



ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

**PRACTICES AND CHALLENGES OF KAIZEN IMPLIMENTATION IN THE
CASE OF METEHAR SUGAR FACTORY**

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DECLARATION

I, Atrsaw Sahlu, hereby declare that this study on “Practice and challenges of Implementing Kaizen at Metehara Sugar Factory” is my original research. I conducted the research on my own with the support and guidance of my advisor. This research has not been submitted to any other degree-awarding body or to any other program of any institution. The researcher duly acknowledged the information obtained from another party.

Name of researcher

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Date

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ENDORSEMENT

This is to approve that the thesis entitled: Practices and challenges of kaizen implementation in the case of Metahara sugar factory, submitted for the equipment of the fulfilment of masters of business leadership at Addis Ababa University, school of commerce and is a record of original research carried out by Atrsaw Sahu Hailemariam under my supervision.

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CERTIFICATE OF APPROVAL
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LIST OF ABBREVIATIONS AND ACRONYMS

- MSF : Metehara Sugar Factory
- EKI : Ethiopian Kaizen Institution
- FTP : Growth and Transformation Plan
- JIT : Just in Time
- RQC : Total Quality Control
- QCC : Quality Control Circle
- TQM : Total Quality Management
- TPM : Total Productive Maintenance
- ICT : Information Communication Technology
- HVA : Hangler Vonder Amsterdam
- CI : Continuous Improvement
- PDCA : Plan-Do-Check-Act
- CWQC : Company Wide Quality Control
- TPS : Toyota Production System
- TWI : Training with in Industry
- CPD : Continuous Professional Development
- GDP : Gross Domestic Product
- JICA : Japan International Cooperation Agency

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ABSTRACT

The main objective of this research was to study the practices and challenges of kaizen implementation at Methara Sugar Factory. The researcher used descriptive research method. Both qualitative and quantitative research approaches were used in the study. 287 respondents were selected randomly after stratified sampling of tare gate population was selected in a group manager, supervisor, change management officers and production workers. To collect data questionnaires were distributed to 287 respondents and in addition to this direct observation of the researcher supported with checklist were employed. To analyze the collected data SPSS and excel software were used. To extract findings the researcher use mean, frequency and percentage accordingly. The findings of the study showed that, most of the respondents agree the factory is benefited by implementing kaizen in terms of both in terms of both financial and non-financial aspects like improving efficiency, increasing work employees' motivation, increased safety and occupational health and others, Metehara sugar factory practiced kaizen philosophy good way, the housekeeping and standardization were good but waste elimination was not sufficient there, lack of management support and poor training are the main challenges. And lack of employee's motivation and skilled man power are also somehow challenging the factory to implement kaizen and, even if most of the workers had perceived kaizen positively there are also workers who had perceived negatively. Based on the findings of this study, the researcher concluded that kaizen implementation in Metehara sugar factory is in a good level, but there is a gap in implementation of 5S, especially in waste elimination and somehow in implementation of standards. Regarding challenges faced the factory to implement kaizen, the researcher concluded that lack of management support and lack of training are the main challenges in the implementation of kaizen management in the factory. Finally, Metehara sugar factory had benefited with implementation of kaizen, which enabled to improve financial and non-financial performance in different aspects. But, it failed to bring about a change in the reduction of transport costs due to gap in implementation of kaizen

Keywords: kaizen, implementation, challenges, the three pillars of kaizen

CHAPTER ONE

1. INTRODUCTION

This chapter presents an overview of the entire study. It includes the background of research, background of the research area, problem statement, research questions, research objectives and significance of the research, research scope, definition of terms, limitations of research and research organization.

1.1 Background of study

In today's challenging economic globalization characterized by intense competition, companies seek to maintain higher productivity and better product quality. As a result, many have improved their systems for better management and productivity at work. This is why Japanese companies began to compete in the market by applying the Kaizen philosophy after World War II.

The term kaizen comes from two Japanese words "kai" meaning change and "zen" meaning good (Palmer, 2001). Kaizen is a Japanese philosophy that encourages small improvements made through continuous effort. These small improvements involve the participation of everyone in the organization, from top management to low-level employees. Kaizen was born as a response towards problem faced by the Japanese industry after the World War-II such as limited resources and difficulties to obtain raw material. Therefore, the Japanese companies forced to look into how to improve their production processes by minimizing waste and optimizing process efficiencies (Imai, 1986).

The introduction of kaizen in Ethiopia founded after an agreement between Ethiopia and Japan in 2009 for the pilot project of 30 manufacturing industries with technical assistance from Japan International Cooperation Agency (JICA). After evaluating the effectiveness of the pilot project on those selected manufacturing industries, Ethiopian Kaizen Institute (EKI) is established by regulation issued by council of ministers proclamation number 256/2004 (Kaizen, 2013).for further transfer and implementation of the philosophy

MSF started to implement kaizen as continues improvement mechanism to excel its service provisioning capacity than it was before. As for implementing kaizen overall the sugar industry in Ethiopia, MSF introduced kaizen as a primary activity towards its quality improvement strategy.

Therefore, this research was intended to assess the practices and challenges of kaizen implementation at MSF.

1.2 Background of the study area

Metahara Sugar Factory is one of the eleven sugar factories in Ethiopia and it was established in 1947. The factory is located in Oromia region, East shoa and it has 10,000 hectares of sugar cane cultivation area and has the capacity to crush 50,000 quintals of sugar cane and produce 5,000 quintals of sugar per day.

Metahara Sugar Factory is also involved in the production of fruit like orang, mango and bailed bagasse in addition to sugar production.

1.3 Statement of the Problem

Different countries of the world that have implemented Kaizen management techniques have faced different types of practice and many different challenges. Japan employs Lean Management and all the concepts the term carries (such as Just-In-Time, Kaizen [Sort, Sequential, Shine, Standardize, and Sustain-5S], and others) (Karn P., 2009).

In Ethiopia it has been about 14 years since Kaizen was implemented. But, still the industrialization is not as expected. It is, therefore, attractive for scholars to do research to know if Kaizen has been successful or to identify challenge and opportunities in Kaizen implementation in Ethiopia.

The study by Tigist Hailegiorgis (Tigist, 2015), "Assessing of the Effectiveness of Kaizen Implementation in Wonji sugar Factory" found that Kaizen implementation contributed for the factory in terms of minimization of waste, production cost reduction, increasing efficiency, creation of good relationship between employees and management, improving employees' attitude towards teamwork, facilitation of the factory's conducive working environment and improving work commitment. But the challenge to implement kaizen were not identified well because it lack qualitative data like assessing employee's perception.

