivation of trainees to participate in green jobs	272	2.66	1.348
4	Trainees participate in the workshop about green jobs.	272	2.37	1.199
5	Trainees visit the practice of other colleges on green jobs.	272	2.41	1.271
6	The college offer training for trainees on how to protect their environment	272	2.54	1.287
7	There are trainees who participated in green jobs.	272	2.84	1.151
8	Incentives are offered to trainees for those who participated in green jobs.	272	2.52	1.244
9	Green jobs' news and best practices are posted on boards.	272	2.74	1.295
10	I don't like jobs that make hands dirty	272	2.96	1.349

Source: Field Survey

As indicated in Table 5 of item 1 above, the respondents were asked to rate whether their college has given awareness about green jobs for trainees. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.50 and standard deviation of 1.235. From this, one can infer that trainees had no idea about whether there was (was not) awareness creation on green jobs.

The mean score of 2.40 and standard deviation of 1.177 of respondents in item 2 of Table5 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether their college had given green jobs training for trainees. It can be inferred that the college might given training on green jobs yet it might not enough.

As indicated in Table 5 of item 3 above, the respondents were asked to rate whether trainees had motivation to participate in green jobs. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.66

and standard deviation of 1.348. From this, one can infer that trainees had no idea about green jobs.

The mean score of 2.37 and standard deviation of 1.199 of respondents in item 4 of Table 5 showed that they disagreed to the item that asks whether students participate in the workshop about green jobs. It can be inferred that the college had given workshops on green jobs yet it might not enough.

As indicated in Table 5 of item 5 above, the respondents asked to rate whether trainees visited the practice of other colleges on green jobs. Respondents were disagreed with the item. The item has mean score of 2.41 and standard deviation of 1.271.

The mean score of 2.54 and standard deviation of 1.287 of respondents in item 6 of Table 5 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether their college had offered training for trainees on how to protect their environment. It can be inferred that the college has given training on green jobs yet it might not enough.

As indicated in Table 5 of item 7 above, the respondents were asked to rate whether there were trainees who participated in green jobs. Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.84 and standard deviation of 1.151.

The mean score of 2.52 and standard deviation of 1.244 of respondents in item 8 of Table 5 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether their college had offered incentives to trainees for those who participated in green jobs. It can be inferred that the college had given incentives for trainees who participated in green jobs yet it might be inadequate or the college sometimes offer incentives and other times it do not offer incentives for those trainees who participated in green jobs.

As indicated in Table 5 of item 9 above, the respondents were asked to rate whether their college had posted green jobs' news and best practices on boards.

Respondents were not in a position to agree or disagree (undecided) with the item. The item has mean score of 2.74 and standard deviation of 1.295.

The mean score of 2.96 and standard deviation of 1.349 of respondents in item 10 of Table 5 showed that they were not in a position to agree or disagree (undecided) with the item that asks whether trainees like jobs that make hands dirty.

#### **4.5. Major problems in Implementation of Green Jobs**

With regard to major problems, 20 items were presented to both trainers and trainees. All items were set to elicit the impediments that hinder the practices of TVET. Both groups were asked to rate from strongly disagree to strongly agree depending on the degree of its hindrance. For the case of analysis, the scales strongly agree and agree indicate the impediments to the practices of TVET; undecided represents neither agree nor disagree with the item. Alternatively, disagree and strongly disagree indicate that those items are not the real cause of impediments. Mean values were used to judge degree of impediments in each item. To that end, mean value less than or equals to 2.44 was considered as disagree; mean value in between 2.45-3.44 was considered as undecided; and mean value more than 3.44 was considered as agreement with the item.

