

An Assessment of Technical and Vocational Educational Training:  
Focusing On Micro and Small Enterprises from Kaizen Perspective

By- Getachew W/Mariam Adelow

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE  
DEGREE OF M.A. IN MANAGEMENT OF VOCATIONAL EDUCATION

ADDIS ABABA UNIVERSITY, COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES,  
DEPARTMENT OF BUSINESS EDUCATION

JUNE 2014

Addis Ababa, Ethiopia

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## List of Abbreviations and Acronyms

CEO	Chief Executive Officer
EKI	Ethiopian Kaizen Institute
5 S	Sorting, Set-In-Order, Shine or Sweeping, Standardizing, Sustain
5W 1H	What, When, Where, Who, Why, How
GRIPS	National Graduate Institute for Policy Studies
JICA	Japan International Cooperation Agency
JUSE	Union of Japanese Scientists and Engineers
MSE	Micro and Small Enterprise
OJT	On the Job Training
PDCA	Plan-Do-Check-Act
QC	Quality Circle
QCC	Quality Control Circle
3Mu	Muda (wastefulness), Muri (excessiveness), Mura (dispersion)
TVET	Technical & Vocational Educational Training
WWII	Second World War

## Abstract

The purpose of this research was to assess the capacity of four TVET Institutes, and trainers in conducting kaizen training in Nefas Silk Sub-City of Addis Ababa to Micro and Small business Enterprises. Using descriptive survey method, percentage tool was used to analyze data. Data were collected through questionnaires, observations, interview, and document analysis.

The major findings were; TVET Institutions were not equipped with modern machines and hence, could not enabled trainees how to copy technology, adequate materials were not provided to trainers on time, Quality Circles (QC), that would boost the trainees' development through discussion among themselves were not established, and kaizen principles which were sustained were insignificant.

Based on these findings, the researcher suggests the following:- In order to train copying technology and sustain kaizen in the small and micro manufacturing enterprises, TVETs should equip themselves with modern machines, Trainers should take practical kaizen training course on how to sustain and setting standards in the manufacturing enterprises, and Stakeholders should cooperate with TVETs to make QC functional in the micro and small business enterprises.

# CHAPTER ONE

## I. INTRODUCTION

### 1.1. THE BACKGROUND OF THE STUDY

Education enables citizens to be more productive both at work places and at their homes. Kirstensen(1974) remarks that a new development has come about with the explosive growth of knowledge in the present century, and that knowledge is progressively replacing capital as a dominant factor for economic development.

To see a promising and sustainable development in the economy, a country has to improve the quality of its human resources, which could be possible through education and training. To boost the economy of the nation, *Kaizen* training is being implemented in public and private business enterprises via TVET Institutions.

*Kaizen* is new philosophy and applications for Ethiopians, particularly, in the private and as well as public services. *Kaizen*, in Japanese for “improvement or change for better refers to practices that focus upon continuous improvement of processes in manufacturing, engineering, and business management. It has been applied in health care, life coaching, government, banking and other industries. Since 2010, *Kaizen* training has been given by the good will of Ethiopian government to raise productivity and quality in the public and private business organizations through *mindset that comes from educating and training the workforces*, (EKI 2011). *Kaizen* has been being implemented in heavy industries by *Kaizen* Institution (EKI) and while Public TVETs offer training to Micro small business enterprises (MSEs).

*Kaizen* serves any sector of business, both Micro and Small Business Enterprise (MSE), or in huge industry; service or manufacturing, public or private in increasing small but continuous improvement in productivity and mindset up. To date, business is faced with emerging global competition and changes in consumer needs and tastes. Since Ethiopian business enterprises are poorly designed and managed, it is difficult to cope up the coming global competition. The way out and remedy to the revolving small and big business problem is believed to be a *kaizen*, (EKI, 2011). As part of Ethiopia’s modernization program, Ethiopia government has been looking for various options that would improve the management of both public and private sector enterprises (EKI, 2011:35).

In Ethiopia, according to the nationwide urban informal sector survey by the CSA, (2000b) there were 799,358 Micro and small Enterprises, (MSE), establishments employing 997,380 persons, (1.3) persons per establishment of which 60% were females. About 43.3% were involved in manufacturing and about 37.8% in trade, hotels and restaurants, (Gebrihiwot & Wolday, 2001).

The importance of the MSE in Ethiopia, particularly for the low income, and poor women group, is evident from their large presence, share in employment and small capital requirement. The MSE is seen as a means of providing employment, alleviating poverty, ensuring food security and private sector development. The contribution of MSE is for economy, social and technological development is high, (Gebrihiwot & Wolday 2001).

On the other hand, in today's competitive environment, firms that confine themselves to a domestic market may put themselves at a significant competitive disadvantage. Firms conducting international activities can exploit opportunities to increase market demand, reduce cost, and learn from global partners. In an increasingly competitive environment, firms are entering domains they once would have ignored, (Huff, 2009:235).

MSE businesses have the potential to create and expand employment opportunities, develop entrepreneurial skills, enhance market opportunities, encourage export promotion and import substitution. Recognizing the important role, this sector plays in contributing to the social and economic development of the country; government has given the mandate of training Kaizen philosophy and applications to TVET Institutions, with expected resources.

A country that would improve the quality of its human resources through education and training could see eventually a promising and sustainable economic development. Hence, Kaizen training that is offered by TVET Institutions is vital to accomplish the Growth and Transformation Plans (GTP) in meeting the success of Micro and Small Enterprise (MSE). However, without assessing TVET Institutions capability to train this new and dynamic philosophy to the Micro and Small business Enterprises (MSEs) is not creditable.

In this regard this research focused on training assessment which is a prerequisite and the key element that substantially contribute to the success of training program in particular and to the organization effectiveness in general. Therefore, this research aims to assess TVET Institutions kaizen training effectiveness that has been undertaken in MSEs, aiming to enhance quality and productivity.

## **1.2. STATEMENT OF THE PROBLEMS**

The kaizen management originates in the best Japanese management practices and is dedicated to the improvement of productivity, efficiency, quality and in general, of business excellence. The kaizen methods are internationally acknowledged as methods of continuous improvement, through small steps, of the economical results of companies. The small improvements applied to key processes will generate the major multiplication of the company's profit while constituting a secure way to obtain the clients' loyalty, (Operean, C.,& Titu, 2008).

"Kaizen means improvement, continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers." In Japan, the concept of kaizen is so deeply engrained in the minds of both managers and workers that they often do not even realize they are thinking kaizen as a customer-driven strategy for improvement, Imai (1986: xxix) and EKI (2011).

The Micro and Small Enterprise sector (MSE) is widely regarded as the driving force in economic growth and job creation in both developing and developed countries, (Sunter, 2000:23). The contribution of MSE to employment and income generation is recognized around the world. It is estimated that MSE employ 22 per cent of the adult population in developing countries, (Fissaeha 2006:43) as cited by Melkamu in his (2013) thesis. The MSE sector has also been instrumental in bringing about economic transition by providing goods and services, which are adequate quality and with reasonable price to a large number of people and using the skills and talents of a large number of people without requiring high level training, large sums of capital & sophisticated technology,(International Labor Organization, 2008:56).

The Importance of MSE in Ethiopia, particularly for the low-income, poor and women group is evident from their large presence, share in employment & small capital requirement. These are sufficient reasons for government and other stakeholders in development to be interested in MSE. However, in the context of many developing countries in transitions including Ethiopia, MSE is seen as an emerging private sector, forming the basis for private sector led growth. It is seen as means of providing employment, alleviating poverty, ensuring food security and private sector development, (Gebrehwot & Wolday, 2001:2).

As Alemayehu stated (2010:13), Since Addis Ababa (AA) is relatively more developed in industry, commerce and other services than all the other towns in the country; it attracts people from all over the country for different reasons. Some who come to secure jobs succeed to be self-employed or be employed by the private or public sector while others remain unemployed. Citing CSA (2006) Addis Ababa Micro and Small Enterprise Development brochure indicates that in AA the unemployment rate is estimated to be 21.4% for males.

Investment in training is an investment in human capital, which improves labor productivity and thereby contributes markedly to economic growth and development of a nation. Since the interaction between educations, economic and social developments have been broadly recognized, the education system of any country is meant to serve its own development objectives,( Noe 2002:1).

Federal Democratic Republic Government of Ethiopia (FDRE) is investing huge budget and human resources to uphold Kaizen in Micro and Small Business Enterprises. This is for the fact that in short run to reduce unemployment, whereas in a long run, to boost sustainable economy. Kaizen (small incremental changes in the businesses) focus boosting of productivity, quality, cost reduction, quick delivery, establishing safety and raising workers moral in order to achieve better customer satisfaction and maximize the success of the organization, (EKI 2009).

The government believes that the present low factor productivity is due to the skill gap, and if that left to its own, the industry will provide less quality and poor productivity than is socially best possible. Therefore, publicly provided vocational education is seen by the government as the means to close this skill gap. The government of Ethiopia looks at the public TVET as the key in improving the productivity of the enterprises and increasing their competitiveness in the local and global market,( Krishnan and Shaorshadze, 2013:5). Therefore, In order to accomplish the objectives of the public, in supporting MSEs, the government has entrusted public TVET Institutions to run KAIZEN training to Micro and Small Enterprises, and Industries too.

Since KAIZEN philosophy is new to Ethiopia, it is obvious would challenge the trainers, trainees and the management in a different directions. However, the sustainability of any business, whether micro, small, or big industry is, dependent on a sound training strategy. Lack of a strong and dynamic base of training capacity, among others, is the biggest problem of the Ethiopian TVET system. The Ministry of Education has acknowledged that the Ethiopian TVET is uncoordinated and inflexible, (MOE, 2005). Subsequently, it suffers lacking efficiency and effectiveness in offering training. Effectiveness and efficiency is ensured through comprehensive and continuous development and enjoying practical workshop exercises in an industry like environment, (Alemayehu, 2010:12).

Thus, this study would like to mention the following basic questions to be answered:

1. Are the trainers capable to train the theoretical and practical approach of kaizen?
2. Are the TVET Institutions providing adequate materials to make training successful?
3. Are the TVET institutions equipped with modern machines?
4. Is the training based on continued and participatory in approach?

5. What are the bottlenecks within TVET Institutions to train kaizen?
6. What challenges TVETs have faced from Micro and Small Business enterprises?

### **1.3. OBJECTIVES OF THE STUDY**

#### **1.3.1. GENERAL OBJECTIVE**

To assess Kaizen appropriateness to MSEs and capabilities of TVETs in transferring the practical skills and theoretical knowledge.

#### **1.3.2. THE SPECIFIC OBJECTIVES:-**

- A. To assess trainers' & Institutions' capacity in conducting kaizen training.
- B. To assess the training strategy if it is based on continued; participatory in approach, accumulation of small improvement and improvement without a large amount of investment.
- C. Assess the effect of kaizen training in the Micro & Small Business Enterprises.
- D. To find out the challenges of MSEs to play active role during and after training?

### **1.4. THE SIGNIFICANCE OF THE STUDY.**

The student researcher has a strong belief that the result of the study would,

- i. Provides some knowledge to research makers about what kaizen is.
- ii. The prospective research makers may recognize the existing challenges in Kaizen training and find the solutions accordingly. The study will also enable micro and small business owners to tackle the problems through kaizen principles and enhance quality and productivity.
- iii. The suggestion given would help the top management of TVET Institutions and concerned strategy makers about the need of modern technology in to bring change  
To provide possible suggestion to the top management of TVET Institutions and concerned strategy makers about the need technology and motivated trainers and coordinators, and the need of adequate current resources, as well as effective utilization of facility management to bring change in mind setup to the MSEs.

## 1.5. DELIMITATIONS OF THE STUDY

There are two types of TVET Institutions in Nefas Silk Sub-City Administration, Public and non-Public. Those who give kaizen training are Public TVET Institutions. The number of these public institutions is four. Therefore, this study delimited its study on Nefas Silk Poly Technical College, Gofa, Keftegna 20, and 06 TVET Institutions.

## 1.6. LIMITATIONS AND CHALLENGES OF THE STUDY

As to the regards to the limitations of the study, the important aspects may include:

- I. **Time factor**-as the issue is original, new in nature and broad in scope it requires extensive studies. With this respect, however, the available time horizon for this research was extremely small to entirely address many of the important aspect of TVET Institution training.
- II. This study requires financial and technical support. The financial support mechanism to make such study for extension students is not possible to get. Due to this setback many dimension of the topic could not be covered.
- III. Lack of relevant primary and secondary data in the TVET Colleges were the basic ones.
- IV. To trace facts for this research, there was no research made on the kaizen training in the home.

## 1.7. DEFINITIONS OF TERMS

1. **KAIZEN**-is a system of continuous improvement in quality, technology, process, company culture, productivity, safety and leadership.
2. **Quality control circle (QCC)** is "a small group of frontline operators who continually control and improve the quality of their work, products, and services
3. **PRODUCTIVITY**- productivity implies development of attitude of mind and constant urge to find better, cheaper, easier, quicker, and safer means of doing a job, manufacturing a product and providing services.
4. **QUALITY**- Is product or service that fulfils an aggregate requirement of Customers, at present, and in the future, which the customers can buy it.
5. **Technical & Vocational Educational Training (TVET)**-refers to all forms and levels of educational process involving, in addition to general knowledge, the study of technologies, &

related sciences & acquisitions of practical skill, knowledge, attitudes and understanding relating to occupation in the various sectors of economic and social life, UNESCO,(1989:2).

6. **STAKEHOLDERS**-All role players at different levels in the TVET system, including training providers, trainers employees, employees, trade unions, NGO & others who involve in training & HRM & etc.

7. **Motivation**- The condition of being motivated & possessing high morale to act upon the task at hand.

8. **Skill**- Ability such as an art, craft, or science, which can be expressed practically.

9. **Entrepreneur**- An innovative individual, who organizes, owns, manages & assumes the risks of an economic venture (business).

10. **Training** is the formal teaching of skills and is often undertaken by an organization as a strategic activity aimed at improving the performance of the business by improving the performance of its employees.

#### **1.8. ORGANIZATION OF THE PAPER:**

The study is organized in five chapters. The first chapter gives a general idea on the background of the study, statement of the problem, objectives of the study, research question, significance of the study, delimitation of the study, limitation of the study, the organization of the paper and operational definition.

The second chapter deals with literature review, (kaizen philosophy, kaizen application an National Movement in some selected countries of Asia and Africa for comparison purpose), to support the research in discussing the relevant literature from different but similar view points.