A study by Eden Mekonnen titled "Evaluation and Challenges of Kaizen Implementation in Black Nile Footwear Co., Ltd" (Eden M. 2017) shows that the implementation of Kaizen in Black Nile

Footwear Co., Ltd shoe manufacturing company is not effective. The researcher pointed out the challenge to implement Kaizen in this company are poor management and lack employee participation. In this study the perception of employees about kaizen was not identified and only quantitative data were used found the challenges.

Even though MSF had implemented kaizen program since 2010, but the practice and challenges are not studied scientifically. There are a number of problems presented by the kaizen officer while conducting the preliminary assessment some of the problems that leads to improper implementation of kaizen on MSF are lack of management commitment, employee's lack knowledge and resistance to change

Therefore, this study was mainly conducted to assess the challenges during kaizen implementation and also with intention to investigate the actual practice of MSF and to forward the recommendation to align it with acceptable standards

1.4 Research questions

1.4.1 Main research question

How Kaizen management system is practiced in Metehara sugar factory and what are the challenges in implementation?

1.4.2 Specific research questions

1. How kaizen management is implemented at MSF?
2. What are the challenges faced during kaizen management implementation?

1.5 Objectives of the Study

1.5.1 General Objective

The general objective of the study is to assess the practice and challenge of kaizen implementation in Metahara sugar factory.

1.5.2 Specific Objectives

The specific objectives of this study are to:

- To examine the practice of kaizen implementation
- To identify challenges faced during kaizen management implementation

1.6 Scope of the Study

Many organizations are known to have implemented or have started to implement kaizen, based on that many researchers are studying indifferent issues regarding kaizen. The researcher in this study decided to study the practices and challenges in the implementation of Kaizen in MSF.

1.7 Significance of the Study

Even though many organizations are implementing Kaizen management philosophy, most of them are facing various challenges while implementing Kaizen, this study is helpful to evaluate the practices, identify the main challenges and provide solutions in deploying and sustaining the

Kaizen culture in MSF. Second, other organizations can use the study as a springboard to tailor it to their own situation and improve performance. Furthermore, they will be valuable resources for regional studies, business policy makers, academics and students.

1.8 Definition of terms

Kaizen: Is a tool for continues improvement. Kaizen culture an organizational culture based on the three super ordinate principles namely process and results, systemic thinking, nonjudgmental and non-blaming (Mullins, 2010). The word indicates a process of continuous improvement of the standard way of work. It is a compound word involving two concepts: Kai (means change) and Zen (mean for the better). The term also comes from 'Gemba Kaizen' meaning 'continuous improvement' (CI). Continuous Improvement is one of the core strategies for excellence in production, and is considered vital in today's competitive environment (Robinson, 1991). It calls for endless effort for improvement involving everyone in the organization.

Implementation: is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

5S: is a wok place organization method that uses a list of five Japanese words translated as 'sort', 'set in order', 'shine', 'standardize', and 'sustain'.

1.9 Limitation of the study

One of the limitation is that, since this research focused on the practices and challenges of Kaizen implementation was conducted only in Methahara Sugar Factory, so it may not be completely useful for organizations with different nature. Secondly, the reliability of the respondents respond, like bias directly affect results of the study.

1.10 Organization of the study

This study is organized into five chapters. The first chapter is an introduction to the research, including the background of the research, problem statement, reasons for describing the research and research questions, objectives of the research, importance of the research, and definition of the research, actual meaning of terms used in the study, scope of the research, limitations of the research and organization of the thesis.

Chapter two is presents on review of related literature enclosed in Kaizen. It also dwells on both models used to implement Kaizen, conceptual/theoretical literature elsewhere in the world in the light of the objectives and the nature of variables considered in the study. The third chapter describes the research design and methodology, target population and sampling, data collection instruments, methods of data analysis an ethical concerns considered in the study. Fourth chapter present both quantitative and qualitative data, their analysis, findings and interpretation. Chapter five finally puts together summary of major findings of the study, draws conclusions from those findings which are substantially supported by empirical evidence and then forwards plausible recommendations for concerned body's, including suggestions for further study.

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CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

This section of the document focuses on reviewing and evaluating the relevant literature regarding Kaizen management strategy concepts, theories, practical experiences and empirical evidence. The aim is to provide background that explains the main themes and helps develop an integrated overall conceptual and analytical model for the study.

2.1 Theoretical review

2.1.1 Conceptual Overview and Definitions of Kaizen

Kaizen culture is an organizational culture based on the three super ordinate principles of process and results, strategic thinking, non-judgement and blame (Mullins, 2010). The term refers to the process of continuous improvement of the standard way of working. It is a hybrid word that includes two concepts: kai (meaning change) and zen (meaning better). The word comes from 'Gemba Kaizen' which means 'Continuous Improvement' (CI). Continuous improvement is one of the main strategies for product excellence, and is considered essential in today's competitive environment (Robinson, 1991). It takes endless effort to involve everyone in the organization.

The concepts of the Kaizen philosophy are focused on the purpose of business as a continuous process of organizational thinking. The main thrust is to maintain or gain competitive advantage through a well-managed dynamic change process. When all partners use kaizen to achieve the primary goals of quality, cost, delivery, safety and morale, it becomes customer-focused, ever-changing and high-level. Its assumption is that the Buddhist understanding of life is a natural experience of suffering. (According to this school of thought, human beings suffer because everything is constantly changing and interrelated with conditions and causes. Our confusion and suffering will end when the causes of our suffering are identified and eliminated. (Gembutsu Consulting. 2008)

"Kaizen philosophy assumes that our lifestyle, work life, social life or home life should be focused on continuous improvement efforts....In my opinion, Kaizen has contributed greatly to Japan's competitive success" (Imai, 1997, p.1). Kaizen is TQM (Total Quality Management) or TPM

(Total Productive Maintenance) is the main pillar, and the emphasis is on continuous process improvement.

To make kaizen effective, we have to make the employee himself highly motivated to improve production methods and products. According to (Ethiopia Kaizen Institute 2013), suggestion systems, QC circle and self-management are common methods to motivate employees to achieve Kaizen.

"Kaizen philosophy assumes that our lifestyle should focus on continuous improvement in our work life, social life, or home life. Kaizen has contributed greatly to Japan's competitive success" (Imai, 1997).

2.1.2 The Objectives of Kaizen

The benefits of Kaizen include increasing the number of private firms and implementing improvements in quality and productivity. The success of kaizen implementation has also been established to extend kaizen to a private organization in a sustainable manner (EKI and JICA, 2013). Kaizen aims to make improvements in productivity, efficiency, safety and waste reduction. People who follow the approach often get a lot more in return: less waste is used more efficiently as worker skills, People are more satisfied and have a direct impact on the way things are done, improved commitment - team members have a greater stake in their work (business stake or interest) and a greater desire to do a good job, improved retention Satisfied and engaged people are more likely to stay, improved competitiveness increases efficiency, contribute to low costs and high quality products, improved consumer satisfaction from high quality products with few defects, improved problem solving from a solution perspective allows employees to continuously solve problems, improved teams help build and strengthen existing teams by working together to solve problems (ibid).