**Table 6: Trainers and Trainees Rating on Major Factors that Impede TVET Practices on Green Jobs**

No	Item description Hindering factors for green jobs	Respondents Response				WM	Comparing means by using t-test		
		Trainers(n=110)		Trainees(n= 272)			T value	Df	Sig 2 tailed
		mean	SD	Mean	SD				
1	Lack leaders' commitment	3.49	1.339	3.19	1.342	3.27	1.958	420	0.049
2	Shortage of budgets	2.74	.980	3.66	1.763	3.39	-5.156	420	0.000
3	Unplanned meetings	3.62	.984	3.36	1.300	3.43	1.939	420	0.530
4	Lack trainers' commitment	2.61	1.233	3.08	1.432	2.94	-3.214	420	0.001
5	Lack of workshop facilities	3.74	1.214	3.43	1.513	3.51	-3.018	420	0.003
6	Lack of trainees' interest	3.25	1.214	3.52	1.387	3.44	1.923	420	0.055
7	Shortage of teaching materials	4.10	1.060	3.37	1.282	3.58	-1.766	420	0.078
8	Inefficient utilization of resources	4.00	.716	3.25	1.270	3.46	5.284	420	0.000
9	Inefficient utilization of equipment	3.26	1.209	3.11	1.371	3.15	-5.796	420	0.010
10	Inadequate labor market information system	3.38	1.327	3.32	1.305	3.33	0.998	420	0.319
11	Weak information sharing system	3.76	.834	2.90	1.248	3.14	0.393	420	0.694
12	Weak information coordination system	4.13	.597	3.06	1.333	3.36	6.610	420	0.000
13	Low societal awareness about the benefit of TVET	3.25	1.214	3.18	1.327	3.20	0.458	420	0.647
14	Inadequate stakeholders' participation in delivery of TVET	4.00	1.013	3.55	1.348	3.67	-3.094	420	0.002
15	Lack of awareness of trainers' to train on green job	4.00	1.009	3.73	1.392	2.65	1.890	420	0.059
16	Lack of monitoring and evaluation systems	4.11	.786	3.48	1.460	3.66	-4.273	420	0.320
17	Low capacity of trainers' to adopt and transfer technology	3.89	1.060	3.55	1.298	3.64	-2.379	420	0.018
18	Trainers' turn over	4.12	.607	3.66	.914	3.79	1.878	420	0.000
19	De-motivation of trainers'	3.88	1.163	3.59	1.026	3.67	-2.403	420	0.017
20	Lack of internet access	3.38	1.226	3.46	.978	3.43	-.713	420	0.476
21	Lack of practical examples somewhere else	3.98	1.106	3.72	1.234	3.81	1.872	420	0.018
Mean Average		<b>3.64</b>		<b>3.37</b>					

WM=Weighted Mean, N=Number, t-critical value=1.96, Df= Degree of Freedom, significance level=0.05

**Source: Field Survey**

As it can be seen from Table 6 above, the major factors that affected the practices of TVET that in turn the practices of green jobs was rated high (3.64) by trainers and was rated as moderate (3.37) by trainees. Thus, there seems an agreement between the responses of trainers and trainees on hindering factors.

The mean scores of trainers on lack of workshop facilities, shortage of teaching materials, inefficient utilization of resources, weak information sharing system, weak information coordination system, inadequate stakeholders participation in delivery of TVET, lack of awareness of trainers to train on green jobs, lack of monitoring and evaluation system, low capacity of trainers to adopt and transfer technology, trainers turnover, demotivation of trainers, and lack of practical examples somewhere else were rated as 3.74, 4.10, 4.00, 3.76, 4.13, 4.00, 4.00, 4.11, 3.89, 4.12, 3.88, and 3.98 respectively.

On the other hand, mean scores of trainees on trainers turn over, demotivation of trainers, low capacity of trainers to adopt and transfer technology, lack of awareness of trainers' to train on green jobs, inadequate stakeholders participation in delivery of TVET, lack of trainees' interest and lack of practical examples somewhere else were rates as 3.66, 3.59, 3.55, 3.73, 3.55, 3.52, and 3.72 respectively.

Alternatively, both trainers and trainees' groups rated the items such as lack of workshop facilities, shortage of teaching materials, inadequate stakeholders' participation in delivery of TVET, lack of monitoring and evaluation systems, low capacity of trainers to adopt and transfer technology, trainers turnover, de-motivation of trainers and lack of practical examples somewhere else have weighted mean score of 3.51, 3.58, 3.67, 3.64, 3.79, 3.67 and 3.81 respectively. The items were scored as highly affecting factors for TVET practices. Whereas, both groups rated the items lack of trainers' commitment and lack of awareness to train on green jobs as moderate as indicated in weighted means 2.94 and 2.65 respectively.