The third chapter deals with methodology of the study. The fourth chapter presents the findings and interpretation of kaizen training and its effect in the Micro and Small business Enterprises. The fifth chapter covers the summary, conclusion and recommendation part.

Finally, bibliography of the reference materials and sample of the questionnaires are attached at the end of this paper.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURES

#### 2.1. INTRODUCTION

The kaizen methods are internationally acknowledged as methods of continuous improvement, through small steps, of the economic results of companies. The small improvements applied to key processes will generate the major multiplication of the company's profit, while constituting a secure way to obtain the clients' loyalty/fidelity.

Kaizen is one of the most commonly used words in Japan. It is in the newspapers, on the radio and TV. Japanese society is bombarded daily with statements regarding the kaizen of almost anything. In business, the concept of kaizen is so deeply ingrained in the minds of both managers and workers that they often do not even realize that they are thinking kaizen. It is the key to Japanese competitive success. Because of Japan's success, the kaizen philosophy has been implemented in organizations around the world as a way to improve production values while also improving employee morale and safety, VSRD International Journal of BUSINESS & Management Research (VSRD-IJBMR, 2011:177), Womack (1991).

As to Imai, (1986) and GRIPS (2009), until around 1950, Japanese products were perceived worldwide as being very inexpensive but with poor quality. According to Karkoszka & Honorowicz (2009), the way of thinking named kaizen as well as "Japanese style of quality management" became an object of interest of European and American industrialist, when Japan economy had achieved success. By the 1980s, products made in Japan were known all over the world for their high quality and reliability. The experience of Japan and other Asian countries that successfully introduced and disseminated kaizen confirm the vital importance of changing popular mindset toward hard work, teamwork and creativity. Mindset change also enables the spread of kaizen to as many as social actors as possible. However, in many developing countries, such change does not occur spontaneously. This is why the role of the government is crucial. It is important for the government to make a conscious policy effort to orchestrate a national movement by involving the entire population and driving the transformation of their attitudes. Federal Democratic Republic Government of Ethiopia (FDRE), is advancing and promoting mindset about Kaizen philosophy and applications in the overall sectors of business particularly in the Micro and Small Business Enterprises, GRIPS (2009).

**2.1.1. What is kaizen?** Kaizen is a system of continuous improvement in quality, technology, processes, company culture, productivity, safety and leadership. Kaizen (Ky 'zen) is Japanese term that means continuous improvement taken from words 'kai' which means continuous and 'zen' which means improvement. Some translate 'kai' to means change and 'zen' to mean good, or for the better. The creator of the concept of kaizen, or continuous improvement, was the late Dr. W. Edwards Deming, an American statistician who made many visits to Japan in the years following World War II. Dr. Deming's work was so widely regarded as the driving force behind the renaissance of the Japanese economy. Ironically, American businesses showed little interest in Dr. Deming's work until the late 1970s when Japanese exports began to make a marked impact on the economy. To paraphrase, Matthew 13:58, in the New International Bible, "**A prophet is indeed without honor in his own country**", GRIPS (2009) and VSRD-IJBMR, (2011).

## **2.1.2. THE HISTORY OF DIFFUSION**

Kaizen activities have developed and spread in Japan and later to the rest of the world in four phases. The *first* phase was the absorption of foreign technique by Japan in the early postwar period. In the 1950s, the world market perceived made-in-Japan products to be as 'low price, low quality.' Driven by a sense of urgency for industrial catch-up, Japan learned American style quality management from Drs. W.E. Deming and J.M. Juran, and adapted this to Japanese context. Thus, kaizen was originally a foreign technique that was adopted and adjusted to become a Japanese technique, Imai (1986), Kaplinsky, (1995).

The *second* phase was diffusion throughout Japanese companies, including small and medium sized ones. This led to a rapid increase in the number of QCCs in the 1970s and 80s. The third phase was the regional spreading of kaizen beginning in the mid 1980s, which coincided with the globalization of Japanese business activities, Kaplinsky (1995).

The *third* phase was regional spreading of kaizen beginning in the mid 1980s, which coincided with globalization of Japanese business activities. The sharp appreciation of the Japanese yen prompted Japanese manufacturing companies to shift their production base to East Asia where production costs were lower. Japanese firms tried to duplicate the quality management system in their factories abroad. Moreover, as they endeavored to increase local procurement of intermediate inputs, local suppliers were requested to conform to Japan's quality standards. Japanese companies often assisted their local partners to learn kaizen philosophy and practices,

Ohno, I. Ohno, K. & Uesu, S. (2009:4-6). The *fourth* phase, which is now beginning, has witnessed growing interest in East Asia's Industrial experience in other developing regions (including Africa), GRIPS (2009:6).

## 2.2. KAIZEN PHILOSOPHY & DEFINITION

The kaizen management originates in the best Japanese management practices and is dedicated to the improvement of productivity, efficiency, quality and in general, of business excellence. The kaizen methods are internationally acknowledged as methods of continuous improvement, through small steps, of the economical results of companies. The small improvements applied to key processes will generate the major multiplication of the company's profit while constituting a secure way to obtain the clients' loyalty, (Operean, C., & Titu, 2008).

"Kaizen means improvement, continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers." In Japan, the concept of kaizen is so deeply engrained in the minds of both managers and workers that they often do not even realize they are thinking kaizen as a customer-driven strategy for improvement, Imai (1986: xxix) and EKI (2011).

Although improvements under kaizen are small and incremental, the kaizen process brings about dramatic results over time. The kaizen concept explains why companies cannot remain static for long time in Japan, Imai (2008), (Kaizen-institute.com). The kaizen institute defines Kaizen as the Japanese term for continuous improvement. It is using a common sense and is both rigorous, scientific method using statistical quality control and an adaptive framework of organizational values and beliefs that keeps workers and management focused on zero defects. It is a philosophy of never being satisfied with what was accomplished last week or last year, Barnes (1996), [www.kaizen-institute.com/gemba.htm](http://www.kaizen-institute.com/gemba.htm)

All over the world, the kaizen techniques have been particularly distinguished as the best methods of performance improvement within companies since the implementing costs are minimal (Titu, Operean, & Grecu, 2010). Kaizen is a system that involves every employee-from upper management to the cleaning crew. Everyone is encouraged to come up with small improvement suggestion on a regular basis. This is not a once a month or once a year activity. It is continuous, Steinbeck (1998). It is nowadays more than ever that the relationship between managers and employee is crucial and the kaizen techniques have a major contribution to the reinforcement of this relationship since the achievements of a company are the result of the mixed efforts of each employee. These methods bring together all the employees of the company ensuring the improvement of the communication process and the reinforcement of the feeling of membership, (Titu, Operean & Grecu, 2010).

It is assured that the kaizen process must begin with the process owner, the individual with real ownership and responsibility who has the authority to change the process and be answerable for the consequences. He or she may be the general manager, president, or in some cases plant manager, but always the person in charge. Kaizen cannot be successful without strong support and direction from the top, VSRD-IJBMR (2011), Barnes (1996), and JICA (2009).

The kaizen process is based on several rules that may vary in detail from company to company. Nevertheless, the underlying concepts are the same: Be Opened Minded, Maintain a Positive Attitude, Reject Excuses, Seek Solutions, Ask Why? Why? Why? There are no stupid questions, take action. Implement ideas immediately, do not seek perfections, that is, do what can be done now, with the resources at hand, use all of the teams' knowledge. The experts are frequently found on the factory floor, disregard rank. All team members are equal and everyone has something to contribute, Just do it!!, VSRD-IJBMR (2011).

As Imai (1997) explains further, kaizen can be implemented in corporations by every aspect of a business process in a systematic approach, while gradually developing employee skills through training, education and increased involvement. The principles in kaizen implementation are:

- Human resources are the most important company asset,
- Processes must evolve by gradual improvement rather than radical changes,
- Improvement must be based on statistical/ quantitative evaluation of process performance, Imai, (41-44).
- Improvement begins with the admission that every organization has problems, which provide opportunities for change. It evolves around continuous improvement involving everyone in the organization and largely depends on cross-functional teams that can be empowered to challenge the status quo, Bowles and Hammond (1991), EU-Japan Center (2000).

As to VSRD-IJBMR (2011), the essence of kaizen is that the people that perform a certain task are the most knowledgeable about that task; consequently, by involving them and showing confidence in their capabilities, ownership of the process is raised to its highest level. In addition, as Kobayashi explained, (1990), the team effort encourages innovation and changes, by involving all layers of employees, the imaginary organizational walls disappear to make room for productive improvements. From such perspective, kaizen is not only an approach to manufacturing competitiveness but also everybody's business, because its premise is based on the concept that every person has an interest in improvement. "The premise of a kaizen is to make people's jobs easier by taking them apart, studying them, and making improvements. The message is extended to everyone in the organization, and thus everyone is a contributor, Cheser (1994:23)." Therefore, when kaizen is for every individual, could be an attitude for

continuous improvement, and it is same for company to be a corporate attitude of continuous improvement too.

### **2.2.1. Kaizen principles**

According to Khan (2011:179), the kaizen process is based on several rules that may vary in detail from company to company. However, the underlying concepts are the same: be opened minded, maintain positive attitude, reject excuses, seek solutions, take actions, implement ideas immediately, do what can be done now, with the resource at hand, use all of the teams knowledge. The experts are frequently found on the factory floor, disregard rank. All team members are equal and everyone has something to contribute, just do it!!

The Japanese concept of kaizen depicts “continuous improvement” and a predictor of quality assurance. Slack et (2001:61) opine that the kaizen strategy calls for a never-ending effort in improvement that involves a company-wide, top-down, yet bottom-up approach. In this concept, management works continuously towards revising their process standards, with a resultant higher employee satisfaction and involvement in decision making, more oriented corporate cultures, better employee empowerment and communication without massive capital investment (Liker & Hoseus, . 2008:28).

Khan in VSRD-IJBMR Journal states that ‘Kaizen fundamentally differs from traditional continuous improvement processes because it is almost entirely action-based. Teams are charged with both developing and implementing their solutions; they create processes or change existing processes; leaving a new process in place. Kaizen is very much a practical process, (2011:179). Team participants not only plan, they clean equipment, sort tools, move machinery (within the bounds of safety), assemble, build, and run the process. The team’s job is to make change happen. To create, and establish in place a new way of doing things, VSRD-IJBMR (2011).

The KAIZEN principle presumes a practical approach and low costs of improvement. The kaizen management system is based on the continuous loss reduction by means of methods that do not rely on investments, but on the improvement of the processes and the employees’ performance. According to the kaizen principles, we must be sure that, when we take an action, our action will go on in the best possible way and is not merely an intermediate action to generate a temporary result, Titu, Oprean and Grecu (2010).

Philip B. Crosby introduced the concepts of “Do it right at first time” and “Quality is free” according to which “everything must be well done the first time and every time” and

respectively. Quality costs nothing- what costs is lack of quality.” According to Titu, Oprean and Grecu (2010), kaizen is a way of being, an attitude, and a spirit to be permanently present within each team; our life style, both at home and at work, should focus on our constant efforts to improve. The application of the kaizen principles suppose a continuous dialogue between the manager and the employees (vertical communication) on the one hand, and between the employees on the same hierarchical level (horizontal communication), on the other hand, (2010:5).

The application of kaizen principles involves no major expenses, but only more attention to details and practical ways to do things better and more efficiently. Problems should not be connected to people because blaming people does not solve problems. Each approach should start with highlighting the positive parts; we should not judge or blame; we should use feedback techniques, Titu, Oprean and Grecu (2010).

## 2.3 The Three Pillars of Kaizen

According to Imai,(1997:) the three pillars of kaizen are summarized as follows:

- 5Ss which is also known as HOUSEKEEPING
- WASTE ELIMINATION and
- STANDARDIZATION

Imai states that the management and employees must work together to fulfill the requirements for each category. To be ensured success on activities on those three pillars the following three factors have also to be taken account.

**2.3. 1. 5S or HOUSEKEEPING;** this is a process of managing the work place, known as “Gemba” (workplace) in Japanese, for improvement purposes. Imai introduced the word “Gemba” , which means “real place”, where value is added to the products or services before passing them to next process where they are formed, Imai(1997:13). For the proper housekeeping, **5S** is used. Five S implementation is very common in various kinds of industries in Japan. The term 5s comes from English equivalents of five Japanese words, whose Romanized spellings also begin with s.

The term ‘five S’ is derived from the first letter of Japanese words. Referred to five practices, leading to a clean, and manageable work area: Seiri (organization or *Sorting materials*), Seiton

(Set-in-order the properties, materials, or documents at visible location), Seiso (Shine the work place, machines & equipment), Seiketsu (Standardized the activities), and Shitsuke (keep discipline, or **Sustain** the above four activities as once own culture or hobby). The English words, equivalent to the five S's are Sorting, Setting In-Order, Shining, Standardizing and Sustaining. 5S evaluations provide measurable insight into the orderliness of a work area and there are checklists for manufacturing and non-manufacturing areas that cover an array of criteria as i.e. cleanliness, safety, and ergonomics. Five S evaluations contributes to how employees feel about product, company, and their selves and today it has become essential for any company, engaged in manufacturing, to practice the five S's in order to be recognized as a manufacture of World-class status, Imai,(1986), Ohno (2009), Suzuki (1993) Uesu (2010) .

According to JICA (2009), Imai (1986), In Japan, five S is considered the basis for continuous quality and productivity improvements and it represents good housekeeping concepts. Good housekeeping and workplace organizations are directly linked to achieving discipline in manufacturing workshops and even in clerical environments. Bad housekeeping problems in terms of production control, maintenance, quality assurance, and layout will lead to a disorganized workplace. In contrast, good housekeeping and workplace organization will result in better compliance with schedules, fewer machine breakdowns, lower defect rates, and prompt exposure of problem areas, (Handbook for TQM & QCC:78).

According to Imai, (1997: 41-63), "Five S" of kaizen is a systematic approach which leads to perfect systems, standard policies, rules and regulations to give rise to a healthy work culture at the organization. You would hardly find an individual representing a Japanese company unhappy or dissatisfied. Japanese employees never speak ill about their organization. Yes, the process of kaizen plays an important role in employees' satisfaction and customer satisfaction through small continuous changes and eliminating defects. Kaizen tools give rise to a well-organized workplace, which results in better productivity, and yield better results, Karkoszka & Honorowicz (2009), Imai (2008), Imai (1986) , (Handbook for TQM & QCC, VOLUME ii: 79).