2.1.3 Historical development of kaizen as a change management

Henry Ford first developed the concept of continuous assembly line production, the first approach to mass production. The Ford model of employee performance in simple and repetitive tasks has been replaced by work rotation and teamwork, which primarily improves employee morale, but also provides significant benefits in terms of employee feedback to improve quality and process (Kovacheva, 2010).

The Kaizen philosophy has attracted great interest among researchers because it increases company productivity and helps produce high-quality products with minimal effort. Several authors have discussed the Kaizen concept, including the Kaizen experience in Ethiopia (Daniels, 2011). According to Imai (1986), Kaizen is a continuous improvement process that involves everyone, managers and employees. Kaizen is strategy. Concepts, systems and tools in leadership that encompass the broader leadership image and public culture, all driven by the client. Watson (1986) states that the origin of the Plan-Do-Check-Act (PDCA) cycle or Deming cycle can be traced back to the famous statistician Shewart in the 1920s.). Kaizen refers to the small improvements made to the current situation as a result of ongoing efforts. It involves incremental improvements in innovation due to large investments in new technologies.

2.1.4 The principles of Kaizen

Imai (1986) further proposes that the kaizen philosophy embraces three main principles.

Principle1: Kaizen is process governed. Processes need to be improved before results can be improved.

Principle2: kaizen is improving and maintaining standards. Combining innovation with efforts to maintain and improve standard performance standards is the only way to achieve sustainable improvements. Here, kaizen focuses on improvements in small levels of work that result from ongoing efforts. Without standards, there can be no progress.

The PDCA cycle (Plan-Do-Check-Act) is used to support desired behaviors. This continuous improvement cycle has become a common method in Kaizen; it is used to create improvement practices in employees.

Principle3: People Orientation- kaizen should involve everyone in the organization from senior management to employees. It is one of the most powerful methods that are compatible with this third principle

Group-oriented-Kaizen teams primarily focus on improving work methods, routines, and procedures, often identified by management (Imay, 1986).

2.1.5 The three pillars of kaizen

The three pillars of Kaizen identified by Imai M. (Imai M., 2012) are Housekeeping, Waste Elimination and Standardization.

1. Housekeeping

One of the three kaizen pillars is housekeeping. It is a method of managing the workplace called Gemba for continuous improvement. The main idea of housekeeping is that a service or product is made valuable before moving to the next level. First, the workplace must be clean, tidy and efficient. In this way, materials and tools are easily accessible, so that there is no excess and also no shortage of materials and supplies.

2. Waste Elimination

The other pillar of kaizen is waste elimination. Waste elimination, also called muda, is the Japanese word for "garbage." It refers to any asset that is currently used but does not add value. Anything that does not add value, the pole, should be removed and removed from the process so that only valuable services and products are provided. Waste can include transportation, over processing, waiting, movement, defects, inventory, and overproduction. Basically, waste disposal follows the same principles as lean manufacturing. Waste is classified in eight categories. The goal of eliminating waste in Kaizen is to create Just in Time Inventory Management (Just in Time Inventory Management), also called "JIT", to improve relationships and relationships with suppliers. Additionally, the process must be streamlined to provide maximum value and benefit to customers.

3. Standardization

Standardization is the process of setting the standards by which a standardized product is performed. Standardization involves producing products and services according to predetermined standards. It aims to eliminate standard waste, which includes the eight main types of waste identified in low-level manufacturing. It also reduces standard costs, increases productivity and creates more stable work processes. Before putting this pillar into practice, managers must ensure that it is appropriate for the business and that everyone involved in the process accepts it as a fair and achievable practice. The pole should be checked periodically after installation to make sure it

is working properly. Finally, a good standard should create the safest, easiest, and most efficient way to do the job.

2.1.6 Kaizen Application and Implementation

Kaizen implementation is not once a month or once a year. It is continuous process. Imai (1997) stated that the rate of employee participation in terms of providing useful ideas to their organization and Japanese companies (such as Toyota and Canon, a total of 60 to 70 suggestions are written, shared and implemented per employee per year). Kaizen is based on regularly making small changes that always improve productivity, safety and efficiency while reducing waste. Recommendations are not limited to a specific area such as production or marketing. Kaizen is generally based on making changes where improvements can be made. Western philosophy can be summarized as follows; they say if it's not broken, don't fix it. The Kaizen philosophy is to do better, make it better, and improve even if it doesn't break because if we can't, we can't compete with those who do. Japanese Kaizen is a system of improvement that encompasses home and business life. Kaizen includes social activities. It is a concept that applies to all aspects of human life. Kaizen in business includes many elements of Japanese businesses that have been seen as part of their success.

Quality circles, automation, feedback, just-in-time delivery, Kanban and 5S are all included in Kaizen Business. To support high-level kaizen, it involves providing the training, materials, and supervision necessary for employees to reach high levels and progressively meet those levels. Kaizen focuses on making small improvements continuously (Imai, 1997).

2.1.7 Roles of Management and Employees in Implementing Kaizen

When we look at the bureaucratic implementation of the management system, there is a difference of opinion regarding the work function between Western countries and Japan. These include: (1). Western Approach: Importance of Systems and Processes Organizational level and functions are established through systems. Here, the focus is on control i.e. the level of specificity of working within chance. Changes are primarily innovations. They are senior and middle management responsibilities. This implies to the existence of two types of organizations. (i). Status-quo organization has attempted to improve or innovate until market condition forces; (ii). Innovation centered organization: is high technology industry. It eventually disappeared after some time

(Imai, 1986). (2) The Japanese approach focuses on technological and process innovation, which mostly falls within top and middle management, while improvements are a top-down all-pervasive activity (Imai, 1986). 3. Management has two main functions in Kaizen. i) Creating a favorable environment and continuous improvement (technology, management and operation) and setting standards; (ii) maintain established standards; As we move from the bottom up, the improvement function increases and the upper and middle management have a greater role. Similarly, from top to bottom, supervisors and workers have an important role in the maintenance process. An important role of management in the maintenance function is to develop standards, policies and procedures for everyone to follow and to be monitored and evaluated.

The leadership is also responsible for educating and training the people to maintain their standards. So, in the Japanese sense, one action follows another in succession.