On the other hand, there were also items that two groups rated similar items differently. For example, shortage of teaching materials was rated as high in their mean

score (4.10) whereas Trainees group rated this item as moderate (3.37); the trainers group rated the item that asks whether there was inefficient utilization of resources as high (4.00) whereas the same item was scored by trainees as moderate (3.25). In addition, trainers' group rated weak information coordination system as high (4.13) whereas trainees' group rated the same item as moderate (3.06).

An independent sample t-test was conducted to compare hindering factors for green job practices mean scores for both trainers' and trainees' groups. As a result, both groups rated 9 items (items 5, 7, 8, 14, 16, 17, 18, 19 and 21 ) as high factor, 12 items (items 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 15, & 20) as moderate factor with no statistical significant differences in their responses. All obtained t-values were less than t-critical (1.96) when tested at alpha level 0.05.

## **CHAPTER FIVE: SUMMARY OF MAJOR FINDINGS, CONCLUSIONS, and RECOMMENDATIONS**

### **5.1. Summary of Major Findings**

In this chapter, major findings of the study have been summarized, conclusion are made based on findings has been drawn, and then recommendations that are thought to be operational to alleviate the problems have been forwarded. To achieve the objective of the study, the following basic questions were formulated.

1. What is the level of colleges' practitioners' awareness towards green jobs in Entoto and Misrak colleges?
2. How do Entoto and Misrak colleges prepare their graduates for green jobs in Entoto and Misrak colleges?
3. Do trainees of Entoto and Misrak colleges have interest towards green jobs?

In order to answer these basic questions related literature was reviewed. Moreover, the researcher employed three types of data gathering instruments (questionnaire, interview, and document analysis). The participants of the study were 1 TVET Agency head, 2 deans, 150 trainers, and 272 trainees. To that end, TVET Agency head and deans were interviewed whereas; trainers and trainees filled the questionnaires. Out of 208 questionnaires distributed to trainers, 150 (72%) were correctly filled and returned to the researcher. Similarly, 350 questionnaires were distributed to trainees but 272 (78%) questionnaires were correctly filled and returned to the researcher. With respect to sufficiency of response rate, Babbie (1990) suggests that response rate of 50% is adequate, 60% is good, and 70% or above is very good. Therefore, as the response rate in this research was very good.

To select the TVETs the researcher used simple random sampling technique. On the other hand, the researcher selected TVET Agency head and deans by using purposeful sampling technique. Alternatively, the researcher selected trainers and trainees through systematic random sampling technique.

The data obtained through questionnaires were systematically coded, tabulated, and entered in to SPSS Version 20. The statistical tools used to analyze the data were frequency, percentage, mean, standard deviation, and t-test. Moreover, the data obtained through interview and document analysis were analyzed in the form of narration to complement the data that was obtained through questionnaire. Finally, the following major results were obtained from study.

1. Among trainers, male constituted 65.5% while female constituted 34.5%. Regarding the age of respondents, 74.6 % of trainers were 40 and below 40 years. The finding also shows that 58.2% of trainers had served for 15 years and below whereas the remaining 41.8 % served for more than 15 years. With regard to the qualification of the respondents, 31.8% have diploma, 50% have degree and the remaining 18.2% have second degree. Coming to their level of training, 36.4% had been training 3<sup>rd</sup> level, 24.5% had been training 4<sup>th</sup> level, 13.6% had been training 5<sup>th</sup> level and the remaining 25.5% had been training either 2 levels or all the three levels.
2. Among trainees who participated in the current study, 38.2% of the respondents were from Entoto TVET College whereas 61.9% of the participants were from Misrak Poly-technique College. With regard to their sex, male constituted 55.9% whereas female constituted 44.1%. Coming to the age of trainees, 64% of the respondents were 20 and below 20 years. The remaining 36% of them were more than 20 years of age. Concerning to their level of training, 36% of them were 3<sup>rd</sup> level trainees, 58.1% of them were 4<sup>th</sup> level trainees, and the remaining 5.1% of them were 5<sup>th</sup> level trainees.
3. In both Entoto TVET and Misrak Poly-Technique Colleges, the offered awareness creation to the colleges' community was not enough. Even, some of the respondents did not agree on the prevalence of awareness creation towards green jobs in their colleges.
4. In both colleges, the importance of green jobs were not discussed clearly and even, the majority of trainers and trainees did not know the term green jobs by itself. No