### **2.3.2. The Five Ss Varied Applications:**

**A. Sorting** or (SEIRI): meaning to sort out unnecessary items in the workplace and discard them. Unused and unneeded items are cleared out (this applies to your contact management system, too). Keeping your data organized, refreshed, properly labeled, and backed up are efficient ways for you and your staff to locate data as needed, Imai (2008), Imai (1986), Kraszewski (2005). The benefits of applying 'sorting' are a safer and tidier environment, less clutter to interfere with productive workspace, less time wasted when searching for items,

fewer hazards, less clutter to interfere with productive workspace, and additional space from cleared out items. In addition, possibly more brain space, too. Proper (suitable) preparation of workplace, manner and instrument of work; with the elimination of everything useless for organization, (Karkoszka & Honorowicz, 2009), (Handbook for TQM & QCC, VOLUME ii: 79).

According to Seiri, employees should sort out and organize things well. Label the items as "Necessary", "Critical", and "Most Important", "Not needed now", "useless" and so on. Throw what all is useless. Keep aside what all is not needed now. Items, which are critical and most important, should be kept at a safe place, Karkoszka and Honorowicz (2009) , (Handbook for TQM & QCC, VOLUME ii: 79).

**B. Set in order (SEITON).** Set in order means to organize or to arrange necessary items in good order so that they can be easily obtained for use. Research says that employees waste half of their precious time searching for items and important documents. Every item should have its own space and must be kept at its place only. A place for everything, and everything in its place, is the motto, Imai 2008, Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

**C. Shine (SEISO)**-The word Seiso in Japanese means shine the work place. Clean your workplace completely so that there is no dust on the floor, machinery, or equipment. The workplace ought to be kept clean. The key point is that maintain cleanliness should be part of everyday work-not an occasional activity initiated just when things get too messy. Necessary documents should be kept in proper folders and files. Use cabinets and drawers to store your items, Imai 2008, Imai 1986, Karkoszka & Honorowicz (2009) , (Handbook for TQM & QCC, VOLUME ii: 79).

**D. Procedures to Be Followed (standardization) (SEIKETSU)**-Seiketsu refer to educating and maintain standardization. When the first three are set in place, they are then standardized. Create the rules and then regulate them. Every organization needs to have certain standard rules and set policies to ensure superior quality. Since it is easy to fall into old habits, this sets easy-to-follow standards and develops structure and conformity, Imai 2008, Imai 1986, Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

**E. Sustain (SHITSUKE)**- This refers to educating and maintaining standards. Once the previous four Ss have been established, they become the new way to operate. Maintain the system and continue to improve it, Imai, 2008, Imai 1986, Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

### **2.3.3. Tangible Results Expected from 5S concept Implementation**

#### **A. FROM PEOPLE SIDE**

Employees will be disciplined to be more aware of untidy workplaces and motivated to improve the level of cleanliness. Greater team spirit and cooperation can be built up through involvement of all employees within the organization. Employees will be disciplined to follow safer and better ways of work, resulting in reduced risk of accident. Employees will be more conscious of improvement that leads to greater efficiency and effectiveness, Imai (2008), Imai (1986), Karkoszka & Honorowicz (2009) , (Handbook for TQM & QCC, VOLUME ii: 79).

#### **B. FROM MACHINES AND TOOLS SIDE**

When machinery is cleaned daily by the operator, Machine troubles can be detected at earlier stages to prevent major breakdowns. Daily cleaning of measuring instruments will ensure accuracy and reliability. The productive lives of machines & tools can be extended significantly when they are handled with care and placed in their designated locations. , Imai,2008, Imai 1986, Karkoszka & Honorowicz (2009) , (Handbook for TQM & QCC, VOLUME ii: 79).

#### **C. FROM MATERIALS AND WORK-IN-PROGRESS SIDE**

Flow of materials and work-in- progress will become smoother.

Floor space becomes well organized and possible areas for improvement can be easily identified by quick observation.

Inventories materials and work-in-progress become clearly visible and easy to handle.

The material yield ratio can be improved.

The work and time required for material handling can be reduced. , Imai, (2008), Imai (1986), Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

#### **D. FROM PRODUCTS AND CUSTOMERS SIDE**

A clean workplace will ensure that final products will be free from dust.

A clean workplace will result in lower defect rates and prompt exposure of quality problems.

Sales people will be eager to show customers the plant as a marketing tool, (Handbook for TQM & QCC, VOLUME ii: 79), Imai, 2008, Imai 1986, Karkoszka & Honorowicz (2009).

#### **E. FROM MACHINES AND TOOLS SIDE**

Machine troubles can be detected at earlier stages to prevent major breakdowns, when machinery is cleaned daily by the operators. Daily cleaning of measuring instruments will ensure accuracy and reliability. The productive lives of machines & tools can be extended

significantly when they are handled with care and placed in their designated locations, Imai, 2008, Imai 1986, Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

## **F. FROM MATERIALS AND WORK-IN-PROGRESS SIDE**

- Flow of materials and work-in-progress will become smoother.
- Floor space becomes well organized and possible areas for improvement can be easily identified by quick observation.
- Inventories materials and work-in-progress become clearly visible and easy to handle.
- The material yield ratio can be improved.
- The work and time required for material handling can be reduced, Imai, 2008, Imai 1986, Karkoszka & Honorowicz (2009), (Handbook for TQM & QCC, VOLUME ii: 79).

## **G. FROM PRODUCTS AND CUSTOMERS SIDE**

- A clean workplace will ensure that final products will be free from dust.
- A clean workplace will result in lower defect rates and prompt exposure of quality problems.
- Sales people will be eager to show customers the plant as a marketing tool, (Handbook for TQM & QCC, VOLUME ii: 79), Imai (1997), and [www.kaizen-institute.com](http://www.kaizen-institute.com)

### **2.3.4. Three Wastes (3Mu) Elimination Approach**

According to Robinson (1991), Imai, (1997), Bowles & Hammond, (1991) the three wastes in Japanese are known as Muda, Mura, and Muri. The term 3Mu stands for three elements-Muda (wastefulness), Muri (excessiveness) and Mura (dispersion)- that should be eliminated to raise efficiency in the workplace. This is illustrated as following:

A 100-seat bus that always has hundred passengers is an example of highest order efficiency-one without wastefulness, excessiveness, or dispersion. In reality, however, more than 130 passengers can be observed at rush hours in the morning and late afternoon, but only two or three passengers might be aboard 100-seat buses in mid afternoon. The condition of 130 passengers on a 100-seat bus exemplifies muri (excessiveness), two or three passengers on that same bus is muda (wastefulness), and the condition of flux between inbound and outbound occupancies within the day is mura (dispersion).

The 3Mu concept can also be expressed in terms of the relationship between objective and means. To cut a twig with a chain-saw would be an example of muda; to cut a two-meter-in-diameter tree trunk with a knife would be muri; and to alternate between the two mismatches of objective and means would be mura. QCC people have to understand 3Mu concepts and eliminate them to improve quality and productivity, (Handbook for TQM: 80)

### 2.3.5 Waste (Muda) Elimination

Muda in Japanese means waste. The resources at each process-people and machines-either add value or do not add value and therefore, any non-value adding activity is classified as muda in Japan. Work is a series of value-adding activities, from raw materials, ending to a final product. Muda is any non-value-added task.

Muda (wastes) could be in anywhere, particularly, in the manufacturing and in the office.

**Table 1. Example of Muda**

Muda in manufacturing	Muda on office
Shipping defective parts	Passing on works that contains errors
Waiting for inspection	Waiting for signature approvals, bureaucracy
Walking and transporting parts	Walking or routing documents
Overproduction	Copies, fillies, a lot of papers
Excess inventory which hides	Excess documentation

**I. Muda of overproduction.** Overproduction may arise from fear of a machine's Failure, rejects, and employee's absenteeism. Unfortunately, trying to get ahead of production can result in tremendous waste, consumption of raw materials before they are needed, wasteful input of work force and utilities, addition of machinery, increased burdens in interest, additional space to store excess inventory, and added transportation and administrative costs.

**II. Muda of inventory.** Final products, semi-finished products, part supplies kept in inventory do not add any value. Rather, they add cost of operations by occupying space, requiring additional equipment and facilities such as warehouses, forklifts, and computerized

conveyer systems. In addition, the products deteriorate in quality and may even become obsolete overnight when market changes or competitors introduce a new product or customers change their taste and needs. Warehouses further require additional workers for operation and administration. Excess items stay in inventor and gather dust and their quality deteriorate over time. They are even at risk of damage through fire or disaster. Just-in-time (JIT) production system helps to solve this problem.

**III. Muda of defects (repair or rejects).** Rejects interrupt production, and require rework and a great waste of resources and effort. Rejects will increase inspection work, require additional time to repair, require workers to always stand by to stop the machines, an increase of course paperwork.

**IV. Muda of motion.** Any motion of a person not directly related to adding value is unproductive. Workers should avoid walking, lifting or carrying heavy objects that require great physical exertion because it is difficult, risky, and represents non-value added activities. Rearranging the workplace would eliminate unnecessary human movement and eliminate the requirement of another operator to lift the heavy objects. Analysis of operators' or workers leg and hand motions in performing their work will help companies to understand what needs to be done.

**VI. Muda of processing.** There are many ways that muda can happen in processing. For example, failure to synchronize processes and bottlenecks create muda and can be eliminated by redesigning the assembly lines so, utilizing less input to produce-to-produce the same output. Fewer employees will reduce potential mistakes, and thus create fewer quality problems. This does not mean that we need to dismiss our employees. There are many ways to use former line employees on kaizen activities, i.e., on value-adding activities. When productivity goes up, costs will go down. In manufacturing, a longer production line requires more workers, more work-in-process and a longer lead-time. Machines that go down interrupt production. Unreliable machinery necessitates batch production, extra work-in-process, extra inventory, and extra repair efforts. A newly hired employee without proper training to handle the equipment can consequently delay operation, which may be just as costly as if the equipment were down. Eventually, quality will suffer and all these factors can increase operation costs.

**VI. Muda of waiting.** Muda of waiting occurs when the hands of the operators are idle; when an operator's work is put on hold because of line imbalances, a lack of parts, or

machine downtime or when operator is simply monitoring a machine as the machine performs a value-adding job. Watching the machine, and waiting for parts to arrive, are both muda and waste seconds and minutes. Lead time begins when the company pays for its raw materials and supplies, and ends when the company receives payment from customers for products sold. Thus, lead-time represents the turnover of money. A shorter lead-time means better use of resources, more flexibility in meeting customer needs, and a lower cost of operations. Muda elimination in this area presents an excellent opportunity for kaizen. There are many ways to cut lead-time. This can be done through improving and speeding up feedback from customer orders, having closer communications with supplies, and by streamlining and increasing the flexibility of Gemba operations.

Another common type of muda in this category is time. Materials, products, information, and documentation sit in one place without adding value. On the production floor, temporary muda takes the form of inventory. In office work, it happens when documents or pieces of information sit on a desk or in trays or inside computer disks waiting to be analyzed, or for a decision or a signature.

**Vii. Muda of transportation.** In workplace, gemba, one notices all sorts of transport by such means as trucks, forklifts, and conveyors. Transportation is an essential part of operations, but moving materials or products adds no value. Even worse, damage often occurs during transport. To avoid muda, any process that is physically distant from the main line should be incorporated into the lines as much possible. Because eliminating muda costs nothing, muda elimination is one of the easiest ways for a company to improve its Gemba's operations, Imai, (1997:75-86).

### **2.3.6 STANDARDIZATION.**

Standards are set by management, but they must be able to change when the environment changes. Companies can achieve dramatic improvement as reviewing the standards periodically, collecting and analyzing data on defects, and encouraging teams to conduct problem-solving activities. Once the standards are in place and are being followed then if there are deviations, the workers know that there is a problem. Then employees will review the standards and correct either the deviation or advice management on changing and improving the standard. It is a never-ending process and is better explained and presented by the PDCA cycle (Plan-Do-Check-Act), known as Demming cycle, Kilian (1992:22). The management plans, each employee follow the plan activities, the inspectors check, and the management correct or secure every step, systematically. It is important to be seen that each one employee follows his own PDCA cycle. An example of kaizen PDCA cycle could be;

- PLAN refers to selecting the theme, understanding the current status and setting objectives, and analyzing the data in order to identify root causes;
- DO is the process of establishing countermeasures based on the data analysis;
- CHECK is confirming the effects of the countermeasures; and
- ACT is to establish or revise the standards to prevent recurrence, and reviewing the above processes and working on the next steps, Imai (1986: 64).

Standardization process is a very important one that has few key features, presented below;

- Represent the best, easiest, and safest way to do the job,
- Offer the best way to preserve know-how and expertise,
- Provide a way to measure performance,
- Show the relationship between cause and effect,

### **2.3.7 IMPORTANCES OF STANDARDIZATION**

If you do not first set a standard, you can never improve upon that standard. There must be a precise standard of measurement for every worker, every machine, every process and even every manager. To follow the kaizen strategy means to make constant efforts to improve upon a standard. For kaizen, standards exist only to be surpassed by better standards. Kaizen is really based on constant upgrading and revision. Not everything in a process or work environment needs to be measurable and standardized. Sometimes, Japanese factories use one point's standardization. Each worker performs many tasks, but only one of those tasks needs to be standardized. This one-point standard is often displayed in the work place so that the worker is always mindful of it. After the standard is followed for a while, it becomes second nature to perform the task to meet the standard. At that point, another standard can be added. Standardization is a way of spreading the benefits of improvement throughout the organization. In a disciplined environment, everyone, including management is mindful of those standards, VSRD-IJBMR (2011:183).

As to Okada (1998), Standardization process is a very important one that has few key features, presented below:

- Represent the best, easiest, and safest way to do the job,
- Offer the best way to preserve know-how and expertise,
- Provide a way to measure performance,
- Show the relationship between cause and effect,
- Provide a basis for both maintenance and improvement;
- Provide objectives and indicate training goals,

- Provide a basis for training ,
- Create a basis for auditing or diagnosis, and
- Provide a means for preventing recurrence of errors and minimizing variability.

statement. It then must establish an implementation schedule and demonstrate leadership by practicing a kaizen procedure within its own ranks, Okada (1998:8).

## 2.4. FIVE PRIMARY ELEMENTS of KAIZEN

Kaizen is founded upon five primary elements. According to Suzuki (1993), Uesu (2010), Zhang (2009), Fukui, Ryu, HONDA, Inoue (2003). These are-

2.4.1. **Quality Circles (QC)**- Groups which meet to discuss quality levels concerning all aspects of a company's running.

2.4.2. **Improved Morale** – Strong morale amongst the workforce is a crucial step to achieving long-term efficiency and productivity, and kaizen sets it as a foundational task to keep constant contact with employee morale.