1. **Top Management:** They act as corporate policies and (a) implement strategies for implementing the Kaizen management philosophy. (b) to allocate resources, extend, direct and provide feedback as the author suggests (c) establish clear policies on Kaizen and provide overall management goals for achieving Kaizen, (d) develop systems and processes and organizational structures to promote Kaizen (Imay, 1986).
2. **Middle Management:** (a) Develop and implement Kaizen goals directed by top management. Use Kaizen in operational management activities; (b) improving operational capacity (Kaizen); (c.) maintaining and improving existing standards; (d) Provide assistance to employees to develop skills and acquire expertise in problem solving tools.
3. **Supervisors:** (a) Pursuing Kaizen in a practical role (b) Maintaining high employee morale; maintaining continuous communication; Assisting with Kaizen. (c.) Participate in and support SGA as QC circles as well as feedback system. (d) Providing assistance and involving employees in kaizen activities (Imay, 1986).
4. **Workers** a) It includes small group activities and suggestions in Kaizen (b) Have the discipline to follow the steps. Consider Kaizen in daily activities. (c.) Continually focus on self-development and enhancing problem-solving capabilities.

2.1.8 The 5s Formwork Place Organization

The 5S is a standardized process that, when effectively implemented, creates and maintains well organized, safe, clean and efficient workplace. Improved visual controls are implemented as part

of 5S to ensure that any process is clear and easily identifiable. 5S is often part of a larger Lean initiative and promotes continuous improvement. The elements of 5S is listed as follows:

- Sort: Separating the important from the unnecessary
- Set in order: Organize important materials where everything belongs.
- Shine: Cleaning the work area
- Standardize: Establishing a system to maintain and make 5S a habit
- Sustain: Establishing a safe and clean work environment

2.2 Empirical review

2.2.1 The introduction of kaizen in Ethiopia

There are several reasons why Kaizen has become popular in Japan's transformation industry in East Asia and Africa, including Ethiopia. One reason is that after World War II, Japanese private companies played a major role in spreading quality and productivity improvement (kaizen) technology (including techniques and skills) to the Japanese industrial sector. (Ethiopian Kaizen Institute, 2013).

The study by Tigist Hailegiorgis “Assessing of the Effectiveness of Kaizen Implementation in Wonji sugar Factory”. Stated that kaizen was succeeded at wonji sugar factory in terms of minimization of waste, production cost reduction, increasing efficiency, creation of good relationship between employees and management, increasing employees’ attitude towards teamwork, facilitation of the factory's conducive working environment and improving work commitment.

Eden in the study titled with "Evaluation and Challenges of Kaizen Implementation in Black Nile Footwear Co., Ltd" pointed out (Eden, 2019), even though the Shoes Company has good working conditions and improved employee performance, it does not practice Kaizen principles. Implementation of 5S has not been well practiced as per the standard.

According to Amanuel Teklu’s study (2014) on kaizen implementation assessment on Ethio-telecom, Head office , pointed out that the most challenges faced to implement kaizen are lack of training, lack of management commitment, employees attitude/ taking kaizen as additional burden thrown by their managements.

Pilot study conducted by (Asayehgn, Hadush, Alula, & Mengstu, 2014) titled with “analysis of Kaizen Implementation in the Northern Ethiopia`s Manufacturing Industries such as Mesfin Industrial Engineering Plc., Almada Textile Factory Plc, and Shaba Leather and Tanning Industry Plc.” found that the challenges to implement kaizen are employees lacks knowledge the kaizen management system, and the firms did not facilitate trainings, and some of the executive managers are not committed to the kaizen team work.

As studied by (Biruk, 2016) the result of pilot study obtained from average mean on challenges of Kaizen implementation; both Excel Plastics Plc and DH Geda Blanket Factory Plc faces challenges on implementation of kaizen due to traditional hierarchal work trends, lack of management support, poor trainings, lack of skilled manpower, lack of proper kaizen implementation measurement, insufficient participation of employees and misconception about kaizen. Finfine Furniture Factory Plc., on the other hand, faces challenges due to inadequate employee involvement and misunderstandings about Kaizen.

According to the study by Nesra Seid (2012) in Kadisco chemical industry, the company`s kaizen implementation was effective. The productivity of the company was significantly improved. The researcher showed that improvements made on time wastage registered to be reduced by 50% and defected ratio improvement from 50% to 70% and lead time improvement from 16% to 90%.

Tadese (2007) in his study entitled "Evaluation of Kaizen Implementation Performance and Challenges of Gulele Sub-district Enterprises in Worerda Three Enterprises" showed that there is a moderately implemented Kaizen strategy. The challenges are the employee's negative attitude towards Kaizen implementation, Lack of knowledge and skills, gaps in available infrastructure and material resources, and gaps in the capacity and capability of the governing body

2.3 Conceptual Framework

Derived from the literature sources reviewed on a similar topic, a synthesis model was applied and evaluated in the previous section. On that basis, the design requirements for the Kaizen implementation model are developed and finally, the framework for the general model is formed.

Kaizen is based on the cooperation of senior management, middle management and frontline employees as well as the proactive and spontaneous participation of employees. It is extremely important that senior management supports employee engagement, ensures appropriate delegation of authority and provides training programs for employees. . Everyone has a responsibility to improve, especially senior management and the CEO; however, only the latter can provide the leadership needed to achieve results. Implementing Kaizen starts with senior management and, more importantly, with the commitment of the CEO.

Delegation and rhetoric are not enough: participation is needed. An organization's training program is increasingly becoming the responsibility of the quality management department. Ensuring the quality of training throughout an educational institution is part of the overall improvement process that management must undertake. This is the first step in the entire process as it provides communication and direction to all members of the organization.

Communicating the change strategy and corporate culture to customers, employees and stakeholders followed by top management understanding and commitment is the primary activity towards kaizen implementation. Communication is important in institutions moving towards a kaizen philosophy because of the change involved. The strategy, changes and culture that are established within an institution as a result of the kaizen philosophy, should be communicated clearly and directly from top management to all employees and customers. As there is a close relationship between the culture and strategy of an institution, changes in strategy require supportive changes in institutional culture and systems. Although there is no correct culture for an institution, it is still important that bigger and more fundamental areas of ethics and social responsibility are built into the culture of the institution. When employees participate in such activities as housekeeping, Muda elimination, and review of standards, they immediately begin to see the many benefits brought about by this kaizen and they are first to welcome such changes. Companies need to identify their size to adopt an approach either deployment of companywide approach or selecting a model workplace

Praising the importance of kaizen, Imai said modern managers often try to apply complex tools and technologies to solve problems that can be solved with a conventional, low-cost approach. They must break the habit of trying ever more complex technologies to solve everyday problems. Employee involvement and participation includes employee contributions to management and decision making related to the organization's policies, goals and strategies.

Employee perceptions of company goals, standards, and policy principles are positively and significantly related to employee motivation and job satisfaction. Empowerment provides motivation to employees, leading to continuous expansion and growth of the organization.