special budgets were allocated this issue. It seems that the colleges were not preparing their graduates for green jobs.

5. Because of the absence of green job's awareness creation and green job practices, trainees were not in a position to say they had or had not interests towards green jobs. The trainees rated the items that related to their interest towards green jobs are undecided.

## **5.2. Conclusions**

Based on the finding of the study, the following conclusions were drawn.

As the issues of green job is latest and very important to a given nation, it was not well understood by the practitioners because green jobs awareness creation was not repeatedly conducted by both Addis Ababa TVET Agency and the two Colleges (Entoto and Misrak). In addition, it seems that colleges' trainees had not got enough awareness creation towards green jobs. As a result, they were confused to respond as agree or disagree about green jobs awareness creation, its implementation and their motivation and interest towards green jobs. Here again, the colleges were bounded by many problems like frequent trainers turnover, demotivation of trainers, shortage of teaching materials, lack of motivation and evaluation systems and so on. On top of this, the colleges did not locate special budgets for green jobs; motivate trainers and trainees for their participation in green jobs. Therefore, one can fairly conclude that the colleges were not equipping their graduates with necessary skills that can enhance the practice of green jobs at the expected levels.

### **5.3. Recommendations**

Based on the findings and conclusions stated above, the following recommendations were forwarded:

1. The issue of green jobs is correct thing and global phenomenon. Thus, the colleges should prepare sound proposal on green jobs and gain financial and expertise assistance from national and international non-governmental organizations to facilitate the practices of green jobs.
2. The colleges should arouse the interest of trainees and trainers by providing incentives at least in the form of recognition certificate for their good practices in green jobs because motivated trainers and trainees can actively involved in the practices of green jobs.
3. Addis Ababa TVET Agency should create opportunity for both trainers and trainees to participate in workshops and seminars with regard to green jobs. In addition, the Agency should facilitate experience sharing both within and abroad about green jobs as the best experiences can help to enhance the existing green job practices.
4. The dream of building climate resiliency economy in Ethiopia might be night mare if it is not coordinated and incorporated with TVET training. Therefore, green jobs should be included in the TVET curriculum and should be implemented accordingly by Addis Ababa Administration Education Bureau and Addis Ababa TVET Agency to contribute for the goal of climate resiliency economy.

## References

- African Union (2007). Strategy to revitalize Technical and Vocational Education and Training (TVET) in Africa. Meeting of the Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II +) 29-31, May 2007, Addis Ababa, Ethiopia.
- Atchoarena, D. & Delluc, A. (2002). Revisiting Technical and Vocational Education and Training in sub-Saharan Africa. Paris: STEDI.
- Babbie, E. (1990). Survey research method (2<sup>nd</sup>ed). Belmont C.A: Wadworth.
- Bass S., Wang, S., Tadele Ferede & Daniel Fikreyesus (2013). "Making Growth Green and Inclusive: The Case of Ethiopia", *OECD Green Growth Papers*, 2013-07, OECD Publishing, Paris.
- Best, J. W., & Khan J. N. (2004). Research in Education. New Delhi: Prentice Hall.
- CEDEFOP (2009). Modernizing vocational education and training fourth report on vocational education and training research in Europe: Synthesis report. Luxembourg: Publications Office of the European Union.
- \_\_\_\_\_ (2010). Abridge to the future: European policy for vocational education and training 2002-10. Luxembourg: Publications Office of the European Union.
- \_\_\_\_\_ (2011). Work program 2011. Luxembourg: Publications Office of the European Union.
- Center on Education and the Workforce (2010). State of green: The definition and measurement of green jobs. Washington University Press.
- Cleary J., & Kopicki, A. (2009). Preparing the workforce for a "Green Jobs" Economy
- Cohn, L., & Manion L. (1995). Research Method in Education (4th ed.). London: Rout ledge
- Creswell, J.W. (2003). Research design: Qualitative, quantitative and mixed approach (2<sup>nd</sup>ed.). Thousand Oaks, CA: Sage.