2.4.3. **Team work** – A strong company is a company that pulls together every step over the way. kaizen aims to help employees and management look at themselves as members of a team, rather than competitors.

2.4.4. **Personal Discipline**- A team cannot succeed without each member of the team, being strong in themselves. A commitment to personal discipline by each employee ensures that the team remains strong.

2.4.5. **Suggestion for improvement**- By requesting feedback from each member of the team, the management ensures that all problems are looked at and addressed before they become significant.

### Quality Circles, (QC) or Quality Control Circle (QCC)-

The QCC headquarters of JUSE, which serves as the center for continuing education on Quality Control Circle (QCC), defines a Circle as *“a small group of frontline operators who continually control and improve the quality of their work, products and services; they operate autonomously and utilize quality control concepts, tools and techniques.”* The group meets to discuss quality levels concerning all aspects of a company's running. QCCs are small groups engaged in quality improvement activities in the same workplace, Development Bank of Japan (DBJ) & Japan Economic Research Institute (JERI) (2003:65), JETRO (1981).

According to [www.michailoldis.gr](http://www.michailoldis.gr), QC IS a group of staff who meet regularly to discuss quality related work problems so that they may examine and generate solutions to these. The circle is empowered to promote and bring the quality improvements through to result. There must be commitment from senior management, unit management and supervision, other staff and of course the circle members.

QCC activities contribute not only to increasing profitability but also to bringing changes in organization because of work-process improvement and empowerment at the individual level.

**Table 2. The advantages of QCC**

Individual level	Increased confidence; better relationships with colleagues Management; customers; (New discoveries through creative activities; understanding of the basic approach and procedures for solving problems; ability to maintain the high quality product and service for the benefits of society)
Management level	Reduction in time required for shop floor supervision; establishment of smooth work procedures; improvement of the labor-management relationship, etc. (QCC provide an important means of human resource development and skills training; raise the cost awareness; facilitate the sharing of problems and improve abilities to solve them)
Organization level	Improvement in the quality of products and services, productivity and competitiveness and profitability

Source: Based on the information provided on the JUSE website

#### **2.4.1 Objectives of QC Circle Activities Are-**

- Establishment of a pleasant workplace,
- Enhancement of morale,
- Establishment of sound human relations,
- Better income,

- Improvement in quality assurance,

### **UTILIZATION OF QUALITY CONTROL CONCEPTS, TOOLS AND TECHNIQUES;**

The circle works with the aid of data throughout its problem-solving activities. They show that a problem exists by collecting data, summarize and analyze using simple statistical tools like graphs, scatter diagrams, cause and effect diagrams. They also use problem-solving techniques like matrix diagrams, the What, When, Where, Who, Why, How (5W1H) concept, the Sorting, Set in order, Shine, Standardize and Sustain (5S) concept, the Man, Machine, Materials, Method, Environment (4M1E), and the Muda,(wastefulness), Muri (excessiveness), Mura (dispersion), i.e., 3Mu concept, Uesu(2010), Suzuki (1993).

#### **Manufacturing**

- Prevention of frontline worker accidents in factories
- Better understanding of production procedures and machinery
- Reduction in material loss
- Boosting of workers' morale to improve product quality and meet deadlines
- Encouragement for reduction in and recycling of industrial waste, Uesu(2010), Suzuki (1993).

#### **Sales and services (retailer, restaurant and so on)**

- Achievement of growth in sales to major customers
- Increase in orders from retailers
- Enhancement of promotion for acquiring new customers
- Reduction in billing errors at checkout counters
- Decrease in the number of wrong orders and shipments
- Learning of sign language for handicapped customers, Uesu(2010), Suzuki (1993).

#### **Schools**

- Keeping students' focus in class
- Improvement in teaching methods according to students' level of understanding

#### **Hospitals**

- Minimization of patients' waiting time for examinations, prescriptions, and appointments
- Improvement in in-hospital system to prevent mix-ups of medical charts

- Better comprehension of operation of present and new medical machinery, Uesu(2010), Suzuki (1993).

#### **Agriculture**

- Improvement in way of blending fertilizer and manure for cost reduction
- Effective use of farm equipment and tools
- Advancement of cultivation methods to prevent soil pollution Uesu(2010), Suzuki (1993),.

Today when one reads or hears about the transformation of Japan during the last three decades from being a cheap product seller to being the leader in quality, one notes that the role of QC Circles (QCC) is an integral part of its journey towards excellence. As a part of company-wide quality improvement, QCC aims to foster self-and mutual education by helping all members participate in the continuous improvement of their products and services, Uesu (2010), Suzuki (1993).

### **2.5.THE BENEFITS RESULTING FROM KAIZEN**

Kaizen involves every employee in making change, in most cases, small and incremental changes. It focuses on identifying problems at their source, solving them at their source and changing standards to ensure the problem stays solved. It is usual for kaizen to result in 25 to 30 suggestions per employee, per year, and to have over 90% of those implemented, [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org) some of benefits of kaizen are:-

**Kaizen reduces** waste in areas such as inventory, waiting times, transportation, working motion, employee skills, overproduction, excess quality and process.

**Kaizen improves** space utilization, product quality, use of capital, communications, and production capacity and employee retention.

**Kaizen provides** immediate results. Instead of focusing on large capital intensive improvements, kaizen focuses on creative investments that continually solve large numbers of small problems. Large capital projects and major changes will still be needed, and kaizen will also improve the capital projects process, but the real power of kaizen is in the on-going process of continually making small improvements that improve processes and reduce waste, [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org)

Kaizen is based on the belief that the people doing a particular job will often know better than everyone else, including their superiors, how that job can be improved; and that they should be given the responsibility for making those improvements. The production area is by no means

the only area within a company where kaizen can be implemented. Every department within accompany can make continuous improvements in its operations by making small changes on a daily basis. The first step in the process is to break down all communications barriers between the various units within the company. The master budget is one such tool that can be used to improve coordination and communication between or other subunits within a company, [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org)

## 2.6. CONSTANT IMPROVEMENT

In any business, management creates standards that employees must follow to perform the job. In Japan, maintaining and improving standards is the main goal of management. If you improve standards, it means you then established higher standards which you observe, maintain and then later try to improve upon. This is an unending process. If you do not maintain the standard, it is bound to slip back, giving it the “two steps forward, one step back” effect. Lasting improvement is achieved only when people work to higher standards. For this reason, maintenance and improvement go hand-in-hand for Japanese managers. Generally speaking, the higher up the manager is, the more he should be concerned with improvement. At the bottom level, an unskilled laborer may spend the day simply following instructions. However, as he becomes better at his job, he begins to think about ways to improve, or make his job easier. In doing this, he finds way to make his work more efficient, thus adding to overall improvement within the company. The value of improvement is obvious. In business, whenever improvements are made, they are eventually going to lead to better quality and productivity, [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org) . Improvement is a process, the process starts with recognizing a need, and the need becomes apparent when you recognize a problem. Kaizen puts an emphasis on problem-awareness and will lead you to the identification of problems, VSRD-IJBMR (2011:182-183), [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org)

**2.6.1 PROBLEM SOLVING:** where there are no problems, there is potential for improvement. When you recognize that a problem exists, kaizen is already working. The real issue is that the people who create the problem are often not directly inconvenienced by it, and thus tend to not be sensitive to the problem. In day-to-day management situations, the first instinct is to hide or ignore the problem rather than to correct it. This happens because a problem is well, a problem. By nature, nobody wants to be accused of having created a problem. However, if you think positive, you can turn each problem into a valuable opportunity for improvement. So, according to kaizen philosophy, when you identify a problem you must solve that problem. Once you solve a problem, you, in essence, surpass a previously set

standard. This results in the need to set a new, higher standard and is the basis for the kaizen concept, Cane (1996).

## **2.6.2. KAIZEN TRAINING**

Improvement is the goal and responsibility of every worker, from CEO to the manual worker, in every activity, everyday, all the time. Through the small but continual efforts of everyone, significant reductions in costs can be attained overtime. For a business to realize the true benefits of kaizen, it should form a long-term strategy, which accepts that by involving employees in making their process better, we all benefit. Getting employees to believe that they are real experts from which we can achieve 'a change for the better'. Short-term kaizen does not work. [www.Amazon.com](http://www.Amazon.com) [www.wikipedia.org](http://www.wikipedia.org)

In order to implement kaizen, a team needs to be set up to look a workplace. The employees within the kaizen team need to be trained in kaizen logic. The underlying of kaizen is that it makes employees become aware that by using their skills to improve a process, results in the business becoming more successful, which lends itself to meaning more job security for the employee. Kaizen requires bringing employees together to look at their jobs, sections, and processes, to realize changes that will help performance. Whereas lean manufacturing looked at production issues, kaizen can be applied to any business. Japanese production systems are inherently based on the logic that the employer will always look after the employee, they can be applied to western companies, but we have bear in mind the social differences between the cultures and not look merely at short-term gains. Kaizen can be a good medium for improving employee relationships Tanka (1994).

## **2.7. KAIZEN NATIONAL MOVEMENTS**

### **2.7.1. INTRODUCING KAIZEN IN AFRICA**

The philosophy, concept, and tools of kaizen have been adopted not only in Japanese firms but also in many multinational corporations in the US and Europe. Many studies note that, in both Japan and America and Europeans companies, leadership is the single most important factor for successful implementation of kaizen (Imai, 1986, Kaplinsky, 1995). This implies that it is possible to apply kaizen in countries with different socio-cultural contexts but that application must be conducted under proper leadership and with adjustments that reflect the uniqueness of the targeted society, Ohno,& Uesu, (2009:8).

### **2.7.2. Country cases in applying kaizen Philosophy**

As Cole (1989) describes, Policy for creating national movements can be designed and implemented in various areas. In light of strong interests shown by Ethiopian government

during the course of Japan-Ethiopia industrial policy focuses on creating a national movement for quality and productivity improvement. In particular, it will review the experience following four countries.

#### **A. Japan's quality and productivity improvement (kaizen) movement (1950-with USA as**

The origin of Japan's kaizen movement was the quality control (QC) method imported from USA in the post-WW2 period. Japan quickly assimilated and developed this as a management practice method; it began to produce results, which even surpassed the performance of American manufacturers. Compared with the US model, the adapted method emphasized process orientation, workers participation, and hands-on pragmatic method, which came to be known as kaizen, spread rapidly among Japanese companies, large and small, to form a core of the Japanese monozukuri (making things spirit), Kikuchi and Suzuki, (1993).

**B. Singapore's kaizen movement (1980s-).** As to Uesu, (2010), World Bank, (1996) and GRIPS Development Forum ed. (2009), with Japanese assistance; Singapore is the first country where The Japan International Cooperation Agency (JICA) provided comprehensive cooperation- in a venture called the "Productivity Development Project"- to transfer knowledge in quality and productivity improvement. This project was requested by the Prime Minister Lee Kuan Yew to the Japanese government. With his strong commitment and leadership, the Productivity Movement was launched in 1981. The National Productivity Council (NPC) was established in 1981 as an oversight and policy coordination body for the productivity movement. Immediately after the establishment of the NPC, the government launched the Productivity Movement, which evolved in the following three stages,

1. Awareness stage- creates widespread "awareness" of productivity among companies and the workforce.
2. Action stage- translates "awareness" into specific programs to improve productivity in the workplace.
3. Ownership stage- encourages "ownership" of the Productivity Movement by companies, Uesu, (2010), World Bank, (1996) and GRIPS Development Forum ed.

Strong political will and policy persistence transformed Singapore into a very competitive nation with high productivity. By the early 1990s, Singapore began to teach productivity to developing countries in East Asia, Africa, and Eastern Europe. As such, Singapore is regarded as a successful case of a government-led productivity movement, Uesu, (2010), World Bank, (1996) and GRIPS Development Forum ed. (2009).

launch of an awareness-raising campaign. The productivity movement was introduced in both the private and public sectors, and the BNPC has played a key role in promoting productivity awareness. Nevertheless, Botswana is yet to make substantial progress in translating "awareness" into practical action for productivity improvement on the ground, KNM (2010:3) and, GRIPS (2009).

**D. Burkina Faso's QCC movement (1990's-), with the World Bank and Japanese assistance;** Burkina Faso is a country where Japan's QCC activity was introduced in the 1990s, under the World Bank-supported technical assistance program (partly funded by the Japanese government through the Policy and Human Resources Development Fund). The World Bank support lasted for about eleven years, mobilizing Japanese experts to support the pilot implementation of QCC activity and the establishment of an organization charged with QCC promotion. The project enjoyed strong interest among the Burkinabe policy makers and businesses, and QCC activity was implemented in selected companies and public organizations throughout the 1990s, Ohno, Izumi, Kenichi and Sayoko Uesu (2009).

## **2.8. Factors Affecting the Success of National Movement of KAIZEN**

According to Kaizen National Movement, KNM (2009:4), Bhote, (1996), Atarashi, (1998) and GRIPS (2009), the experiences of these four countries and other national movement such as Saemaul Movement in South Korea suggest that six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people.

**First**, the movement must be launched and sustained by a top leader with strong personal interest and commitment. **Second**, there is a need to establish core organizations (e.g., national productivity organizations, QCC centers) responsible for implementing and coordinating various activities related to quality and productivity improvement aspects (Prokopenko, 1999).

**Third**, related to this, supporting institutions and mechanisms must be created at the central and local levels. This could include the establishment of a high-level national council with a central ministry or agency assuming the role of the lead organization or national productivity organization and the secretariat to the national council, and regional, district, and community-level mechanisms for productivity promotion (Prokopenko, 1999). It is important to note that the national productivity organization is not the only entity promoting productivity improvement; rather, it should coordinate with other institutions in a catalyst role. By networking and helping other institutions, the national productivity organization should help build a strong, supportive institutional infrastructure.

**Fourth**, public awareness campaigns are a crucial element of productivity movement. To change people's attitudes, massive campaigns are effective for fostering positive attitudes,

values, and a culture of productivity. Public awareness campaign should target not only workers and managers, but also government officials and politicians, professionals, students, and the general public. Highly visible incentive and recognition mechanisms should also be implemented at the national and local levels. Various instruments can be mobilized, such as TV, public speeches by senior government officials and national conventions. In addition, award programs are effective for promoting campaigns to reward good performers and stimulate interest in best practices and corporate efforts to excel.

**Fifth**, authorized and well-designed training programs must be created to educate government officials in charge as well as private leaders and participants of the movement in the frontline of implementation.

**Sixth**, the movement must continue for a sufficiently long time, typically over a decade or more, with evolving emphasis. The movement can be initiated and led by the government at the initial stage, but it must be gradually transferred to the private sector. This is critical for fostering a feeling of ownership of the productivity movement by individuals. To this end, it is important for core organizations to train private management consultants so that they support productivity improvement at industry and company levels. It is possible to say that all of the above six determinants for success were in place in Singapore's Productivity Movement.