Knowledge of motivation helps companies understand how to use employee engagement to improve processes. Motivated employees are willing to exert a specific level of effort over a certain period of time to achieve a specific goal. Additionally, recognition is a form of employee motivation in which an organization publicly recognizes an individual or group's positive contributions to the organization's success.

The culture of any company can then be defined as the beliefs that permeate the organization about how business should be conducted and how employees should be behaved and treated. Every organization needs a vision framework that includes its guiding philosophy, core values and beliefs, and purpose. These should be combined into one task, which provides a vivid description of what things will look like when completed.

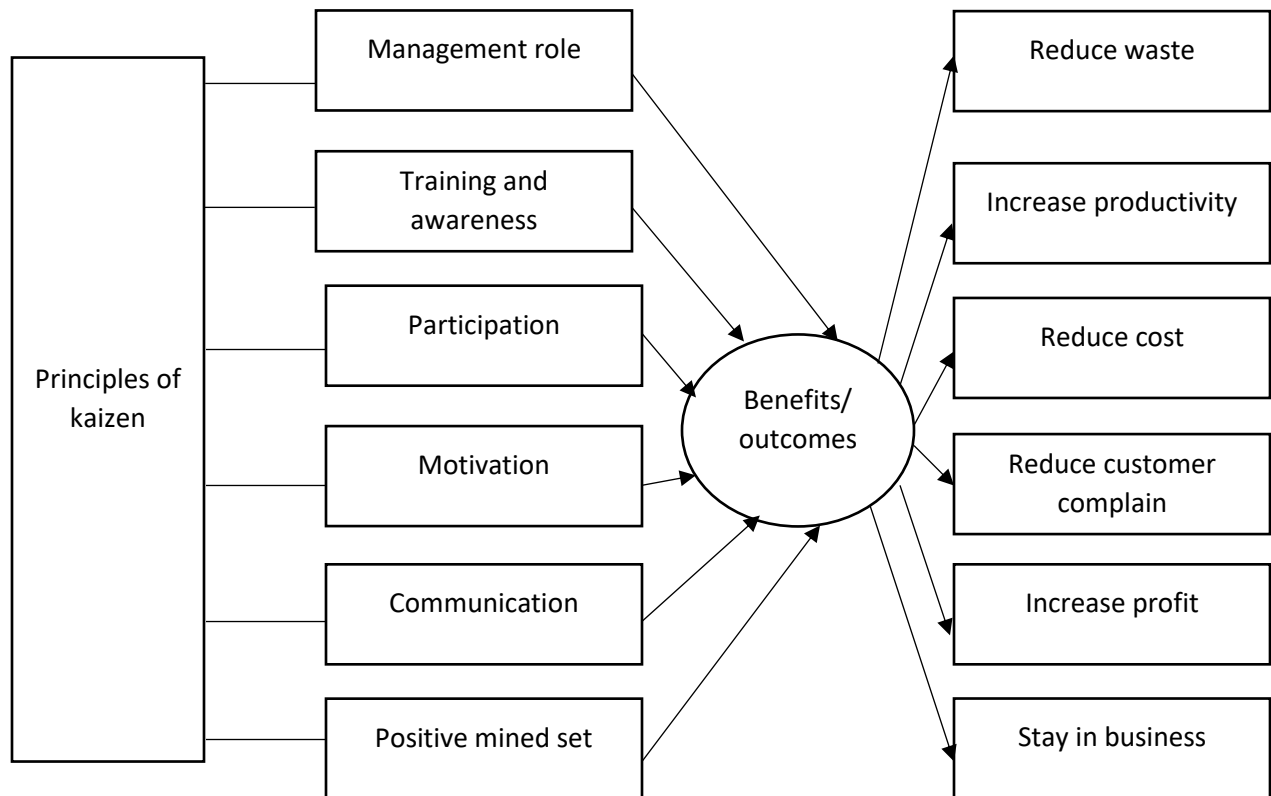


Figure 2.1 factor for the effective implementation of kaizen

Source: *Ethiopian Kaizen manual, 2011*

2.4 Research Gap

Following the implementation of Kaizen at Metehara Sugar Factory, studies should be conducted to ensure its effectiveness in bringing about the expected changes in performance. But on the contrary, no research has been conducted to monitor and document the changes brought about by implementation. However, after implementing Kaizen, progress is made in the utilization of resources and improvement of services provided, which has a significant impact on the efficiency and effectiveness of the organization. Although there have been changes, the implementation is still not as expected and this study aims to fill this gap and show the current status of Kaizen implementation at Metehara Sugar Factory.

CHAPTER THREE

3 RESEARCH DESIGN AND METHODOLOGY

In this part of the paper, the research methodology, the data collection methods and data analysis that is used to gather and analyses study the practices and challenges of kaizen implementation at Metehara sugar factory (MSF) will be described.

3.1 Research Design

There are three main types research method. These are Exploratory, Causal research design and descriptive research design. Exploratory design is used to explore a phenomenon, exploratory design is useful in gaining background information and deciding about future research approaches. Causal research design are used to explain cause-and-effect. A well-designed experiment is the best way of understanding how one variable may influence another variable. A descriptive research design is used to identify one or more variables in a study. It is an appropriate choice when the research aims to identify characteristics, frequencies, trends, and categories (McCombes, 2022). Since the purpose of this study is to assess the practices and challenges of kaizen implementation in MSF, A descriptive research design was applied.

3.2 Research Approach

Basically there are two types of research approaches. Quantitative research approach uses numbers and statistics, while qualitative research approach uses words and meanings. In this study, to assess practices and challenges of kaizen implementation at MSF, both Quantitative and qualitative research approaches were used.

3.4 Population and Sampling techniques

In this study, the participants were permanently employed production workers, managers, supervisors and kaizen and officers . The population was 1,016. Stratified sampling with simple random sampling technique was applied to select the sample.

3.5 Sample Size and Sampling Procedure

Since the formula developed by Taro Yamane (1967), recommend for medium and small size population, the researcher used as follow:

$$n = N / (1 + N (e)^2)$$

Where: n=sample size

N= total population size

e= sampling error

By taking 95% confidence, i.e. 5% error (e)

$$n = 1,016 / (1 + 1,016 (0.05)^2) = 287$$

The clarity and consistency of the questionnaire were tested before distributed to the respective respondents. The survey test was done with a sample of 30 respondents. Based on the feedback from this survey, the questionnaire was translated to Amharic to get it simple for all, typing error were corrected and redundancy questions were removed.

In this study, a total of 287 questionnaires were distributed to the selected respondents. Out of 287 questionnaires distributed for those participants, 284 were collected. In addition to this the researcher directly observed the factory using checklist.