- Dereje Dakasa (2013).Current practices and prospects of TVET: The case of East Wollega Zone. Jima University. MA Thesis Unpublished.
- Dubois, R., & Balgobin K. (2010).Case study of practices for integrating education for sustainable development in TVET for the tourism and industry in Mauritius.
- Edukans Foundations (2009).Technical Vocational Education and Training in Ethiopia.Mapping, Learn for Work. School land Program on TVET.Addis Ababa
- FDRE (2004).Proclamation to provide for the organization of a Technical and Vocational Education and Training System.Federal NegaritGazeta of theFDRE.Proc. No. 391/2004.10th Year No. 26 Addis Ababa.
- \_\_\_\_\_ (2011).Ethiopia's climate-resilient green economy: Green economy strategy. Addis Ababa
- Gillie, C. A. (1973).Principles of Post-Secondary Vocational Education. Columbus: Abell and Howell Company.
- GTZ (2000).Apprenticeships of employer organizations and technical-vocational training institutes. Unpublished.
- Husen T. & Pstlethwaite T. (1995).The International Encyclopedia of Education (2nd ed.). New York: Elsevier Science Inc.
- Johnson, B., & Christensen L. (2008).Educational research: Quantitative, qualitative, and mixed approach. India: Sage Publication Pvt.
- Johnson, R.B., & Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come. Educational Researcher, 33(3):14-26.
- Kumar, R. (1999). Research methodology. London: SAGE Publications.
- Milkovich, G.T. & Boudreau J.W (1991). Human resource management (6th Ed.). RICHARD D. IRWIN, INC.

MoE (2002). Education sector development program-ESDP II. Addis Ababa: United Printers Plc.

\_\_\_\_\_ (2008). National technical and vocational education and training (TVET) strategy. Addis Ababa: Ministry of Education.

\_\_\_\_\_ (2010). Improving effectiveness and efficiency in TVET manual. Addis Ababa: MoE

MoME (Ministry of Mines and Energy) (2007). The Biofuel Development and Utilization Strategy of Ethiopia, Addis Ababa.

Netsanet Tefera (2014). A study on the challenges of leadership practices in selected government TVET institutions in Addis Ababa City Administration. AAU: MA Thesis Unpublished.

Sharma, R.A. (2000). Fundamentals of educational research. Meerut: New Agrawal Offset Printing Press.

Tashakkori, A., & Teddlie, C. (2003). Handbook of mixed methods in social and behavior research. Thousand Oaks, CA: Sage.

Teklehaimanot Haileselsie (2002). Misconceptions of technical and vocational education and training in Ethiopia. Institute of educational research: *Flambeau*, 10(1), 1-15.

TGE (1994). Education and Training Policy.: Addis Ababa

Turcotte, J., and Rennison, L. (2004). The link between technology use, human capital, productivity and wages: firm-level evidence. *International Productivity Monitor*, 9: 25-36.

United Nations (2002). Report on the world summit on sustainability. New York: United Nations, (A/CONF.199/20).

UNEP (2008). Green jobs: Towards decent work in a sustainable, low-carbon world, World watch Institute, Washington DC.

UNESCO & ILO (2002). Technical and vocational education and training for the twenty-first century: UNESCO and ILO Recommendations. Geneva: UNESCO.

UNESCO (1992) Prospects. Quarterly review, Vol. XXII, No.2 (82). Paris: UNESCO.