At the same time, it is important to note that country-specific factors might affect the outcome of national movements. These include;

- i. Drivers of the productivity movement,
- ii. Degree of the private sector dynamism, and
- iii. The level of technology to be introduced in the movement, Uesu, (2010),

**On the first point**, while political drive is absolutely necessary, economic incentives are crucial to sustain the national movement. Thus, it is important to understand what drives the movement and how strong these factors are. **Second**, the degree of private sector dynamism matters. Where a dynamic private exists, it can take a lead in initiating, scaling-up, and sustaining productivity movement and the government can play a supportive role. This was exactly the case of Japan. However, if the private sector is weak as in the case of many developing countries, the government is required to lead the introduction, adaptation, and development of the productivity movement. Under such circumstances, the productivity movement must start with top-down instruction to encourage grassroots participation. Private sector dynamism also includes the absorptive capacity to learn, adapt and internalize foreign

technology. So, the education and training levels of the general workforce become important. **Third**, the level of technologies to be introduced for the productivity movement can differ, depending on the stages of development: developing countries may wish to focus on basis of kaizen such as 5s & QCCs, while more advanced countries like Taiwan & Korea may wish to address R&D & technological innovation in the productivity drive. Because each country differs in these three aspects, special attention must be paid when designing the policy for a national movement for quality and productivity improvement, Kaizen National Movement (KNM 2011:5) In this regard, Ethiopia Federal Democratic Government has made further studies in order to reduce risks that would happen after the program is being launched, according to EKI 2011.

## 2.9 IMPLICATION FOR ETHIOPIA

According to 'Ethiopia at glance', The World Bank (2009), the contribution of the manufacturing sector to GDP is smaller in Ethiopia compare with Kenya. In 2007, the contribution to GDP of the manufacturing sector in Kenya was 11.8%, whereas the agriculture and the service sectors accounted for 22.7% and 58.2%, respectively. For Ethiopia, In 2006/07, it was just 5.1%, in comparison to 46.3% from agricultural sector and 40.3% from service sector, GRIPS (2009) & World Bank (2009). Compared to Kenya, the presence of multinational companies is very small in Ethiopia. Due to the absence of major multinational companies, Ethiopia is yet to absorb the knowledge of kaizen, GRIPS (2009:18).

One characteristic of the Ethiopian manufacturing industry is the dominance of public enterprises, 44% of value addition from the manufacturing sector was produced by 154 public enterprises in 2006/7, Central Statistical Agency (2007).

Regarding the six determinants mentioned in this chapter, Ethiopia does not have problems of leadership, since Kaizen was driven by strong commitment of the top leader. During the two-year period of JICA support (the Study on Quality and Productivity Improvement in Ethiopia, from October 2009 to May 2011), pilot campaign projects were implemented, and their results have been disseminated. The JICA experts conducted training for the staff of the Kaizen Unit of the Ministry of Industry (MOI) to transfer relevant skills and techniques and a national plan has been formulated to disseminate kaizen activities for manufacturing companies. As a result, Kaizen has come to be known among policy makers and business managers in Ethiopia. Based on these achievements, the Ethiopian government has decided to establish a core organization responsible for quality and productivity improvement, i.e., the Ethiopian Kaizen Institute (EKI), EKI (2010:32), NKM (2011:19). The kaizen unit of the MOI, created in 2009 as the counterpart of the above JICA study, has been upgraded into the EKI with functional strengthening. At the request of the government in November 2011, JICA has begun new support the

institutionalization of the EKI in such areas as organizational development, human resource development, and nationwide dissemination of kaizen, NKM (2011:19).

According to National Kaizen Movement (NKM 2011), the experiences of national productivity movements in the above four countries suggest that Ethiopia may wish to pay special attention to the following points when it endeavors to disseminate and scale up kaizen through a national movement.

First, as the core organization, the EKI must assume various functions such as kaizen promoter, catalyst, mobilize, capacity builder, and so on. These include formulating overall policies, plans, and programs for kaizen dissemination; providing training of trainers and developing authorized and standardized training programs and materials; conducting diagnosis and consulting services through Model Company projects; creating national awareness on quality and productivity, and establishing mechanisms for nationwide outreach, including MSEs and future work force through TVET. Such function cannot be realized by the EKI alone. There is a need to establish a mechanism for overall coordination of kaizen dissemination to ensure smooth implementation of these activities. Furthermore, in developing training programs and materials, it is important that the government, private sector, and academia work together to study the adaptability of foreign technologies and make necessary adjustments tailored to the Ethiopian context. This is what the Japanese & Singaporean experiences suggest, GRIPS (2009) and Prokopenko, (1999).

Second, it is important to be mindful of the three stages of a national movement-i.e., awareness, action, and ownership-and consider the role of the EKI in each stage. Building a national movement is a long-term undertaking and must continue over a decade or more, with evolving emphasis. Singapore spent the initial five years raising productivity awareness and moved to the action stage by introducing specific program at the workplace (e.g., model company projects, management consultancy programs for local companies). Then, it moved to the ownership stage to encourage private and public organizations to lead the Productivity Movement. Burkina Faso combined the awareness and action stages by linking QCC pilots with annual QCC National Conventions. Botswana had faced difficulty translating "awareness" into concrete action. Since Ethiopia has already implemented kaizen pilots at a model companies with JICA support, it may be effective to combine awareness with action stages in the future, (NKM 2011:20).

Third, among the three stages, the ownership stage is critical to self-sustain the national movement. However, this is the most difficult stage. Conscious policy efforts are necessary on two aspects. First, it is important to sustain core organizations technically and financially-especially after the completion of donor support. Over the medium-term, the EKI should have a strategy for how to constantly update kaizen knowledge and techniques. One option might be to link the transfer of kaizen technology with an FDI attraction strategy. Financially, the

government should commit to supporting the EKI for a sufficient time. These are the experiences drawn from Singapore, Burkina Faso, and Botswana. At the same time, the Japanese case suggests the importance of working with business associations from early on. Second, it is necessary to gradually strengthen private sector capability so that companies can develop their own systems of kaizen and that capable management consultants can be nurtured and scaled up in the country. Awards may be effective to stimulate interests in best practices and motivate excellence. Certification and qualification systems may be also useful for retaining capable national experts and developing private management consultants (NKM, 2011:20), Uesu, (2010), World Bank, (1996) and GRIPS Development Forum ed. (2009).

### **2.9.1 KAIZEN TRAINING**

Kaizen refers to a philosophy or practice that focuses on continuous improvement of processes in manufacturing, engineering, supporting business processes, and management. According to KNM (2009:110), Kaizen involves providing the training, materials, and supervision needed employees to achieve the higher standards and maintain their ability to meet those standards on an on-going basis. The benefits of kaizen include among others, small continual improvements resulting in improved productivity, improved quality, better safety, faster delivery, lower costs, and greater customer satisfaction.

Improvement is the goal and responsibility of every worker, from CEO to the manual worker, in every activity, everyday, all the time. Through the small but continual efforts of everyone, significant reductions in costs can be attained overtime. For a business to realize the true benefits of kaizen, it should form a long-term strategy, which accepts that by involving employees in making their process better, we all benefit. Getting employees to believe that they are real experts from which we can achieve 'a change for the better'. Short-term kaizen does not work, KNM(2009:111). Education, training, and lifelong learning contribute significantly to promoting the interests of individuals, enterprises, the economy and society as a whole, especially considering the critical challenge of attaining full employment (ILO, 2005b:84). Kaizen training bridges the gap seen as constraints in the training.

## CHAPTER THREE

### 3. Research Design and Methodology

This study deals with the research design & method that was employed in gathering data for the study. It contains the research design, the sampling method & the sample size, source of data, variable of the study data collection procedure and data analysis techniques.

#### 3.1. RESEARCH METHODOLOGY

Descriptive survey method was used to see through the pros and cons of the practice and problems of training kaizen. The descriptive method provides the opportunity to describe the conditions or relationships that exist, opinions that are held, process that are going on and effects that evident, or trends that are developing. It is primarily concerned with the present, although it often considers past events and influences as they relate to current conditions (Best & Kahn 2003:105). Moreover, such a method was employed to gather data that assist in developing a clear description of the status of TVET in a Kaizen training practices.

3.2. STUDY AREA. The study area is in Addis Ababa City Administration, particularly in Nefas Silk Lafto Sub-city of Addis Ababa City Administration. In this Sub-city there are four public TVET Institutions. Most often workers might withdraw the training program and the enterprise to look for better job.

Questionnaires were distributed to TVET Institutions' trainers, and MSEs Trainees. Among 45 kaizen trainers, 34 (75.5%), out of 160 kaizen trainees, 56(35%), were selected by random sampling method. Eight (100%) of the training program coordinators and four (100%) of the TVET Institution deans were assigned for interview.

Data gathering instruments and procedures, questionnaires, interview and observation were developed to acquire adequate information from the sources.

3.3. Sources of data The primary sources of data were trainers, trainees, and supervisors of the Industrial Extensions. Related documents, journals and internets were considered as secondary data sources.

3.4. Instrument of data collection After pilot test was conducted and improvement was made, questionnaires and interview were employed. The questionnaires included both open ended and

closed ended type. Interview was employed to gather information from deans of the institutions. In addition to this, observation method was used in the TVET Institutions and MSEs to match with what was obtained from questionnaires and interview.

3.4.1. Questionnaire was prepared in Amharic for the purpose of clarity and easily to obtain the responses from the respondents. They are kept as concise as possible with care taken to the actual wording and phrasing. The questionnaire are prepared by studying the existing literatures particularly set in South Africa manufacturing enterprises and through an understanding of the relevant environment faced by the small and micro manufacturers of the local enterprises. The questionnaires that are used in the questionnaire are close-ended, and open-ended.

3.4.2. Interview was employed to acquire qualitative data various components of the kaizen training. Thus, interviewees included were two deans and eight coordinators of TVET Institutions. To establish effective communication, the language used was Amharic.

3.4.3. Observation was used as the fourth complementary technique employed by the researcher in the micro and small business enterprises where kaizen principles were attempted to be practiced and in the TVET institutions' workshops. This has helped the researcher observe more reliable and accurate ongoing facts both in the MSEs and in TVET Institutions.

3.5. Sample Population & Sampling Technique. There are six (both public and non public) TVET Institutions in Nefas Silk Lafto Sub-City of Addis Ababa City Administration. Among the Six, Four of them, namely, Nefas Silk TVET College, Kefteгна 20 TVET Institution, 06 TVET and Gofa TVET Institution were selected for this study. Respondents were selected by random sampling method.

The following table shows the proportion of sample taken from each TVET Institution.

TABLE 1. Sample of trainers in each TVET Institution

No.	Name	Total No. of Trainers	No. of sample taken from the Institution	Percentage of sample to the population
1	Nefas Silk College	140	15	33.3
2	Kefteгна Haya TVET	68	24	53.3
3	06 TVET Institute	8	1	2.2
4	Gofa TVET Institute	13	5	11.1
	Total	229	45	99.9

Source: Survey data

Random sampling technique was employed to select a sample size from each Woreda.

TABLE:II. Sample taken from selected MSEs which implemented Kaizen in Woredas

No.	Name of Woreda	Total no. Kaizen trained population	No. of sample taken from Trainees	Percentage of the sample to the population
1	Woreda 2	30	6	10.7
2	Woreda 4	2	1	1.8
3	Woreda 6	14	4	7.1
4	Woreda 8	18	5	8.9
5	Woreda 10	16	5	8.9
6	Woreda 12	80	35	62.5
	Total	160	56	99.9

Source: \* Survey data

Random sampling technique was employed to select a sample size from each Woreda.

3.7. Data Analysis. The data collected was analyzed and interpreted. The findings obtained through these instruments were arranged in tables' in line with the basic research question. Thus, the summary, conclusions and recommendations were made based on the findings. Percentage and frequency counts were used to analyze various characteristics of such as sex, age, level of education, and work experience and analyze the response of the respondents.

## CHAPTER FOUR

### 4. PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA

This chapter deals with the presentation, analysis and interpretation of data, which were collected through questionnaires, and interviews. The questionnaires were distributed to Kaizen trainees (employees and owners) trainers in the TVET. In addition, Interview was administered with TVET Institutions' Deans and coordinators.

Out of the questionnaires distributed to the Kaizen trainees, from a total number of 56, 45 (80%) were filled and returned. Out of 45 trainers, 34 (75.6%) filled and submitted the questionnaires to the student researcher.

From among 8 coordinators, all of them (100%) filled and returned the questionnaires. From four deans of the Institutions, 2(50%) of them participated for interview. The analysis of the interview is presented along with the analysis of the data obtained through the questionnaire.

**Table 3. KAIZEN Trainers' Profiles**

No.	ITEMS	RESPONSES	Trainer respondents	
			No.	percentages
1	Sex	Female	5	14.7
		Male	29	85.3
		<b>Total</b>	34	100
		21-25	16	47
		26—30	10	29.4
		Above 30	8	23.5
		<b>Total</b>	34	99.9
3	Qualifications	TVET Level I	1	2.9
		TVET Level II	6	17.6
		TVET Level III	16	47.1
		TVET Level IV	9	26.5
		Degree & above	2	5.9
		<b>Total</b>	34	100
4	Class contact hours/3 days in the Institute was	Less than 10	4	11.7
		10-15	20	59
		16-21	10	29.3
		<b>Total</b>	34	100

**Source:** Survey data

In the above table, 85% (29) of the trainers who engaged in Kaizen were males while 15 %(5) were females. This data shows male participants were more than females.

Regarding to their age, 77% (26) of the trainers were between 20 &30 while 23 %(8) above 30 . The data show majority of trainers were young and adult.

As to their educational qualifications, level III and IV are 47% &26.5% (16, 9) respectively. 6%(2) of the respondents are degree and above. This data shows that in order to train practical kaizen training, their qualification is unquestionably enough. Since kaizen training is new for everyone, his or her experience is same for all. Thus, their qualification is enough if it is supported by more practical up dated skill and theoretical knowledge. Mind set up should develop among trainers to enhance explore knowledge, that will make them competent to impart kaizen to trainees.

Considering workload, trainers ought to teach three days in the formal training and two days in kaizen training. During three day training, 11.7 %(4) have had less than 10 contact hours. 59%(20) of the trainers have had between 10-15, & 29.3%(10) have had 16-21 contact hours. This data shows, the trainers have average workload. During this time trainers can explore, and able to offer sound kaizen training to Micro and Small Enterprises.