Table-1 Population and sample size

Position at MSF	Population		Size of the sample
	Number	Percentage of contribution	
Manager	14	1.4%	4
Supervisor	48	4.7%	13
Production worker	950	93.5%	268
Officer	4	0.4%	2
Total	1,016	100%	287

In this study, questionnaire were used to collect qualitative data and qualitative data was collected by direct observation. The researcher used both primary and secondary data for this research. Primary data was collected from selected employees, supervisors and management using questionnaire. In addition to this direct observation of the whole units were done. For secondary data, documents like internal and external reports, articles, books, websites and unpublished thesis were used by the researcher.

3.6 Data Gathering Tools

Data gathering tools used to collect data in this work were questionnaire, researcher observation and existing document analysis. To prepare the questionnaires the researcher considered, the literature review about the case and the research question to be addressed. The questionnaires were both closed and open ended. Likert five scale data were scored from very high to very low were used for closed end questions.

3.7 Data Analysis Methods

The quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) version 20 and Microsoft office Excel. To explain the findings the researcher used mean, frequency and percentage. The qualitative findings are then presented thematically. Finally, these thematic findings were compared with the quantitative results to get the research more realistic.

3.8 Reliability and Validity

The Eliminate or minimize error in the measurement process it is very essential to validate the instrument. There are different frameworks used to validate both qualitative and quantitative data. Pilot survey is an effective method for testing reliability and validity for both qualitative and quantitative survey. Therefore, the researcher conducted a pilot study to assess the reliability and validity of the questionnaire developed.

3.8.1 Pilot Survey

A pilot study is a pre-test of a given research instrument. Pilot survey deliver early information about the future result of the proposed research by viewing the proposed methods and the protocol followed before. It can predicts and warn the researcher. For this pilot survey, the prepared

questionnaire was distributed to 30 randomly selected body. The feedback from the pilot study was analyzed and used accordingly.

3.8.2 Reliability

Consistency test is a vital tool used to check whether the data collected is consistent or not. The researcher uses Cronbach’s alpha to measure the consistency of the collected data. Cronbach's alpha reliability coefficients typically vary between 0 and 1. However, there is certainly no lower limit for this study. A Cronbach's alpha coefficient closer to 1.0 indicates greater internal consistency of the items in the scale (Joseph & Rosemary, 2003).

Table-2 Result of reliability test

S.N	Questionnaires intended for	Number of item	Cronbach's alpha coefficient	Implication
1	Kaizen pillars implementation at MSF	9	0.96	Excellent
2	Contribution of kaizen for MSF	15	0.94	Excellent
3	Challenges of kaizen at MSF	7	0.92	Excellent
Total		31	0.94	Excellent

As shown in the table for all the three parts using Cronbach's alpha coefficient that is approach to 1, the answer obtained from the selected respondent was reliable

3.8.3 Validity Test

Validity test measures how effective is the instrument to measure the intended measurement. To assess the clarity and appropriateness of the questionnaire the researcher conducted a pilot survey. Moreover, questions rated on a 5-point Likert scale were used to determine the importance and consistency of responses from different categories of respondents.

3.9 Ethical Considerations

In this study, based on research ethics, the confidentiality of the respondents was properly protected so that they would not be harmed due to the information provided by the participants. at the very beginning ,the participants were told that the purpose of the inquiry and the information they fill in will be kept confidential and will not be shared with any other party.

On the other hand, acknowledgments have been made for the information taken from other researchers and other bodies in different parts of this section.

CHAPTER FOUR

4 Analysis, Discussion and Interpretation

This section discuss the analysis, interpretation and presentation of data collected from participants and direct observation of the researcher. And major findings and conclusion of results are elaborated.

A. Questionnaire response rate

The researcher had distributed 287 questionnaires to the randomly selected participants from stratified. Accordingly 4 questionnaires were distributed to Managers,13 questionnaires were distributed to Supervisor, 268 questionnaires were distributed to Production worker, and 2 questionnaires were distributed to Change management officer. From 287 questionnaires distributed 283 or 98.6% were collected, Summary of their response is presented as follows:

Table-3 Questionnaires distributed and collected.

S/N	Position at MSF	Number of Questionnaires Distributed	Number of Questionnaires Collected	Percentage of Questionnaires Collected
1	Manager	4	4	100
2	Supervisor	13	13	100
3	Production worker	268	264	98.5
4	Change management officer	2	2	100
Total		287	283	98.6

a. Demographic factors of the respondents

The purpose of collecting demographic data is to figure out the participants generally. For this study, the demographic characteristics of respondents include their Sex, Age, Education Level, and Work experience.

Table-4 Demographic factors of the respondents

S.N	Factors / Variables	Categories	Frequency	Percentage
1	Sex	Male	259	91.52
		Female	24	8.48
2	Age	18-25 Years	5	1.77
		26-30 Years	8	2.83
		31-40 Years	203	71.73
		41-50 Years	64	22.61
		Above 50 Years	3	1.06
3	Educational level	Grade 1-8	1	0.35
		Grade 9-12	3	1.06
		Diploma/ TVET	176	62.19
		Bachelor Degree	98	34.63
		Masters and above	5	1.77
4	Work experience	0-5 years	4	1.41
		6-10 years	30	10.60
		11-15 years	58	20.50
		16-20 years	177	62.54
		Above 20 years	14	4.95

Source: Own survey, 2024

As shown in the table-4, out of 283 participants who participated in the study, 91.52% were males and the remaining few participants covering 8.48% were females. This implies that female workers at MSF are too few relative to male workers.

In this study, Respondent who were with age 31-40 contributed the highest, i.e. 71.73% of the total. Respondents who were 18-25, 26-30 Years, 41-50 Years and Above 50 Years contributed 1.77, 2.83, 22.61 and 1.06 respectively. The result indicates most of the workers are young work force having a potential to perform the assigned task.

Regarding the educational level of the respondents, majority of them (62.19%) were diploma, 34.63% of them were bachelor degree, 1.77% of them were masters and 1.06% of the total respondents were from grade 9-12. The smallest contribution was recorded by respondents whose educational level is between grade 1 &8 (i.e. 0.35%)

In terms of work experience at the factory, respondents with experience between 16 &20 years contributed the highest (i.e.62.54%). Between 0 &5, 6&10, 11&15 and above 20 years contributed 1.41%, 10.60%, 20.50% and 4.95% respectively. This implies that most of the workers have enough experience to perform at the factory.

b. Participants perception towards kaizen

As it is known the highest important thing to practices kaizen effectively is to understand and the meaning and the importance of this management philosophy. Otherwise it is very difficult to implement and sustain well. Considering this the researcher assessed the perception of both the employee and managements at Metehara sugar factory on kaizen management philosophy using questionnaire. And the analysis is presented as follow.