- \_\_\_\_\_ (1999). Lifelong learning and training. A bridge to future. Paris: UNESCO.
- \_\_\_\_\_ (2005). International approaches to TVET development. Training seminar for Afghanistan. Afghanistan: Kabul. UNEVOC.
- \_\_\_\_\_ (2008). *Vocational education and training and the labor market. A comparative analysis of China and Germany*. Germany: Magdeburg, UNEVOC.
- Venn, G. (1984). Man, education, and work: post-secondary vocational technical education. Washington U.S.A.
- Vicinary, J.C. (2000). Schooling training and transition: An economic perspectives. Orleans: TSER-STT
- Wanna Leka (1998). The current status of vocational/technical education in Ethiopia. Addis Ababa: A.A.U. Printing Press
- Wiersma, W. and Jurs, S.G. (2009). Research methods in education: An introduction. Allyn and Bacon: Boston.
- Winter J., and Moore M. C. (2013). The “Green jobs” fantasy: Why the economic and environmental reality can never live up to the political promise Volume 6. Issue SPP Research Paper.
- Workforce Information Council (2009). Measurement and analysis of employment in the green economy: *Green Jobs Study. Group* Final Report.
- World Commission on Environment and Development, (WCED) (1987). Our common future. London: Oxford University Press.
- World Bank (2001). Ethiopia Climate Project Receives Africa’s First Forestry Carbon Credits under the CDM, <http://www.worldbank.org/en/news/>.

\_\_\_\_\_ (2012). Revisiting technical and vocational education in Sub-Saharan Africa: An update on trends, innovations and challenges. Paris, IIEP/Prg. DA/01.320 Rev.

World Vision (2012). Fuel-efficient cooking stoves: a triple win for child health, development and the environment. <https://www.worldvision.com.au/WV>.

ያለዉ እንዳወቀ (2011). የምርምር መሠረታዊ መርሆዎችና አተገባበር (3ኛ እትም) ባህርዳር፣ ንግድ-ማተሚያ ድርጅት።

# APPENDICES

Appendix A Questionnaire for Trainers

Appendix B Interview Guide for Addis Ababa TVET Agency and College Deans

Appendix C Questionnaire For Trainees'

Appendix D Reliability Statistics for Trainees' Questionnaire

Appendix E Reliability Statistics for Trainers Questionnaire

Appendix F Reliability Statistics for Common Items for both Trainers and Trainees

## Appendix A

**ADDIS ABABA UNIVERSITY**  
**SCHOOLS OF GRADUATE STUDIES**  
**DEPARTMENT OF CURRICULUM AND INSTRUCTION**

### Questionnaires to be filled by trainers

**Dear respondents:** The purpose of this questionnaire is aimed to investigate the role of TVET in preparing its graduates for green economy in Entoto and Misrak colleges. Thus, your honest response and professional opinion would be vital for the effectiveness of the project. Unless your permission, all information you provide for this academic issue would be treated confidentially.

So, you are kindly requested to fill the questionnaire as per the instruction given for each item. If you would like to change any of your response to a question, please do so by clearly crossing the incorrect response and making the response you intended.

#### General instruction

- ✚ There is no need of writing your name.
- ✚ Each question has its own instruction to follow.
- ✚ Write short and brief answers or additional opinions, if any on the space provided
- ✚ You are kindly requested to return the questionnaire to the person from which you received as soon as possible after completion.
- ✚ If you have any questions please do not hesitate to ask me by using the following mobile +251913049329 and email address (mebrat.melaku@aau.edu.et).

Thank you in advance!

**Section one: Personal information-**

1. Sex: Male  B. Female
2. Age: 20-30  31-40  41-50  51 and Above
3. Year of service in teaching \_\_\_\_\_  
<5  5-10  11-15  16-20  21-25  >25
4. Qualification: Diploma  BA/ BSC/ BED  MA/ MSC/ MED
5. The level trainees you are teaching is: 3rd level  4th level  5th level

**Section two: the roles of TVET in enhancing green jobs**

TVET Colleges are expected to perform a lot to achieve the desired objectives. Thus, the roles of the TVET are presented in the following table. Then you are expected to display the extent to which college is implementing the roles. Therefore, five alternatives are given; indicate whether you SD: Strongly Disagree, D: Disagree, Un: Undecided, A: Agree or SA: Strongly Agree with each statement by putting a thick (√) mark in the space provided. For open-ended questions, please write down the answer that you think in the spaces provided.