**Table 4.** General Characteristics of the kaizen Trainees' profile/MSEs workers/

No.	ITEMS	Response	Trainee respondents	
			No.	%
1	sex	Male	40	89
		Female	5	11
		Total	45	100
2	Age	21-25	11	24
		26-30	14	31
		Above 30	20	44
		Total	45	99
2	Qualification	1-4 grade	2	4.4
		5-8	15	33.3
		9-12	4	8.9
		TEVET	12	26.7
		Diploma	10	22.2
		Degree	2	4.4
	Total	45	99.9	
4	Role in the firm	Owner/share holders	35	77.8
		Employee	10	22.2
		Total	45	100

Source: Survey data

The first data shows, out of 45 respondents, 40 (89%) were male while 5 (11%) were female. This data show many of workers engaged in the Micro & Small Business Enterprises are male than female. Males are more rewarded in economic benefit in the area of the manufacturing. Hence, attention should be given to females to enjoy economic benefit from micro businesses.

Regarding to their age, 20(44%) respondents answered their age to be above 30, 14 (31%) between 26-30, and 11 (24%) were below 26. The data shows more of youth engaged in manufacturing production. The youth are believed to be inquisitive to learn quickly and committed to implement what they have been trained where there is some conducive environment.

With regard to the respondents' educational level, from out of 45, 2(4.4%) have completed the first cycle, 15(33.3%) of them completed the second cycle, 4(8.9%) are between 9 and 12 while the rest 10 (22.2%) and 2(4.4%) were diploma and degree graduates respectively. This data show that most of the respondents were educated, and hence, with some help they can boost production, copy, & create technology, and develop their aspirations.

As to the respondents role in their organization, out of 45 respondents, 10 (22.2%) were employees, and the remaining 35(77.8%) were owner (shareholders) managers. The data shows most of the employees are not participants for this study. This might be because of engagement in activity or fear for employers for disclosing information.

**Table 5. Regarding kaizen Training place & motivation**

No.	ITEMS	RESPONSES	TRAINERS'	RESPONDENTS
			No.	PERCENTAGES
1	Place for kaizen training was	Off-the-job	34	100
		On-the-job	-	-
		Total	34	100
2	Your willingness to offer training was	High	16	47
		Average	15	44
		Low	3	9
		Total	34	100

Source: Survey data

Regarding to the place of the training, 34(100%) trainers acknowledged that it was off-the-job training. This saved trainees' costs, time and energy. Moreover, as soon as the trainees complete part of the training, they can pursue their businesses. On other side, trainers have transportation facilities and money allowances for their snacks.

With regard to trainer motivation, data shows that 16(47%) of them said they had "high," motivation, while 15(44%) responded their motivation was 'Average', and 3 (9%) of them said

they had a “low” motivation. The data shows the motivation of trainers’ respondents was nearly average to train kaizen. This shows more motivational work have to be done to promote training. Without motivation, there would be poor performance, which may cost loss of resources.

**Table 6. Assessing training methods, environment and resources**

No.	ITEMS	Responses	Trainers’ respondents	
			No.	Percentage
1	Method of training	Participatory	34	100
		Non-participatory	-	-
		Indifferent	-	-
		<b>Total</b>	<b>34</b>	<b>100</b>
2	Environment for training	Favorable	13	38.2
		unfavorable	20	58.8
		indifferent	1	2.9
		Total	34	99.9
3	Availability of resources for training was	High	12	35.3
		Average	2	5.9
		Low	20	58.8
		<b>Total</b>	<b>34</b>	<b>100</b>

Source: Survey data

As to method of training, all the 34(100%) of the trainers responded it was participatory. The demonstration method along with participatory is the basic kaizen training method to create more understanding and to make practicable activity.

Regarding to the environment of training, 13(38.2%) responded that it was favorable, and 20(58.8%) stated it was unfavorable while 1(2.9%) remained indifferent. The study shows the place of micro and small business enterprises was not conducive to training. Unfavorable training environment hold back effectiveness of training influencing both trainers and employees.

As to available resource facilities for kaizen training, 12(35.3 %) of them sated it was ‘high’, and 20(58.8%) stated it was ‘low’. The data shows resource facilities for kaizen training was Low. Where there are no available and valuable resources, even if the trainers are motivated and training environment are sound, it affects training adversely.

**Table 7. Rating the will of the trainees, stakeholders' participation & supervision**

No.	ITEMS	RESPONSES	Trainer Respondents	
			No.	%
1	Your observation on willingness of trainees to take kaizen training	High	12	35
		Average	16	47
		low	6	18
		<b>Total</b>	34	100
2	Rating the Stakeholders participation while kaizen training taking place	High	5	15
		Average	19	56
		Low	10	29
		<b>Total</b>	34	100
3	Supervision by the heads of TVET Institutions & agency representatives while training was on	High	12	35.3
		Average	10	29.4
		Low	12	35.3
		<b>Total</b>	34	100

Source: Survey data

Trainers were requested whether the trainees took the training willingly or not, Out of the total respondents, 12(35%) asserted that their willingness high, 16(47%) of them said their willingness was 'average' and the remaining 6(18%) of them responded it 'Low'. The data explains that the willingness of the trainees to take kaizen training was nearly average. Thus, the data shows their willingness to be trained is positive application. This implies trainees absorbed the skill of kaizen to certain degrees.

With regard to stakeholders' participation to promote & make effective kaizen training, 5(15%) respondents response show 'high', 19(56%) of them responded 'Average' and 10(29%) of them replied it was 'low'. The data indicated that the stakeholders' participation was at the average level. In the absence of well-developed and integrated activity of stakeholders, it would be critically impossible to gain efficient and effective outcome.

Regarding to the frequency of supervision by concerned officials of TVET Institutions, and Agency, the data shows, 'high' by 12 (35.3%) respondents voice, 'average' by 10(29.4%) and those who stated supervision was 'low' were 12 (35.3%). The data shows the degree of supervision made by the TVET Institutions' heads and Agency officials was not satisfactory. This shows training was done without active supervision of Heads. This in turn might cause mismanagement of resources, disorganized activity and unproductive training.

**Table 8. Rating training over safety issues whether it was made by Trainers or not.**

No.	ITEMS	RESPONSES	TRAINER RESPONDENTS	
			No.	Percentages
1	Have you trained about importance of helmet for head protection?	Yes	7	20.6
		No	27	79.4
		Total	34	100
2	Have you trained about use of safety shoes & gloves?	yes	3	8.8
		No	31	91.2
		Total	34	100
3	Have you trained about the use of chemical or dust mask?	Yes	16	47
		No	18	53
		Total	34	100
4	Have you trained about the need of emergency door	Yes	6	17.6
		No	28	82.3
		Total	34	99.9
5	Have you trained about need of first-aid	Yes	33	97
		No	1	3
		Total	34	100
6	Have you trained about need of fire extinguisher in the shop?	Yes	1	3
		No	33	97
		Total	34	100

Source: Survey data

Table 9. Assessing Availability of Safety Issues in the manufacturing enterprises

No	Items	Responses	TRAINER RESPONDENTS'	
			No.	Percentages
1	Do the trainees have helmet	Yes	5	14.7
		No	29	85.3
		Indifferent	-	-
		Total	34	100
2	Do the trainees have safety shoes & gloves?	Yes	1	3
		No	13	38.2
		Indifferent	20	58.8
		Total	34	100
3	Do the trainees have chemical/dust mask?	Yes	-	-
		No	34	100
		Total	34	100
4	Do they have emergency door after training?	Yes	4	11.8
		No	8	23.5
		Indifferent	22	64.7
		Total	34	100
5	Do they have first aid with sufficient items?	Yes	17	50
		No	6	17.6
		Indifferent	11	32.3
		Total	34	99.9

The Table focuses on rating whether workers in the MSEs have safety materials in their work place. The trainer respondents were asked about if micro and small business enterprises' workers have helmet to cover their head during the work, for this question, 5(14.7%) of them replied 'yes', while 29 (85.3%) said they do not wear helmet. The data shows workers do not use helmet to protect their head. Thus, working without helmet in the manufacturing firms would expose workers if accidents happen.

Respondents were also asked if trainees wear safety shoes and gloves, 1 (3%) of the respondents said 'yes', they use, 13(38%) of them said 'no', while the rest 20 (59%) of the participants remained indifferent. From this data, it is possible to say that training on safety shoes was not delivered since 38% said no and 59% remained confused whether they trainees wear. This implies training was not focusing on workers safety.

As to the use of the chemical or dust mask, 34 (100%) of the trainers replied its absence. The data shows that workers in MSEs were victimized by the chemical or dust in the work place. This is because of Knowledge of trainers in terms of safety issues was little.

Respondents were asked if Micro and Small business Enterprise shops do have emergency door, 4(11.8%) of them said 'yes' they have, 8(23.5%) said 'no', and 22(64.7%) remained different. The table shows that for training was not given, they also have not emergency door. Whether the trainee possessed fire extinguisher or not, 30(88.2%) of the trainer respondents replied no, while the rest 4 (11.7%) responded nothing. The data shows fire extinguisher is abstained in the manufacturing enterprises. These imply there was problem on consistency to offer balanced and unified training. If fire burst out the way to protect life and property would be little.

Regarding to the availability of first aid kit with the needed items, 17(50%) of them replied 'yes', while 6(17.6%) said 'no', and the rest 11(32.3%) remained silent. The data shows there was first aid kit with need items with average level. This implies when worker are injured they have means to treat themselves.

## **Open-Ended Questions for Trainers:-**

With regard to TVETs being equipped with modern machines to develop copying technology from main source, the trainers said,

Most of TVETs institutions' machines are obsolescence to copy technology; they should be replaced with the new electronic machines. Without having them, it would be difficult to talk about copying technology.

Regarding to the challenges they faced from micro and small business enterprises, the trainers has mentioned the following features,

Owners and workers often postponed or quit the training due to the fact that to cover their running costs.

Some of trainers and workers undermine small changes that were obtained from kaizen application and then their willingness to set up principles of kaizen is halfhearted.

Few of trainees hesitate to incur costs that demand them to purchase for their shop facility and practice kaizen practice. By any case, when they asked to purchase goods for their own advantages, their challenge was high.

About the provision of adequate resources from TVET Institutions:- Trainers response was

The institution used to provide training facility late after training time has come. This is due to late delivery of budget from government.

For the question, "How do you assess the effect of training?"

They replied, the effect could not be measured in figure since mindset up change is priceless, immeasurable and the result is observed through time. This implies there was no assessment on effect of kaizen. Absence of assessment in each area of training causes problem to know where and what problem were and then is not possible to give possible solution. Without assessment, it would not be possible to weight the merit regard to resources used.

"Have you given training about Quality Circle (QC) and then followed its application of QCC in the MSEs?" Trainers said,

"This subject came as a part of the subject to be trained very late and its effect was minor. Nevertheless, it would continue gradually through convincing the user

Trainers were asked if they had taken kaizen training 'on setting standard' in the manufacturing businesses? They answered-

“They have not taken specific and practical training on the subject of setting standards.”

**Part 10. Rating kaizen Training**

No.	ITEMS	RESPONSES	Trainee Respondents	
			NO.	Percentages
1	Was training practical?	yes	30	66.7
		No	15	33.3
		Total	45	100
2	Was the training time conducive?	Yes	33	73.3
		No	12	26.7
		Total	45	100
3	Was training participatory?	Yes	45	100
		No	-	-
		Total	45	100

Source: Survey data

Considering if training was practical, 30(66.7) of the trainee respondents described it was practical, while 15(33.3%) responded they it was not. The data reflects that kaizen training was more of practical.

As to training time conduciveness, 33(73.3%) agreed it was, while 12(26.7%) of them stated it was not. This data shows the time set for training was relatively favorable to acquire training. This shows majority of the trainees accepted the training.

Regarding to the method of training, 45(100%) of them mentioned that the training was participatory. When training is participatory, the interaction between a trainer and trainee is somewhat it is friendly. Trainees would understand what they see and practice with self-confidence.

Table 11. Rating trainers skill, supervision

		Trainee respondents		
		Responses	No.	percentages
1	Were trainers skillful & knowledgeable in performing 3Ss?	Yes	25	55.6
		No	20	44.4
		Indifferent	-	-
		Total	45	100
2	Were TVET leaders actively supervising the training?	Yes	20	44.4
		No	13	28.9
		Indifferent	12	26.7
		Total	45	100

Source: Survey data

With regard to competency of the trainers to present training skillfully, that of 25(55.6%) trainee respondents mentioned that the trainers were knowledgeable & skillful while 20(44.4%) mentioned the trainers were not capable to offer kaizen training. The data revealed trainers skill and knowledge is somewhat above average. However, they need capacity building program to upgrade their level of practical knowledge.

Considering the rate of 'supervision of training program by the leaders of the TVET Institutions and stakeholders', 20(44.4%) acknowledged there were, 13(28.9%) stated there were 'no', supervision by the officials of the TVET, while 12(26.7%) remained indifferent. This data shows that supervision made by the leaders of TVET Colleges and stakeholder was not worth mentioning. Hence, if an activity is executed without supervision of responsible and accountable person from top, on interval time, it means the training value is insignificant, that causes wastage of resources at the same time.

**Table 12. Assessing effectiveness of the training in shining, inspection, standard & sustainability**

		TRAINEE RESPONDENTS		
	Regarding SHINING	Responses	No.	Percentages
1	Do you clean floor, machines & your hands, after work completion?	Yes	28	62.2
		No	17	37.8
		<i>Total</i>	45	100%
2	Do you regularly inspect for unclean?	Yes	20	44.4
		No	22	48.9
		<i>Total</i>	45	100
3	Do you set work rules & procedures with discussion?	Yes	18	40
		No	27	60
		<i>Total</i>	45	100
4	Have you sustained the 3Ss of the kaizen?	Yes	16	35.6
		No	23	51.1
		<i>Total</i>	45	100

Source: Survey data

Pertaining to Shining, out of 45 respondents, 28(62.2%) answered that they clean floor, machines, their hands and also grease and oil their equipment, in addition to fixing loosed parts of the machines. 17(37.8) of the participants respond they do not. The facts from the respondents reveal that the training offered by the TVET Institution on the above three Ss were strongly practiced with the respondents.

Concerning Inspecting unclean items to shine, 20(44.4%) responded yes, that they do, 22(48.9%) said 'no', that they do not inspect for unclean, while 3 (6.7%) remained voiceless. The data show majority of respondents have had no habit of Inspecting to find out unclean (whether things were shined or not). This shows shining habit is not done as hobby.