Table-5 participant’s perception towards kaizen

Question#1	Response	Frequency	Percentage
To what extent do you know the meaning of kaizen?	Very good	98	34.63
	Good	122	43.10
	Moderate	57	20.14
	Poor	6	2.12

Source: Own survey, 2024

Based on the survey, it was found that, 43.10% of the respondents have good understanding about the meaning of kaizen, 34.63% of the respondents have very good understanding about the meaning of kaizen ,20.14% of the respondents replied that they understand 2.12% have poor understanding about the meaning of kaizen.

Table-6 participant’s perception towards kaizen

Question #2	Response	Frequency	Percentage
Do you believe that kaizen have positive impact on overall factory’s performance?	Yes	271	95.76
	No	12	4.24
	Total	283	100

Source: Own survey, 2024

Based on the survey, 95.76% of the respondents believe that kaizen has positive impact on factories performance. But, 4.24% of the respondents were not believe the importance of kaizen management. This implies that even if most of the respondents have positive perception towards kaizen, the management should work more on employee’s attitude.

Table-7 Employees and management perception towards kaizen

Question #3	Response	Frequency	Percentage
What is your view about kaizen?	It is a bulky work	57	20.1
	It is a system set to benefit managers	0	0
	It is difficult to understand	0	0
	It is a system useful to improve productivity	226	79.9
	Total	283	100

Source: own survey, 2024

According to the survey, most of the respondent (79.9%) believe that kaizen is a system which improve productivity. But, there are also few respondents (20.1) believed that kaizen is a bulky work/ so that the management should change this kinds of negative attitude through training.

c. Descriptive Statistics of the study

The researcher used mean to analyze the level of agreement of the respondents on each question presented in the questionnaire. The respondents had given choice to select as to be measured on five point Likert scale i.e. 1= strongly disagree, 2= disagree, 3 = neutral, 4= agree and 5= strongly agree.

Table-8 Interpretation of results for Likert scale data

S/N	Analyzed result	Interpretation
1.	4.20 - 5.00	Strongly Agree
2	3.40 - 4.19	Agree
3	2.60 - 3.39	Neutral
4	1.80 - 2.59	Disagree
5	1.00 - 1.79	Strongly disagree

Source: (Vichea, 2005)

I. Kaizen three pillars implementation

The respondents' perception about kaizen implementation practice at Metahara sugar factory was analyzed using the data collected based on the three pillars of kaizen namely, housekeeping (5S), Standardization and Waste Elimination.

Table-9 Respondents Perception about Kaizen implementation

S/N	Variable	Mean
Pillar-I 5S implementation		
1	Sorting status	4.13
2	Set in order status	4.05
3	Shining status	4.60
4	Standardization status	3.25
5	Sustaining status	3.21
Average mean		3.85

Pillar-II Standardization		
1	MSF has standard to perform any piece of work	3.15
2	There is a proper follow up mechanism to assure works are done according to standard	2.95
3	There is continues improvements on standards set by the company	3.03
Average mean		3.04
Pillar-III Waste elimination		
1	Waste due to over production reduced	4.43
2	Waste due to inventory level reduced	4.11
3	Waste due to waiting without work removed	4.37
4	Waste due to non-essential movement are reduced	4.54
5	Waste due to transportation waste are reduced	4.03
6	Waste due to defects are reduced	4.28
7	Waste due to extra Processing reduced	4.40
Average mean		4.31

Source: own survey, 2024

Regarding housekeeping, the results from the survey indicate that the average mean the five S, namely Sorting, Set in order, Shine, Standardize and Sustain are 4.13, 4.05, 4.60, 3.25 and 3.21. And the average mean of housekeeping was calculated 3.85. This implies that the respondents agree that housekeeping is implemented at MSF. Using checklist the researcher observed moderately arranged, cleaner and organized workplace. There necessary and unwanted materials are separated, most of the materials on shelf are clearly marked, most of the machinery are clean but some are observed with dust.

Regarding Standardization, the average mean was 3.04. This implies the respondents are neutral level. And the researcher observed that standards are posted on each boards available at the factory. But, the performance in implementing kaizen differ from department to department.

From the survey collected about waste elimination, the average mean is 4.31 this implies that the respondents strongly agree. Whereas, the researcher observed that in the company especially at the workshop some of the work material are not arranged properly that waste due to transportation of material.

II. Challenges of kaizen implementation

Table-10 Respondents Perception about challenges of Kaizen implementation

S/N	Variable	Mean
1	Due to lack of employee’s motivation	2.96
2	Due to lack of management support	3.65
3	Due to Poor training.	3.58
4	Due to lack of Skilled manpower/professional.	2.98
5	Due to lack of proper kaizen implementation measurement.	2.30
6	Due to insufficient Participation of employees in kaizen implementation.	2.54
7	Due to misunderstanding about kaizen	1.63
Average mean		2.81

From the survey, the respondent’s perception on identification of challenges for the implementation of kaizen at the factory, respondents agreed that lack of management support and poor training are with mean of 3.65 and 3.58 respectively. And respondents are neutral in response lack of employee’s motivation and skilled man power. But, respondents disagreed that lack of proper kaizen implementation measurement, insufficient participation of employees in kaizen implementation and misunderstanding about kaizen are challenges of kaizen implementation.

III. Contribution of kaizen

Table-11 Respondents Perception about Kaizen implementation

S/N	Description	Mean
1	Strategic objectives was attend due to implementation of kaizen	3.87
2	The work efficiency of the factory was increased	4.66
3	Cost of production decreased	4.04
4	Defects of raw material decreased	4.23
5	Costs related to acquisition of machineries	4.50
6	Labor productivity boosted	4.45
7	Occupational safety increased highly	4.32
8	Participation of employees' has increased	3.75
9	Kaizen implementation increased employees' moral and motivation	4.33
Average mean		4.24

The result showed that, the respondents highly agreed that, implementation of kaizen helped the factory to increase the efficiency in the work place (mean, 4.66), to reduce defect of raw materials used for production (mean, 4.23) , costs related to acquisition of machineries are reduced due to Maintenance of machines and reused (mean, 4.50) , time wastage related to searching tools is reduced hence labor productivity is increased (mean, 4.45) , employee's occupational safety Increased and clean work environment created (mean, 4.32) and employees work motivation increased after kaizen implementation (mean, 4.33) . And agreed that, factory has reduced costs by reducing processing time to produce its products (mean, 4.32), implementation of kaizen helped the factory to achieve its strategic objectives (mean, 3.87), they agree employee's participation in continuous improvement increased (mean, 3.75) and employees work motivation increased after kaizen implementation (mean, 3.75)

CHAPTER FIVE

5. SUMMARY, CONCLUSION ANDRECOMMENDATIONS

This chapter presents the summary, conclusions and recommendations of the study. Accordingly, the first section summarizes the main findings. The second part presents the conclusions. The final section presents potential recommendations that the researcher believes could be necessary for the factory and any other beneficiaries.