No	Items	SD	D	Un	A	SA
1	Green jobs are included in TVET curriculum					
2	Green jobs' awareness is given to the college community					
3	Special budget is granted to green jobs					
4	TVET agency offered training on green jobs.					
5	Different countries experiences of green jobs are shared with the college community					
6	The Dean of the college gives due emphasis for green jobs.					
7	TVET Agency often visits the college to over-see the practice of green jobs					
8	The work of green jobs done by trainers is encouraged.					
9	The work of green jobs done by trainees is encouraged.					
10	Our college shares the experiences of green jobs with different colleges.					
11	Our college bought additional tools that facilitate green jobs					
12	Trainers were sent to attend workshops about green jobs in other countries.					
13	Trainers were sent to attend workshops about green jobs within a country					
14	Relevant service rendering organizations are available for green job practices					
15	The college has sufficient lecturing spaces to accommodate students					
16	The college does evaluation periodically					
17	Latest books or journals on green jobs are available in the college's library					
18	Trainers have access to internet					
19	Trainees have access to internet					

With regard to green jobs, if there are remaining roles of the college, please enumerate in the space provided.

---



---



---

**Section three:** the following factors may hinder in implementing green jobs. Therefore, you are expected to provide response the extent to which these factors hinder the practices of TVET. Thus, five alternatives are given; indicate whether you SD: Strongly Disagree, D: Disagree, Un: Undecided, A: Agree or SA: Strongly Agree with each statement by putting a thick (✓) mark in the space provided. For open -ended questions, please write down the answer that you think in the spaces provided.

No	Factors affecting the success of TVET in implementing green jobs	SD	D	Un	A	SA
1	lack Leaders commitment					
2	Shortage of budgets					
3	Unplanned meetings					
4	Lack trainers commitment					
5	Lack of workshop facilities					
6	Lack of trainees interest					
7	Shortage of teaching materials					
8	Inefficient utilization of resources					
9	Inadequate labor market information system					
10	Weak information sharing system					
11	Low societal awareness about the benefit of TVET					
12	Inadequate stakeholders' participation in delivery of TVET					
13	Lack of awareness of trainers to train on green job					
14	Lack of monitoring and evaluation systems					
15	Low capacity of trainers to adopt and transfer technology					
16	Trainers turn over					
17	De-motivation of trainers					
18	Lack of internet access					
19	Shortage of books					
20	Lack of practice based learning					
21	Lack of practical examples somewhere else					

If other than the above factors exist, please enumerate in the space provided.

---

---

---

---

Appendix B

ADDIS ABABA UNIVERSITY  
SCHOOLS OF GRADUATE STUDIES  
DEPARTMENT OF CURRICULUM AND INSTRUCTION

**A Guideline to interview to be conducted with college deans and TVET Agency head**

1. What do you understand about green jobs?
2. What is the importance of green jobs?
3. Do you given awareness building orientation for college community about green jobs?  
Why?
4. Did you participate on any workshop with regard to green jobs? What did you learn from the workshop?
5. Does you college shares experience with other colleges about green jobs?
6. How do you select trainees for green jobs?
7. How could you encourage those trainers and trainees who participated in green jobs?
8. Do you locate additional budget for green jobs? Why? Why not?
9. Do you think that computers and internet services are enough?
10. Do you think the facilities are enough?
11. Is there anything you want to add?

## Appendix C

ADDIS ABABA UNIVERSITY  
SCHOOLS OF GRADUATE STUDIES  
DEPARTMENT OF CURRICULUM AND instruction

### **Questionnaires to be filled by trainees**

**Dear respondents:** The purpose of this questionnaire is aimed to investigate the role of TVET in preparing its graduates for green economy in the case of Entoto and Misrak colleges. Thus, your honest response and professional opinion would be vital for the effectiveness of the project. Unless your permission, all information you provide for this academic issue would be treated confidentially.

So, you are kindly requested to fill the questionnaires as per the instruction given for each item. If you would like to change any of your response to a question, please do so by clearly crossing the incorrect response and making the response you intended.