Pertaining to Standardization (establishing common rules, following common flow of work, and procedures), out of 45 respondents, 27 (60%) admitted they do not follow common work rules and procedures, 18 (40%) responded they have had standardized activities. The above data indicated training on standardization was not yet performed. The movement of work was not based on customary. It shows that there is no complemented work activity.

With regard to sustaining the three S skill, out of the 45 respondents, 16(35.6%) stated 'yes', 23 (51.1%) said 'no' while 6(13.3%) of the respondent remained indifferent. This data illustrates that kaizen principles were not sustained as to respondent trainee responses. The data implies, lack of sustaining means sooner or later the value of kaizen will be disregarded.

**Table 13. Change on mind-set-up, certification and reward**

No.	ITEMS	RESPONSES	Trainee Respondents	
			No.	Percentages
1	Is there Change on your attitude after kaizen	yes	26	57.8
		No	11	24.4
		Indifferent	8	17.8
		Total	45	100
2	Is there Technology transfer from TVET, & copying you made from	Yes	14	31.1
		No	31	68.9
		Total	45	100
3	Have you got Certification for Completion	Yes	20	44.4
		No	25	55.6
		Total	45	99.9
4	Is there rewards for those who sustained kaizen	Yes	-	-
		No	45	100
		Indifferent	-	-
		Total	45	100
5	Cost you Spent on training	High	12	26.7
		Low	18	40
		Indifferent	15	33.3
		Total	45	100
6	Team Work & QCC Applications	Yes	17	37.8
		No	28	62.2
		Total	45	100

Source: Survey data

The first item of above table assesses the change of work attitude after kaizen training has taken place within them. The respondents who said 'yes' were 26(57.8%), those who said 'no' were 11(24.4) and those who remained different were 8 (17.8%). The data indicated there was change over their attitude about the work after kaizen has been implemented. This shows positive impression about value of kaizen. The main aim of kaizen is to change mind set up. In this regard, what has been obtained was satisfactory.

Regarding to transferring of technology from TVET Institution to the MSEs, 68.9% (31) stated its absence, while the rest 31.1(14) thought they have had technology copy. This data shows

transfer of technology from TVET to MSEs was little. This implies training system was not adequate and trainers are not capable to demonstrate how to copy technology. In the absence of technology, quality and productivity remains as mere dream.

As to be rewarded certificate for completing kaizen training from TVET institution, 20(44.4%) trainees responded 'yes', and 22 (48.9%) 'No', while 3 (6.6%) remained indifferent. This data reflects the practice of certification was not uniformly done among TVET institutions. This implies TVET institutions do not follow same pattern of activity.

With regard to 'rewarding those who sustained kaizen effectively and efficiently, 45(100%) of them responded 'no'. The data shows rewarding those who completed and sustained kaizen in practice was not applicable at all. This implies, the institutions have no regard for those who sustained kaizen. Giving courage through reward motivates the receiver, while motivate reluctant.

Concerning costs spent by Micro and Small business Enterprises to purchase items during training, 12(26.7%) respondents replied 'high, 18(40% said 'low' while 15(33.3%) remained quite. The data reflects cost spent during training kaizen was relatively small. This goes with the principles of kaizen. Kaizen is to obtain small changes with small amount of investment.

As to teamwork, and QCC existence, the number of respondents who said 'yes' were 17(37.8%) but who said were 28(62.2%). The data shows team work and QCC practice were insignificant in the micro and small business enterprises. Hence, without QCC it is challenging to obtain a pleasant work place, enhance morale, establish sound human relations, raise better income, and improve quality and productivity.

### **Interview with Coordinators,**

For the question 'Do your Institution have appropriate materials that will enable trainers copy technology and transfer it to the MSEs? They said Most of machines and equipments found in the institution are obsolescence; few of them have defects, and even using computer fully have a problem of networking and power interruption. However, a few of trainers are struggling to copy technology from outsource and attempting to develop it.

"How do you assess the capability of trainers in transferring the theoretical and practical approach of kaizen?' they replied- All of the trainers had taken kaizen training by Ethiopian Kaizen Institute Experts repeatedly. After completion of training, they were made to practice with the direct supervision of the experts. Therefore, they are capable to give training very well. Every week, there is evaluation among each other through "Ande Leamst, in Amharic or 'One to Five' team meetings. At the time the group meets, they make constructive criticism each other that they observed during training session against each trainer.

For the question, "Is the training based on continued pattern?" They replied, 'Kaizen training has no stop until trainees sustain kaizen principles to the maximum degree of establishment of the principles. However, since there are large numbers of MSEs, when one package of training is over we move to the next one to impart training.'

"Do you think kaizen has been sustained in the place where you offered training?" For this interview question, they said, "Since the training is based on practical illustrations, there is good application of improvement within some of MSEs. Nevertheless, in order to sustain kaizen, more continued practical trainings and follow-up are essential."

For the question "What were constraints during training?" They said,

"For the fact that to cover temporary costs, trainees skip the training program,  
Sometimes the owners evacuated from training to chase business out of their shop,  
Few of employees quit training by their own reasons,  
Some of owners and employees are reluctant to sustain kaizen principles to the final,  
Problem of infrastructure, delayed budget & safety shoes, gown, etc,  
Absenteeism and attrition problem, and  
Noise disturbances from manufacturing shops during training, were some of challenges."

They were also asked, "How they overcome these problems? They responded that "through persistence follow-up and persuasion in demonstrating the merit they will obtain from kaizen".

For the question, "how do you assess the achievement of kaizen training?" They said, 'mind set up change has come, free space obtained, sanitation improved, wastes reduced, machines, and floor begun to clean, sorting necessary goods from unnecessary and placing them at definite places became possible. From kaizen point of view, big changes should not be expected at one season, rather small and continuous changes."

Have you made training about importance of safety shoes, gloves, emergency door, dust or chemical mask? They said, training was not given on for all safety subject mentioned. The training might continue including safety issues. This implies training subject has not been incorporated with syllabus.

For the question, "How many of them quit training?" they did not respond. This implies there was problem of organizing and analyzing data. The student researcher faced this problem while making this research. Unable to organize the correct data is sign of mismanagement of resources.

For the question, "After completion of kaizen how often, do you supervise and make correction?" They said that 'there was no schedule to do'. This implied there was no continuity and schedule to sustain kaizen. If kaizen were not made to sustain, it would be "spray and pray" type of training.

Among five major kaizen principles which one was not practiced and why? From the basic kaizen principles that was not practiced was QCC (Ande Leamst, in Amahric). This is \*Regarding to QCC (one-to-five) both of them said "there is slight progress than ever. At this time, they began to talk about QC or one-to-five importance. However, some of trainees perceived QC as political issue. Therefore, it is not widely got acceptance within MSEs. This is due to the following facts;-

- i. Anxiety of trainees each other for being copied their technology or model by others who heard it.
- ii. Lack of knowledge and conducive time for owner manager to meet with workers.
- iii. There is status quo that arises from attitudinal problem and communication problem, what to discuss, fear of each other, etc.
- iv. Considering QC as a part of political issue, that might carry government agenda.

To tackle the above problems, mechanism needs to be implemented in order to avoid their problems and threat.

**Interview with Deans Of College.** In order to get some more facts apart from questionnaires distributed to trainers, coordinators, and workers, the researcher student interviewed two principals from among four TVET Institutions.

Regarding with question about effect of 'mind-set-up' change, they said, "Since kaizen training undergone, the attitude of micro and small business enterprise workers has increased. Kaizen is a system that involves every employee from upper management to the lower one; this has become possible to average level in manufacturing sectors.

With regard to the degree of perception of kaizen training, "The trainees were being convinced gradually and through repeated promotions and illustrations about their benefits. Their application of kaizen principles determined on their valuing their own short-term advantages. Sometime, lack of steady market enforces them to chase their daily business rather than long-

term advantages. This implies trainees were not following training attentively when they had financial problems. Market channel might solve their problems sooner and later. “

For the question, ‘Do you think your institution has achieved the desired target set for?’ They said, “Yes we achieved what was set for. This implies kaizen training was on the right track.

\*For the question ‘To what degree was the achievement?’ They said “high” This implies training has acceptance since its effect was above the average.

\*What advantages do the MSEs gained after kaizen has been implemented? For this question each of them responded similar ideas as follows;- “

- A. Due to **sorting** items in the work, each business firm has obtained more floor space. This space is obtained from cleared out items. Discarding unneeded items became possible in the manufacturing place where kaizen has been implemented. The shops became less clutter to interfere with productive workplace, less time wasted when searching for items became possible, and additional space from cleared out items were obtained and used for boosting productivity. This in turn has brought economic advantages to Micro and Small business Enterprises.
- B. **Set-in-order** has brought to the MSEs, easy to use materials and equipment, easy to find them in the case of need, and easy to put away unnecessary items. Surely, everything is in its place and place for everything became possible. Everything has its own locations. Because of application of set in order, flow of materials and work-in-progress has become smoother. Inventories materials and work-in-progress become clearly visible and easy to handle. Thus, the concept of 3S, (Sorting, Set-in-order, & Shining) of kaizen has deeply ingrained in the minds of employers and employees’.
- C. Terrible workplaces, no one wants to work in and to see it, has become enjoyable workplace through shining or cleaning the work place. The odor of the shop became healthy for them.” The above facts agree with what trainees, coordinators stated the fact that 3S (sort, set in order and shine) have been achieved. According researcher student direct observations, the given facts are concrete and correct.

“Have MSEs started copying technology from internet or from imported machines made by technologically advanced countries?” They said,“ in copying technology there is a good start within TVET Institutions, willing to do, however, the progress requires more time and resource facilities. It is time taking.” This implies there is start of copying technology within training Institutions, attempted to transferred to MSEs . However, the student researcher observed that the TVET Institutions are equipped with obsolescence machines that never let trainers copy

technology through them, besides incapability of trainers to do so. Much more work is expected with TVETs regarding to capable of copying technology and transfer them to MSEs.

As to the question, participation of stakeholders, they said, "Stakeholders could not made kaizen as one of their part of activity. Even if they attend meeting with us, there was no valid result obtained from them. When we made invitations to exchange information with them, they were reluctant to respond valid information; they usually send an individual who was not empowered to the subject of meeting." This implies there was passive participation among stakeholders. No one asks them 'why did not you do, what you should?' Hence, it shows the activity of stakeholders was undermined and minimal.

With regard to rewarding who sustained kaizen, they said, "it had not yet been practiced", but, offering certificate begun too late after training was completed in some part of MSEs. As to research student direct observation, the delivery of certificate was not formal or attractive to enhance trainees' morale and was not made to give recognition for kaizen.

With regard to having course syllabus, they said," there was no syllabus, but they use the handout they receive from Ethiopian Kaizen Institute, when they were taking training. "

Regarding the constraints of training, they mentioned the following;

- a. Shortage of budget and late delivery caused uneasiness over the training.
- b. MSEs Owners' quit the training at the mid of training. There are no obligatory rules that would enforce them to carry on the training.
- c. Employees leave the business firm to find better payment after they took kaizen. When untrained new employee takeover their place, all or partial kaizen practice dismisses.
- d. Trainers' motivation was low.
- e. Stakeholders' were irresponsible to take active role in the training. There was interwoven responsibility and accountability among them.
- f. After training was completed, unable to assess trainees' shortcomings and then fill the skill gap via training.
- g. Shortage of transportation, and attrition were some." This implies kaizen training require strong participation of stakeholders and higher intervention of government to minimize dropouts, enhance accountability that commensurate with responsibility, and delivering adequate resources at the right time, at the right amount.

\*The question 'How many of them quit kaizen training and how many of them sustain kaizen?' For this question, they do not have exact data, stated their assumption that a few

of them quitted while majority of trainees are being attempted to sustain." This implies there was no consistent data recording. Information should be considered as most important for the assessment of whether training has been effective and efficient.

## CHAPTER FIVE

This chapter deals with the summary, conclusions, and recommendations. The first part of this chapter deals with the summary of what has already been treated in the preceding chapter. The summary is followed by the conclusions.

### 5.1. SUMMARY and CONCLUSIONS

Based on the above findings, the following points can be given as conclusion for the topic under study.

#### CAPABILITY OF TVET INSTITUTIONS' AND TVET TRAINERS' :

Training constraints remarked by the respondent in the TVET Institutions were, adequate resources were not supplied on right time, at the right quality and quantity, lack of enthusiasm of some trainers, lack of kaizen display room (demonstration room), absenteeism and attrition. Trainers' skills and knowledge of copying technology were not observed in the micro and small business enterprises. Most of TVET Institutions' machines were found obsolescence and unfit to copy technology.

The establishment of QCC or one to five team-discussions was practiced little. Without implementing QCC, sustaining kaizen is hardly possible. It would not also be possible to establish a pleasant workplace, enhance morale of workers, establish sound human relation, raise better income, and improvement in quality assurance.

The TVET Institutions have not rewarded any of the micro business enterprises who sustained kaizen principle; this would decrease importance of kaizen. At the same case, trainees, who completed training, were not certified formally.

The attempt made to create awareness or enable copying technology, which might increase quality and productivity that satisfy customers were minimal. Without using modern technology, it is not possible to be efficient and effective in the world of severe completion.

Training was not given based on syllabus. Because of this shortcoming, each of trainers gives his/her own liking or degree of understanding. For example, Safety issues such as emergency door, chemical mask, safety shoes, and gloves and like were ignored during training. Moreover, Training was not supported with visual aids like, overhead projectors and exhibit room.

#### CHALLENGES OF MSES':

Major problems of MSEs mentioned by the respondents were, resistance of some of owners of MSEs to take training and later suspending the training, lack of enthusiasm of workers, quitting training, reluctant to sustain the objectives of training, noise disturbances from manufacturing enterprises while training was running. The environment of manufacturing enterprises were not suitable to offering kaizen training due to lack of infrastructure problems.

With regard to stakeholders' participation, there was insignificant integrated activity in serving the sectors for which kaizen training was presumably established to serve. The problem is not making it formal, or verbal, but making it practical and accountable.

#### CONTRIBUTIONS OF KAIZEN TRAINING:-

The Micro & small enterprises obtained more workplaces after the application of set-in-order. Work process time and machine down time has decreased due to the application of set-in-order. Economic advantages were obtained from the sell of discarded materials and from the space obtained.

Search time for finding items in the micro business enterprises were reduced by a greater degree, because of application of placing goods on the defined place, where items could be spotted easily and got quickly.

Wastes (waste of materials, motion, time, over production, excess inventory etc) were reduced to some degree. Reduced wastes effected quality assurance. Quality runs throughout the process, from purchasing, developing, designing, producing, selling, distributing, and servicing the products or services.