5.1 Summary of major findings

In this chapter summary of the major findings, conclusion and recommendations, limitation of the study and implication for the future study are addressed.

Regarding the contribution of kaizen, the factory is benefited by implementing kaizen in terms of both in terms of both financial and non-financial aspects like improving efficiency, increasing work employees' motivation, increased safety and occupational health and others.

In this research it is found that, Metehara sugar factory practiced kaizen philosophy good way. By analyzing the survey, the result should that the housekeeping and standardization were good but waste elimination was not sufficient there.

Regarding challenges for the implementation of kaizen at the factory, it was found that that lack of management support and poor training are the main challenges. And lack of employee's motivation and skilled man power are also somehow challenging the factory to implement kaizen.

Lastly, even if most of the workers had perceived kaizen positively there are also workers who had perceived negatively.

5.2 Conclusion

According to the findings of the study, the researcher concluded that kaizen implementation in Metehara sugar factory is in a good level, but there is a gap in implementation of 5S, especially in waste elimination and somehow in implementation of standards. Even if , Metehara sugar factory had benefited with implementation of kaizen, which enabled to improve financial and non-

financial performance in different aspects. But, it failed to bring about a change in the reduction of transport costs due to gap in implementation of kaizen

Regarding challenges faced the factory to implement kaizen, the researcher concluded that lack of management support and lack of training are the main challenges in the implementation of kaizen management in the factory.

5.3 Recommendations

Since the factory has been implementing Kaizen for many years, it cannot be said that it has achieved the expected results from Kaizen implementation. Therefore, the management is required to be active and support the implementation of Kaizen. The management is expected to do its part to identify weaknesses and correct them based on a regular checklist-based performance evaluation. In addition, it is important to encourage mutual learning and knowledge transfer to narrow the performance gap between teams.

A negative attitude towards Kaizen noticed by a few employees, if it cannot be corrected and changed through training, it will cause a challenge to the effectiveness of Kaizen, so it needs careful monitoring.

5.4 Implications for the Future Research

Kaizen has been successful in Japan and other countries especially, in the manufacturing sector. Where as in our country even if it was implemented it seems not on it way as Japanese do. So, that future researchers should study the effectiveness of Kaizen in the manufacturing sector in Ethiopia.

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ANNEX

Addis Ababa University

School of graduate studies

(A) QUESTIONNAIRES

Dear respondents,

This questionnaire is intended to gather information about the practices and challenges of Kaizen implementation in Metehara sugar factory. The information you provide by completing these questionnaires will be used as primary data in the research being conducted to complete the Master's Degree in Business leadership at the Graduate School of Addis Ababa University. The information collected will be used only for educational research and will not be transferred to any other party and will be kept confidential. Therefore, you are asked to fill it freely and without fear. Lastly, I would like to express my deep appreciation for your interest in filling out the questionnaire

Atrsaw Sahlu

Thank you in advance!

Part- I: Personal Information

N.B: Please circle the letter of your choice

1. **Sex :** A) Male B) Female
2. **Age:** A) 18-25 yrs. B) 26-30 yrs. C) 31-40 yrs. D) 41-50 yrs. E) Greater than 50 yrs.
3. **Education:** A) Grade 1-8 B) Grade 9-12 C) Diploma D) Degree E) Masters and above
4. **Your experience in the factory:**
 A) 1-3 years B) 4-6 years C) 7-9years ears above D) 12 years E) Above12

Part- II Kaizen three pillars implementation

Please select your level of perception for every issue stated in the following tables bellow.

Mark 1. Strongly disagree 2.Disagree 3.Neutral 4.Agree 5.Strongly agree

S/N	Description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5S implementation						
1.	Metehara sugar factory properly eliminate unnecessary items from the workplace that are not needed for current production operations					
2.	In Metehara sugar factory all products, equipment, and tool are properly organized					
3.	In Metehara sugar factory all products, equipment, tools and work environment properly cleaned.					
4.	5S working standards is implemented within Metehara sugar factory					
5.	Metehara sugar factory efforts for sustaining 5S within the factory.					
Standardization						
6.	Metehara sugar factory has standard to perform any piece of work.					

7.	There is a proper follow up mechanism to assure works are done according to standard					
8.	There is continues improvements on standards set by the company					
Waste elimination						
9.	Waste due to over production reduced					
10.	Waste due to inventory level reduced					
11.	Waste due to waiting without work removed					
12.	Waste due to non-essential movement are reduced					
13.	Waste due to transportation waste are reduced					
14.	Waste due to defects are reduced					
15.	Waste due to extra Processing reduced					

Part– III Contribution of kaizen in the factory

Please select your level of perception for each given question stated in the following tables bellow.

1. Strongly disagree 2.Disagree 3.Neutral 4.Agree 5.Strongly agree

S/N	Description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Strategic objectives was attend due to implementation of kaizen					
2.	The work efficiency of the factory was increased					
3.	Cost of production decreased					
4.	Defects of raw material decreased					

5.	Costs related to acquisition of machineries					
6.	Labor productivity boosted					
7.	Occupational safety increased highly					
8.	Participation of employees' has increased					
9.	Kaizen implementation increased employees' moral and motivation					

Part – IV respondents' perception towards kaizen

N.B: Please circle the letter of your choice

1. How much do you understand kaizen?

A) Very good B) Good C) Moderate D) Poor

2. Do you believe that kaizen has a positive effect on the factory's performance?

A) Yes B) No

3. What is your view about kaizen?

A) It is a bulky work

B) It is a system set to benefit managers

C) It is difficult to understand

D) It is a system useful to improve productivity

Part- V Challenges during implementation of Kaizen.

Please select your level of perception for each given statement stated in the following tables bellow.

1. Strongly disagree 2.Disagree 3.Neutral 4.Agree 5.Strongly agree

S/N	Description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Due to lack of employee's motivation		.			
2.	Due to lack of management support					
3.	Due to Poor training.					
4.	Due to lack of Skilled manpower professional.					
5.	Due to lack of proper kaizen implementation measurement.					
6.	Due to insufficient Participation of employees in kaizen implementation.					
7	Due to misunderstanding about kaizen					

Do you have any suggestions please?

Thank you for your participation!

(B) CHECK LIST FOR OBSERVATION

1. Is the workplace of the factory clean and well organized?

- Is there cleaning schedule
- Is there enough cleaning material?

2. Is the floor of the factory and the workshop is safe?

3. Are workers motivated enough?

Are there working energetic?

4. Is there any rework?

Do they manage waste well?

5. Is work delays observed or not?

Is the work flow clearly described?

6. Is there any unnecessary material seen at the factory?

7. Is the team sprit good?