### General instruction

- ✚ There is no need of writing your name.
- ✚ Each question has its own instruction to follow.
- ✚ Write short and brief answers or additional opinions, if any on the space provided
- ✚ You are kindly requested to return the questionnaire to the person from which you received as soon as possible after completion.
- ✚ If you have any questions please do not hesitate to ask me by using the following mobile and email addresses.

Thank you in advance!

**Section one: Personal information**

1. Sex: Male  Female
2. Age 16-20 years  21-25 years  26-30 years  31-35years=>36 years
3. Your level of training: Third Level  Fourth Level  Fifth Level

**Section three:** the following factors affecting the implementation of green jobs. Therefore, you are expected to provide response the extent to which these factors hinder the practices of TVET. Thus, five alternatives are given; indicate whether you SD: Strongly Disagree, D: Disagree, Un: Undecided, A: Agree or SA: Strongly Agree with each statement by putting a thick) (mark in the space provided. For open -ended questions, please write down the answer that you think in the spaces provided.

No	Factors affecting the success of TVET in implementing green jobs	SD	D	Un	A	SA
1	lack Leaders commitment					
	Shortage of budgets					
3	Unplanned meetings					
4	Lack trainers commitment					
5	Lack of workshop facilities					
6	Lack of trainees interest					
7	Shortage of teaching materials					
8	Inefficient utilization of resources					
9	Inadequate labor market information system					
10	Weak information sharing system					
11	Low societal awareness about the benefit of TVET					
12	Inadequate stakeholders' participation in delivery of TVET					
13	Lack of awareness of trainers to train on green job					
14	Lack of monitoring and evaluation systems					
15	Low capacity of trainers to adopt and transfer technology					
16	Trainers turn over					
17	De-motivation of trainers					
18	Lack of internet access					

19	Shortage of books					
20	Lack of practice based learning					
21	Lack of practical examples somewhere else					

If other than the above factors exist, please enumerate in the space provided.

---

---

---

---

---

---

---

---

**Section three:** the following items are related to your interests and motivation towards green jobs. Thus, five alternatives are given; indicate whether you SD: Strongly Disagree, D: Disagree, Un: Undecided, A: Agree or SA: Strongly Agree with each statement by putting a thick (✓) mark in the space provided. For open -ended questions, please write down the answer that you think in the spaces provided.

No	Items related to trainees interest and motivation to green jobs	SD	D	Un	A	SA
1	Green jobs awareness is given for trainees					
2	Green jobs training is given for trainees					
3	The motivation of trainees to participate in green jobs is high					
4	Students participate in the workshop about green jobs.					
5	Students visit the practice of other colleges on green jobs.					
6	The college offer training for trainees on how to protect their environment					
7	There are students who participated in green jobs.					
8	Incentives are offered to trainees for those who participated in green jobs.					
9	Green jobs' news and best practices are posted on boards.					
10	I don't like jobs that make hands dirty					

## Appendix D: Trainees Questionnaire Scale

### Reliability

Scale: ALL VARIABLES

#### Case Processing Summary

	N	%
Valid	10	100.0
Cases Excluded	0	.0
Total	10	100.0

a. List wise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.821	10

## Appendix: Trainers Questionnaire Scale

### Reliability

[DataSet2] C:\Users\user\Desktop\Mebrate\Trainer's data.sav

Scale: ALL VARIABLES

#### Case Processing Summary

	N	%
Valid	10	100.0
Cases Excluded	0	.0
Total	10	100.0

a. List wise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.851	18

## Appendix F: Common Items' Scale

### Reliability

Scale: ALL VARIABLES

#### Case Processing Summary

	N	%
Valid	10	100.0
Cases Excluded	0	.0
Total	10	100.0

a. List wise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.871	20

**Declaration form**

I hereby declare that this thesis is my work and that all sources of materials used for this theses have been duly acknowledge

Name: Meberat Melaku

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Approval**

This thesis has been submitted for examination with my approval as university advisor

Name; Dr. Getachew Adugna

Signature: \_\_\_\_\_

Date: \_\_\_\_\_