However, there were no safety shoes, gloves, chemical (dust) mask, emergency door & fire extinguisher in the manufacturing shops. This shows limitation of training program or less consideration for workers, which adversely influences the objective of training in attempting to boost quality and productivity of the business enterprises. The purpose of kaizen training is to enable each enterprise competent in the local and global market and contribute to national economy in escalating Growth and transformation policy of the Government.

On the objective of enhancing productivity and quality, electricity system of each Micro and Small business Enterprise' shops were adjusted by the trainers. This service has secured the enterprises from accidents that might caused from electric contact. Moreover, Training given

on bookkeeping, and entrepreneurship has contributed a great advantage for micro and small business enterprises.

Flow of work process improved. It caused flexibility, smooth process flow, short transportation distance and effective use of the available spaces.

Due to lay out & set-in-order, it was possible to obtain specific location for raw materials, discarding, cutting and assembling, painting, semi-finished, finished, and office within a shop. Misplacement of tools and materials were reduced extensively.

Free floor space obtained and sell of discarded materials brought economic advantages to Micro & Small Business Enterprises.

## RECOMMENDATIONS

After analyzing data, the researcher draws the following recommendations:-

TVET Institutions should equip themselves with adequate and recent machines that might enable trainers to attempt copying technology and then transfer it to business enterprises.

Trainers' practical skills and knowledge of how to set standardizing, establishing QCC, how copying and transferring technology should have to develop with consistent advanced kaizen training.

Adequate budget should be allocated to the public TVET colleges. So that they could purchase the necessary training materials on time and make it available to trainers.

To change people's attitudes on kaizen, different types of campaigns are effective for fostering positive attitudes, values, and culture of productivity. Highly visible incentive and recognition mechanisms should also be implemented at the national and local levels. Various instruments can be used to effect the acceptance of kaizen training, such as TV, Public speeches by senior government officials and national heroes, drama, setting demonstration rooms within micro and small business enterprises.

Safety issues are the matter of human consideration- offering deep-rooted training and striving for implementation of safety issues should be given high consideration to protect workers and loss of property, since protection is better than attempt to cure.

Authorized and well-designed training programs must be created to educate both trainers and trainees thoroughly in all training institutions. Therefore, Kaizen training should be followed by syllabus to avoid disparity of training.

Without quality Circle (QCC), it is not possible to sustain kaizen in businesses. Therefore, all stakeholders should cooperate toward establishing QCC. Training should be presented to the trainees through audiovisual materials to exhibit the value and merit obtained from kaizen training. In the visible place, kaizen exhibiting (show rooms) should be set up to advance and promote importance of kaizen.

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## I. QUESTIONNAIRES PREPARED FOR TRAINERS OF KAIZEN

Dear friends, I am AAU, postgraduate prospective graduate. The following questions are set for to make the research on kaizen training by the TEVET College of Nefas Silk . To make sound research, your participation is very essential.

Therefore, please give your answers for the sake of fulfillment of this research. Your answer is confidential.

Please do not write your answer. Thank you for your cooperation.

1. your sex                      a/ male                      b/ female
2. your age                      a/ under 20      b/ 21-25                      c/ 26-30                      d/  
    above 30
3. your educational qualification                      a/ under level iii                      b/ level iii-iv      c/  
    degree above
4. class contact/ 3 days/ a/ less than 10                      b/10-15                      c/ 16-21  
    d/ above 21
5. Industry extension work days a/ less than 2days      b/2/week      c/above 2days/week
6. place to kaizen was      a/ off the job      b/on the job
7. your motivation to train      a/ high b/ average      c/ low
8. mode to training                      a/ participatory                      B/Non-participatory
9. Environment for training      a/favorable      b/ unfavorable
10. Resources for training a/high                      b/ average      c/ low
11. Rating the motivation of trainees      a/ high                      b/ average      c/ low
12. Rating stakeholders motivation      a/ high                      b/average      c/ low
13. Rating the degree of supervision by TVET officials      a/ high                      b/ average      c/low
14. Have you given training to use helmet      a/ yes                      b/ no
15. Have you given training to use safety shoes      a/ yes                      b/ no

16. Have you given training to use chemical or dust mask a/ yes b/ no
17. Have you given training to use emergency door a/ yes b/ no
18. Have you given training to use first-aid a/ yes b/ no
19. Have you given training to use fire extinguisher a/ yes b/ no
22. Is there course syllabus for training a/ yes b/ no

Open-ended questions

Put your Answer for the following questions

23. What problems have you faced during training?
24. How do you overcome the above problems?
25. How do you assess the effect the effect of training?
26. Do you have training syllabus ?

Thank you so much!

God bless you for your cooperation

እኔ የሁለተኛ ዲግሪ የአዲስ አበባ ዩኒቨርሲቲ ተማሪ ነኝ። ከዚህ በታች ያሉት ጥያቄዎች የመመረቂያ ፀሁፍ ማሟያ አካል ናቸው ዓላማውም፡- በንፋስ ስልክ ላፍቶ ክ/ከተማ በሚገኙ ቴክኒክና ሙያ ተቋማት አማካይነት የሚሰጠው የካይዘን ሥልጠና ፋይዳውና ችግሮችን በመለየት የመፍትሔ ሀሳብ ለሚመለከተው ክፍል ለማቅረብ ነው። ስለዚህ እርስዎ የዚህ መፍትሔ አካል በመሆን ትክክለኛ መልሶን በነፃነት በመስጠት እንድትተባበሩኝ በትህትና እጠይቃለሁ። ስምዎትን መጻፍ አያስፈልግም። ስለትብብርዎ አመሰግናለሁ።

የተሳታፊ ስልጣኞች የግል መረጃ

1. ያታ ሀ/ ወንድ ለ/ ሴት
2. ዕድሜ ሀ/ ከ20 በታች ለ/ 21-25 ሐ/ 26-30 መ/ ከ30 በላይ
3. ትምህርት ደረጃ ሀ/ አልተማርኩም ለ/ ከ1-6 ሐ/ 7-12 ክፍል መ/ ቴክኒክና ሙያ ደረጃ ----- ሀ/ ዲፕሎማ ረ/ ድግሪ በ ----- ሌላ -----

I. ስለ ድርጅቱ ስራ

4. የሚሠሩበት የደርጅት ሥራ ሀ/ ምርት አምራች ( እንጨት፣ ብረታ ብረት፣ አልሙኒየም) ለ/ አገልግሎት ሰጪ ( ምግብ ሽያጭ የመሳሰሉ) ሐ/ ሌላ-----
5. የርሶ ድርሻ በድርጅቱ ውስጥ ሀ/ ተቀጣሪ ለ/ ባለቤት ሐ/ አሰሪ መ/ ሼር / ሽርክና/

ሀ/ ከዚህ በታች ያሉትን አዎን ወይንም አይደለም በማለት ይመልሱ

3. ቅድመ ካይዘን ስልጠና

- |  | <u>አዎ</u> | <u>አይደለም</u> |
|--|-----------|--------------|
| • ከካይዘን ስልጠና በፊት ስለ ካይዘን ጥሩ ግንዛቤ ነበረኝ  | -----     | -----        |
| • የካይዘን ስልጠና ከመውሰዴ በፊት ፍላጎቴ ጠይቀውኛል     | -----     | -----        |
| • ስልጠናውን የወሰድኩት በፍላጎቴ ነው               | -----     | -----        |
| • አሰልጣኞች ስለ ካይዘን ጥቅም በቅድሚያ ግንዛቤ ሰጥተውኛል | -----     | -----        |
| • ካይዘን ከቀድሞ ልምዴ ይጣላል የሚል ሥጋት ነበረኝ      | -----     | -----        |
| • ካይዘን ፖለቲካው ይዘት ያለው ይመስለኝ ነበር         | -----     | -----        |

4. ስለካይዘን አሰላጣጠን

- |                         | <u>አዎ</u> | <u>አይደለም</u> |
|-------------------------|-----------|--------------|
| 1. ሥልጠናው ቀጣይነት ነበረው     | _____     | _____        |
| 2. የሥልጠናው ዘዴ የሚያነቃቃ ነበር | _____     | _____        |
| 3. የሥልጠናው ጊዜ ምቹ ነበር     | _____     | _____        |
| 4. ሥልጠናው አሳታፊ ነበር       | _____     | _____        |

5. በሥልጠና ወቅት የሚመለከታቸው የሥራ ኃላፊዎች ይገቡኝን ነበር \_\_\_\_\_

5. ስለ አምስቱ ማዎች (5s) አሰላጣጠን አዎ            አይደለም           

- 5.1. መለየት (sorting) -----
1. ጠቃሚው ከማይጠቅመው እንለያለን -----
  2. ጠቃሚዎችን በየአይነታቸው እናስቀምጣለን -----
  3. መለየት በመቻላችን ተጨማሪ ባዶ ቦታ አግኝተናል -----
  4. መለየት መቻላችን ገንዘብ ጊዜ ጉልበት አድነናል -----
  5. የማይጠቅመንን እንሸጣለን (እናስወግዳለን) -----

5.2. ማስቀመጥ (set-in-order) አዎ            አይደለም           

1. በአይነታቸው በማስቀመጣችን በፍጥነት ዕቃ ማግኘት አስችሎናል -----
2. በአይነት በማስቀመጣችን ዕቃው እንዳይጠፋ ረድቶናል -----
3. ከተጠቀምንበት በኋላ የተረፈንን በየቦታው እናስቀምጣለን -----

5.3. ስለ ማጽዳት (የስራ ቦታን፣ ቁሳቁሶችን፣ እጃችንን፣ ወዘተ.) (shining) አዎ            አይደለም           

- 5.3.1. ሥራ ከተጠናቀቀ በኋላ ማሽኖቻችንን ይፀዳሉ -----
- 5.3.2. ሥራ ከተጠናቀቀ በኋላ እንታጠባለን -----
- 3.3. ከቀድሞ ይልቅ አሁን የሥራ ቦታና ማሽኖቻችን ዕዳ ናቸው -----
- 3.4. የላሎትን በየዕለቱ እናጠብቃለን -----
- 3.5. የቆሽሽትን በየዕለቱ እናፀዳለን -----
- 3.6. ዘይትና ግሪስ ለሚያስፈልጋቸው እናደርጋለን -----
- 3.7. የሥራ ቦታችን የሥራ መንፈስ ያነቃቃል -----
- 3.8. ያልፀዳ ነገር ካለ እንፈትሻለን -----

5.4. ማላመድ (Standardizing) አዎ            አይደለም           

- 4.1. ወጥ የሆነ የሥራ ደንብና መመሪያ እንከተላለን -----
- 4.2. ሦስቱን "ማ" ያዎችን ተግባራዊ አድርገናል -----

5.5. ማስቀጠል (Sustaining) አዎ            አይደለም           

- 5.1. 3ቱን ማዎችን መፈፀም ልምዳችን ነው። -----

6. የካይዘን ስልጠና ያመጣው የአስተሳሰብ ለውጥ

(philosophical views)

	አዎ	አይደለም
6.1. በካይዘን የመጣው ለውጥ አነስተኛ ነው	-----	-----
6.2. በካይዘን የመጣው ለውጥ ቀጣይነት ያለው ነው	-----	-----
6.3. ከሥልጠና በኋላ ቴክኖሎጂ መኮረጅ ችለናል	-----	-----
6.4. በምንሰራበት ቦታ መሥልጠናችን ጠቅሞናል	-----	-----
6.5. ካይዘን ለሁሉም ሥራ ያገለግላል	-----	-----
7.1. ካይዘንን የሠለጠኑና የተገበሩ የዕውቅና ሰርተፊኬት አግኝተናል	-----	-----
7.2. ካይዘንን በሚገባ እንዲዘልቅ ያደረጉ ድርጅቶች ወይም ግለሰቦች ተሸልመዋል	-----	-----
7.3. ካይዘንን ጀምረው ያልዘለቁ ብዙዎች ናቸው	-----	-----
7.4. ካይዘንን ለመተግበር የወጣ ወጪ አነስተኛ ነው	-----	-----
7.5. ካይዘንን ለመተግበር አለመማር እንቅፋት አይደለም	-----	-----

8.1. ስለ ስራተኛ	አዎ	አይደለም
1. የመመካከር ባህል ዳብሯል	-----	-----
2. በሠራተኛው መካከል ጤናማ ግንኙነት ጨምሯል	-----	-----
3. አሠሪና ሠራተኛ መካከል ግንኙነት ዳብሯል	-----	-----
4. የቀድሞ እውቀታቸው በካይዘን ዳብሮአል	-----	-----

8.2. ስለምርት አመራረትና ጥራት	አዎን	አይደለም
1. የተሻለ ምርት ታመርታላችሁ (Productivity)	-----	-----
2. የምርታችሁ ጥራት ጨምሯል (Quality improvement)	-----	-----
3. የምርታቸው ብዛት ጨምሯል (Quantity improvement)	-----	-----

8.3. አመቺ የሥራ ሁኔታ ስለመኖሩ (Facilities)	አዎ	አይደለም
1. ከስልጠናው በሁላ አደጋ ቀንሶአል	-----	-----
2. የመጀመሪያ ህክምና መርጃ አለ	-----	-----
3. አንድ ለአምስት ትሰበሰባላችሁ	-----	-----
4.		

አመሰግናለሁ!!

## APPENDIX-3

### INTERVIEW QUESTIONS FOR CORRINATORS

1. Does your TVET Institution have appropriate training resources (machines, budget, human power, etc)?
2. How do you assess the capability of trainers in transferring the theoretical and practical approach of kaizen?
3. Was the training based on continued patten?
4. Do you think kaizen has been sustained in the place where you offered training?
5. What were constraints during training?
6. How do you overcome the problems you mentioned?
7. Have trainers given training on safety subjects?
8. How many of them sustain kaizen? How many of them have quit training?
9. After training has been over, how often do you supervise and make correction?
10. Have you made practiced all the five principles of kaizen? If not, why?

## APPENDIX- 4

### INTERVIEW QUESTION PREPARED FOR DEANS OF TVET COLLEGES

1. Has kaizen brought significant mindset up change in the trainees?
2. How do MSEs perceive kaizen?
3. Does your TVET Institution achieve its training goal?
4. What were the achievement obtained from kaizen?
5. Have MSEs begun copying technology and being implementing it?
6. How do you assess stakeholders' participation to advance kaizen in the MSEs?
7. Do you reward those who sustained kaizen?
8. Do you have syllabus to train kaizen?
9. What were problems to train kaizen in MSEs and TVET Colleges?
10. How many of them have sustained? How many of them Quitted kaizen and why?

